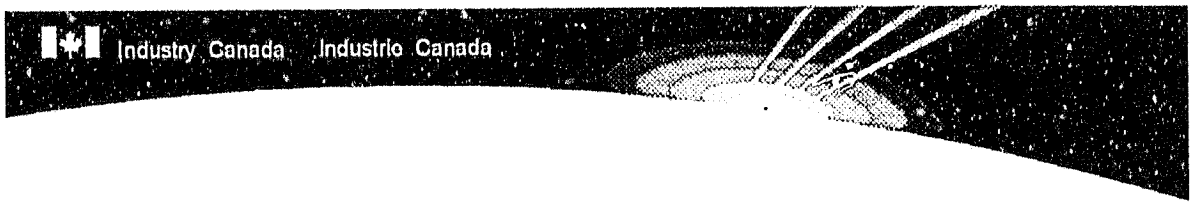

Follow-up Audit of Industry Canada's Year 2000 Readiness

As of September 30, 1999

Canada

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Executive Summary

Background

The Audit and Evaluation Branch (AEB) led an audit of Industry Canada's Year 2000 readiness in early 1999 to provide assurance to senior management that Industry Canada had taken all possible measures to be Year 2000 ready. The audit report dated March 1, 1999 concluded that Industry Canada was well advanced in its Year 2000 preparations and made several recommendations to enhance the state of readiness. This audit is a follow-up to the March 1, 1999 audit.

Findings & Recommendations

Industry Canada has virtually completed the readiness phase of the Year 2000 Project. Currently, it is working on the validation phase of the business continuity plans (BCP) which was scheduled for completion October 15, 1999.

A summary of the findings related to each of the three audit objectives of this audit follows:

Objective 1: Follow-up on all outstanding items reported as of the March 1, 1999 report.

All outstanding items reported in the March 1, 1999 Audit Report have been addressed. As a result of observations noted during this follow-up audit, the following recommendations are made to enhance Y2K readiness:

1. As reported in the Business Continuity Plan Metho lology Audit report dated October 4, 1999, the Year 2000 (Y2K) Project Office should implement procedures to ensure responsible managers monitor their significant vendor compliance statements. This will ensure that there are no changes to compliance statements that could adversely affect the state of Year 2000 readiness (refer to 2.2.2.).

2. The approval process of Industry Canada compliance statements should be clarified. All responsible managers should be informed on how to deal with the preparation, approval and issuance of compliance statements. We recommend that Legal Services review compliance statements (refer to 2.2.3).

3. IT Infrastructure: Wide Area Network technical staff should verify the compliance of the Domain Name System (DNS) provided by Government Telecommunications and Informatics Services (GTIS) and update the compliance documentation accordingly. Compliance of the DNS provided by GTIS needs to be revisited and the documentation updated to reflect the current status (refer to 2.2.6.1.).

4. Due diligence requirements necessitate documentation for major decisions taken for any application.

   Compliance documents should be updated to reflect the status of the Electronic Business Environment (EBE) to Strategis interface and to support the decision to test a limited number of dates (refer to 2.2.6.3.).

   The reasons for deciding not to test all the mandatory dates also needs to be added to the compliance file for the IT Infrastructure: Wide Area Network (WAN) (refer to 2.2.6.1.) and the Spectrum Management System (SMS) (refer to 2.4.2.).

5. The Y2K Project Office should follow-up on the outstanding sign-off memo from the Integrated Financial and Materiel System (IFMS) Project Manager (refer to 2.2.6.4.).

Objective 2: Audit the internal dependencies and external interfaces list to evaluate progress and status.

Internal dependencies have been identified, evaluated and the information on common dependencies has been shared across the department as appropriate. This work is now completed (refer to 2.3.1.).

The assessment of external interfaces is nearly complete. Of the 20 external interfaces identified, four need to complete test results and report these to the Y2K Project Office (refer to 2.3.1.4.).

Objective 3: Perform a detailed audit of two critical systems, two high impact, small-scale applications, two branches and one region using the procedures defined during the March 1, 1999 audit.

This audit confirmed that readiness procedures have been followed for the sample selected except for outstanding items that require completion under the following recommendations:

6. The Strategis Y2K manager should provide appropriate documentation to the Y2K Project Office upon completion of the decision as to which CD-ROMs of its library collection should be supported (refer to 2.4.1.).

7. The Y2K Project Office should follow-up with Spectrum Management staff to obtain a Year 2000 compliance letter for the external interface with the Toronto Dominion Bank (refer to 2.4.2.).

8. Y2K Project Office should follow-up with the First Nations SchoolNet project to ensure all the outstanding readiness issues are addressed and a complete Year 2000 documentation package is submitted to the Project Office for quality assurance audit. (refer to 2.4.3.).

1.0 INTRODUCTION

1.1 Background

The Audit and Evaluation Branch (AEB) led an audit of Industry Canada's Year 2000 readiness in early 1999 in order to provide assurance to senior management that Industry Canada had taken all possible measures to be Year 2000 ready.

As observed in the March 1, 1999 audit report, a management control framework was in place to manage the Year 2000 project in the Department, monitor departmental readiness and report the status to senior management on a monthly basis. Each of the 41 departmental critical systems was rated to show the progress toward Year 2000 readiness by the targeted date of December 31, 1998. In addition, high impact, small-scale applications were identified and assessed for impact in the last quarter of 1998-1999 and the first quarter of 1999-2000.

By the deadline of December 31, 1998, each branch head was asked to sign-off on Year 2000 readiness by answering 56 pertinent questions based on the Industry Canada Compliance Kit. These answers had to be supported by summary sheets sent to the Y2K Project Office and detailed supporting documentation retained in branch files.

Not all critical systems, branches and regions were signed-off by the deadline of December 31, 1998. The March 1, 1999 audit identified that more work was required to demonstrate readiness, due diligence in preparing for Year 2000, and that the Y2K Project Office planned to assess risks for systems with internal dependencies and/or external interfaces.

This audit is a follow-up to the March 1, 1999 audit.

1.2 Objectives

In September, 1999, the Audit and Evaluation Branch conducted a follow-up of the March 1, 1999 audit on Industry Canada's Year 2000 readiness to provide further assurance to senior management that Industry Canada has taken all possible measures to be Year 2000 ready. The objectives of the follow-up audit were to:

- follow-up on all outstanding items reported as of the March 1, 1999 report;
- audit the internal dependencies and external interfaces list to evaluate progress and status; and
- perform a detailed audit of two critical systems, two high impact, small-scale applications, two branches and one region using the procedures defined during the March 1, 1999 audit.

1.3 Approach

In order to address the objectives identified, interviews were completed and key documents examined.

Interviews were conducted with the Year 2000 Project Office team and, as needed, with managers responsible for major systems or groups of systems.

The following key documents were examined:

- The March 1, 1999 audit report of Industry Canada's Year 2000 Readiness
- Industry Canada Report Card (from Treasury Board Secretariat): July 1999
- Industry Canada Year 2000 Status spreadsheet
- Year 2000 Status of Critical Systems (as of Jan. 14, 1999)
- High impact, small-scale applications Inventory
- E-mail regarding legal audit of Industry Canada compliance statements
- Summary of the status of scientific equipment within Industry Canada
- Report on Industry Canada office equipment
- Industry Canada Year 2000 Workshop
- Industry Canada Year 2000 Issues and "Tasks to Do" list
- Year 2000-BCP Steering Committee Meeting - Agenda
- Year 2000 Contingency Plan Template for Critical Systems
- Year 2000-BCP for Newly Upgraded Automated Name Search System (NUANS)
- Year 2000-BCP for Incorporation, Disclosure and Related Services
- Continuity Planning Template for Critical Business Functions
- Year 2000-Business Continuity Plan Workshop - Handouts
- Frequently Asked Questions for BCP & Critical System Contingency Planning
- Year 2000 Quality Assurance "package" to the Year 2000 Project Office that represented the IT Infrastructure (Wide Area Networks), Newly Upgraded Automated Name Search System (NUANS), Electronic Business Environment (EBE), Integrated Financial and Materiel System (IFMS), Strategis, Spectrum Management System (SMS), COMPASS, Comptroller Branch, Corporations Branch, and the Quebec Region.

2.0 FINDINGS

2.1 Introduction

The Year 2000 Project Office has completed its quality assurance audit of the 41 critical systems and has almost completed a similar but less detailed audit of 69 high impact, small-scale applications. As a result of the Year 2000 contingency and business resumption planning exercises, the number of critical systems and high impact, small-scale applications has been reduced to 39 and 50, respectively.

2.2 Objective 1: Follow-up on all outstanding items reported as of the March 1, 1999 report.

Summary of Findings

All outstanding items reported in the March 1999 Audit Report have been addressed. As a result of observations noted during this follow-up audit, recommendations are made to enhance Y2K readiness.

The status, findings and recommendations for each of the seven recommendations made in the March 1, 1999 audit report follow.

2.2.1 March 1, 1999 Audit Report Recommendation #1

"Ensure systems identified as high impact, small-scale applications are managed and monitored like critical systems."

High impact, small-scale applications are being managed and monitored using the same process as critical applications. A less stringent set of criteria is being used to test the applications which is acceptable due to a lower level of risk of these applications.

Issues identified by the Y2K 2000 Project Office are documented, monitored and followed-up on a periodic basis.

2.2.2. March 1, 1999 Audit Report Recommendation #2

"The 2000 Project Office continues the functions of quality assurance and monitoring until all areas are signed off as Year 2000 ready. This will ensure key steps are completed to support Year 2000 readiness for all critical systems; high impact, small-scale applications; branches and regions that have not signed-off at December 31, 1998."

The auditors conclude that the quality assurance and monitoring processes continue to function. This was determined as a result of auditing the documentation for the four critical systems that were not signed-off at the time of the audit in early 1999 and discussions with the Y2K Project Office team. These four critical systems are: IT Infrastructure - Wide Area Network, Newly Updated Automated Network Search System, Electronic Business Environment, and Integrated Financial and Materiel System.

Monitoring of significant vendors needs to continue to ensure that there are no changes to compliance statements that could adversely affect the state of Year 2000 readiness. Examples are recorded where vendors have recently backtracked on their compliance statements. As a result, the Y2K Project Office has sent out an e-mail to all Year 2000 coordinators within the Department to revisit the compliance statements previously received. There is no process in place to track whether branches are monitoring the status of vendor compliance statements.

Recommendation 1 *(current report)*

As reported in the Business Continuity Plan Methodology Audit report dated October 4, 1999, the Y2K Project Office should implement procedures to ensure responsible managers monitor their significant vendor compliance statements. This will ensure that there are no changes to compliance statements which could adversely affect the state of Year 2000 readiness.

2.2.3 March 1, 1999 Audit Report Recommendation #3

"Public statements of Year 2000 readiness be reviewed by Legal Services to minimize potential exposure to liability."

Potential liability of Y2K readiness statements was found during the previous audit as a result of a Y2K certification statement made on an Industry Canada website. Legal Services was asked to review the statement in terms of liability to the Department and they agreed. They subsequently approved the statement.

To date there has not been any communication sent out to branches to direct them to get approval from Legal Services before putting certification statements on their web sites and other documents.

The Y2K Project Office maintains that requests for Y2K certification statements is the responsibility of the sector as they are responsible for communications with their clients. The sector's legal services representative(s) would then be responsible for approving any certification statements.

Recommendation 2 *(current report)*

The approval process of Industry Canada compliance statements should be clarified. All responsible managers should be informed on how to deal with the preparation, approval and issuance of compliance statements. We recommend that Legal Services review compliance statements.

2.2.4. March 1, 1999 Audit Report Recommendation # 4

"Document and carry out plans to follow-up assumptions and internal dependent components for each business function. This should include considering cross-referencing assumptions and internal dependencies for each business function."

As a result of the cross-reference check completed by the Y2K Project Office and our audit work, we feel that no critical applications or high impact, small-scale applications listed as dependencies of critical business functions had been overlooked.

2.2.5. March 1, 1999 Audit Report Recommendation # 5

"Continue with plans to assess the risks involved with external interfaces for the high impact, small-scale applications."

Since the Y2K Project Office did not distinguish between external interfaces for high impact, small-scale applications and other assets, we are reporting our findings of the follow-up of this recommendation in section 2.3, under objective 2, "Review of the internal dependencies and external interfaces list to evaluate progress and status."

2.2.6 March 1, 1999 Audit Report Recommendation # 6

"Continue to assess the completeness of testing conducted for all areas not signed off at December 31, 1998."

We reviewed the documents provided with the March 1, 1999 audit and compliance documents provided to the Y2K Project Office for the four critical applications not signed-off as at December 31, 1998. These critical applications are:

- IT Infrastructure: Wide Area Network (WAN)
- Newly Updated Automated Name Search System (NUANS)
- Electronic Business Environment (EBE)
- Integrated Financial and Materiel System (IFMS)

A summary of the findings for each follows.

2.2.6.1. IT Infrastructure: Wide Area Network (WAN)

Although identified as a critical system, testing did not include all the mandatory dates as identified in the Year 2000 Compliance kit. There is no documentation to support the decision to test fewer mandatory test dates. From a due diligence perspective, documentation should be placed on file supporting the rationale for not testing all the mandatory dates.

The WAN was signed off as compliant, but documentation provided indicates that the Domain Name System (DNS), provided by GTIS, has not been certified Year 2000 Compliant.

Recommendation 3 *(current report)*

IT Infrastructure: Wide Area Network technical staff should verify the compliance of the Domain Name System (DNS) provided by Government Telecommunications and Informatics Services (GTIS) and update the compliance documentation accordingly. Compliance of the DNS provided by GTIS needs to be revisited and the documentation updated to reflect the current status.

Refer to recommendation 4, Section 2.2.6.3, for missing documents regarding due diligence requirements.

2.2.6.2 Newly Updated Automated Network Search System (NUANS)

Some of the mandatory Year 2000 test dates were not used during the application testing, but documents to support this decision have been added to the compliance file.

2.2.6.3 Electronic Business Environment (EBE)

The compliance documentation identified an interface from EBE to Strategis as non-compliant. Since both EBE and Strategis have been completed and signed-off, the documentation identifying the EBE to Strategis interface should be updated to reflect compliance.

Some of the mandatory Year 2000 test dates were not tested as it was decided that it was not necessary because of other certifications.

Recommendation 4 *(current report)*

Due diligence requirements necessitate documentation for major decisions taken for any application.

Compliance documents should be updated to reflect the status of the Electronic Business Environment (EBE) to Strategis interface and to support the decision to test a limited number of dates.

The reasons for deciding not to test all the mandatory dates also need to be added to the compliance file for the IT Infrastructure: Wide Area Network (WAN) (refer to 2.2.6.1.) and the Spectrum Management System (SMS) (refer to 2.4.2.).

2.2.6.4. Integrated Financial and Materiel System (IFMS)

There was no Director General sign-off memo for the compliance documentation for this system.

***Recommendation 5** (current report)*

The Year 2000 Project Office should follow-up on the outstanding sign-off memo from the Integrated Financial and Materiel System (IFMS) Project manager.

2.2.7 March 1, 1999 Audit Report Recommendation # 7

"Continue to monitor and participate in efforts to develop contingency plans for individual business functions to ensure that plans are well developed to match the varying impact of failure. In addition, contingency plans must address all components used to deliver the function, e.g., hardware, applications, external interfaces, internal dependencies, and infrastructure. Contingency plans should be tested and staff trained to ensure the plans are efficiently executed when needed."

This recommendation is well addressed since the Corporate Secretary initiated the Business Continuity Planning (BCP) process within Industry Canada. Templates were created to help branches prepare their Business Continuity Plans for both critical systems as well as their critical business functions. Currently, work is being completed on the validation phase of the business continuity plans. These were scheduled for completion October 15, 1999.

The status of BCP's is being reported on a monthly basis to the Y2K BCP Steering Group using a color coded status spreadsheet similar to the format used for reporting the status of critical systems.

The Audit and Evaluation Branch has completed and reported the results of phase one of the BCP methodology audit.

2.3 Objective 2: Audit the internal dependencies and external interfaces list to evaluate progress and status.

Summary of Findings

Internal dependencies have been identified, evaluated and the information on common dependencies has been shared across the department as appropriate. This work is now completed.

The assessment of external interfaces is nearly complete. Of the 20 external interfaces identified, four need to complete test results and report these to the Y2K Project Office.

2.3.1. Internal Dependencies

To evaluate the progress and status of the internal dependencies, we examined the quality assurance process and the work completed for common and supplier dependencies as described below.

2.3.1.1. Quality Assurance

The Year 2000 Project Office maintains a working list of summary information on critical systems as well as a working list of high impact, small-scale applications. The list of critical systems identifies several categories of processing dependencies, including platform type, database type and includes comments on compliance actions required and the sign-off status. The list of high impact, small-scale applications identifies the use of date fields, the Year 2000 risk category of the application, and includes comments regarding the testing and certification of the application.

The Year 2000 Project Office also maintains a working list of external interfaces which is kept independently of other lists.

Project Office information on internal dependencies and external interfaces was received from answers to the Year 2000 Compliance Kit of the 56 questions on the "Purpose/Functionality of the Asset".

2.3.1.2. Common Dependencies

The Y2K Project Office has provided support to the Department in confirming the readiness of common dependencies. Toward this effort, system owners have been directed, both verbally and in writing, to document their assumptions about the Year 2000 readiness of common dependencies such as the Industry Canada IT infrastructure (e.g., LAN, WAN, e-mail).

Based on the documentation of common dependencies and the resources available from the Project Office, a decision was made to support the Department with regard to three areas of Year 2000 dependencies: common office equipment, common scientific equipment, and software.

The Year 2000 Project Office has prepared a spreadsheet listing of common Year 2000 compliant office equipment. The listing has been made available throughout the Department.

The Year 2000 Project Office has also prepared a spreadsheet listing of common Year 2000 compliant scientific equipment. The listing has been circulated through the Department.

The Project Office made a decision not to compile a list of common software. Due to the effort that would have been involved to provide this level of support (i.e., the Project Office currently has a staff of two people), a decision was made that the branches would have to undertake and coordinate their own efforts. The Year 2000 Project Office facilitated the work.

2.3.1.3. Supplier Dependencies

Part of the Business Continuity Planning (BCP) instructions stressed the importance of confirming the readiness of key suppliers and dependencies for business continuity purposes. Verbal instructions were given that preparation and effort depended on: the level of importance of that source in the continuity of the business function; supplier or dependency failing; and control over that source.

The Project Office team will provide ongoing advice and guidance to Branches regarding the extent of effort deemed adequate to verify and document the readiness of key suppliers and dependencies.

2.3.1.4. External interfaces

The assessment of external interfaces is nearly complete. Of the 20 external interfaces identified, four need to complete test results and report these to the Y2K Project Office.

An "external interface" is considered to be a direct transfer of data between any application in Industry Canada (i.e., critical or high impact, small-scale) and an external organization. System

interfaces that occur within the Department, or those that are not direct application to application exchanges are removed from the external interface list. Only external interfaces are being monitored and assessed by the Y2K Project Office.

The Y2K Project Office has implemented a three stage process for assessing the risks associated with external interfaces. This is as follows:

- ensure the application/system owner has completed the 56 question Year 2000 survey;
- examine the Year 2000 compliance and testing package prepared for the Year 2000 Project Office; and
- conduct follow-up interviews with responsible managers and staff to assess the risks and risk mitigation for each external interface.

2.4 Objective 3: Perform a detailed audit of two critical systems, two high impact, small-scale applications, two branches and one region using the procedures defined during the March 1, 1999 audit.

The samples selected are as shown below.

The two critical systems selected were:
- Strategis
- Spectrum Management System

The two high impact, small-scale applications were:
- First Nations SchoolNet
- COMPASS

In addition, the Corporations and Comptroller's branches and the Quebec Region were selected.

For each sample selected, the findings of the audit are shown below.

2.4.1. Strategis

Strategis is an internet site accessible to the public through the World Wide Web. The mission of Strategis is to provide Canadians with on-line access to consumer and business information resources.

We examined the documents provided to the Y2K Project Office and discussed the information with Y2K Project Office. No significant issues were identified as a result of the audit. From a due diligence perspective, a few areas require more formal documentation.

The documents showed that the library collection of CD-ROMS (100 CDs) will either be retired or replaced with WEB products by January 31, 1999. This has not been accomplished to date. After discussions with the Y2K 2000 Project Office, the auditors were informed that it was decided to eliminate all but one CD.

Recommendation 6 *(current report)*

The Strategis Y2K manager should provide appropriate documentation to the Y2K Project Office upon completion of the decision as to which CD-ROMs of its library collection should be supported.

2.4.2. Spectrum Management System (SMS)

Spectrum Management System is a collection of applications needed to regulate and administer all telecommunications frequencies in Canada.

The auditors examined the documents provided to the Y2K Project Office and discussed the information with the Y2K Project Office. No significant issues were identified as a result of the audit.

From a due diligence perspective, a few items require formal documentation. Testing of Strategis did not cover all the mandatory dates as identified in the Year 2000 Compliance kit. Reasons to support the decision for not testing all dates was provided for some dates but not all. This missing information needs to be added to the file.

At the time of this report, three external interfaces were still non-compliant because the groups receiving the SMS extract files had not completed their Year 2000 conversion to be able to accept a file with a four digit year. For the interface to the International Telecommunications Union (ITU), the documents showed that there will not be any conversion completed before January 2000. Dates will not be a problem since the file does not contain historic dates. The same situation applies with the interface to the US Spectrum Management agencies. The interface to the Toronto Dominion (TD) bank has been made compliant, but TD will not be testing the file to ensure compliance. SMS staff have asked for a letter from TD confirming the Year 2000 compliance, but a response has not yet been provided.

Recommendation 7 *(current report)*

The Y2K Project Office should follow-up with Spectrum Management staff to obtain a Year 2000 compliance letter for the external interface with the Toronto Dominion Bank.

Refer to recommendation 4, Section 2.2.6.3, for missing documents regarding due diligence requirements.

2.4.3 First Nations SchoolNet

First Nations SchoolNet is an Industry Canada initiative to connect all schools and libraries to the Information Highway. First Nations SchoolNet is helping to connect all First Nations schools under federal jurisdiction to the Internet through DirecPC satellite technology.

The auditors examined the documents provided to the Y2K Project Office and discussed the information with the Y2K Project Office. This application has not been signed-off and has outstanding tasks to complete as follows:

- There has been no Year 2000 CIO compliance package (Compliance Strategy Report, Test Summary Report, Director General Sign-off Memo) provided to the Year 2000 Project Office.
- The only documents provided to the Year 2000 Project Office are monthly status reports for First Nations SchoolNet that list outstanding tasks and compliance letters that have been received for the satellite equipment. The Project Office believes that this application is under control, but will be following up on the replacement and/or upgrading of the workstations as well as obtaining the package of required documentation.

The current status of First Nations SchoolNet is presented by major component as follows:

2.4.3.1. Satellite Hardware

First Nations SchoolNet staff have received a Year 2000 compliance letter stating that the satellite hardware is compliant. Due to the complexity of the hardware, and the difficulty of setting up a test environment, First Nations SchoolNet staff will not be testing this component of the system.

2.4.3.2. Communications software

First Nations SchoolNet uses off-the-shelf software packages to communicate through the satellite. First Nations SchoolNet staff will be looking at vendor compliance statements as well as performing testing of the software.

2.4.3.3. Workstations

Many of the workstations that are being used on the various remote sites failed Industry Canada's Year 2000 compliance test using NSTL's YMARK2000.EXE test utility. In almost all cases, the failure was the inability of the workstation's BIOS to roll over the century date from "19" to "20". A simple fix is available. For the workstations to function normally on 04 January, 2000, returning students will be instructed to set the system date to the correct date of 04 January, 2000. In addition, project staff plans to offer schools an upgrade program by reimbursing up to $500 towards upgrading or replacing non-compliant workstations. If a replacement is warranted, the schools will be able to use the VolNet Standing Offer for a substantial discount.

Recommendation 8 *(current report)*

Y2K Project Office should follow-up with the First Nations SchoolNet project to ensure all the outstanding readiness issues are addressed and a complete Year 2000 documentation package is submitted to the Project Office for quality assurance audit.

2.4.4. COMPASS

COMPASS records and reports on Competition Bureau client calls (consultation, training, or service requests). In addition, it contributes to the information requirements for branch and executive Management reports. No significant issues were identified as a result of the audit.

The auditors examined the documents provided to the Y2K Project Office and discussed the information with the Y2K Project Office. The documentation provided to the Year 2000 Project Office was created before formal quality assurance guidelines were developed and does not meet those guidelines. Nevertheless, the information contained in the documentation is sufficient to satisfy Year 2000 compliance requirements from a due diligence perspective.

2.4.5. Comptroller's Branch - Corporations Branch - Quebec Region

No significant issues were identified as a result of the audit.

The audit of the two branches and the Quebec Region (excluding critical systems and small scale, high-impact applications) consisted of examining all the documentation provided to the Y2K Project Office and meeting with the Y2K 2000 Project Office to clarify information.