3.

YEAR 2000 UPDATE

BACKGROUND

What is the Year 2000 issue all about?

3.1   The approaching change of century brings with it a potential realization of significant risks for computers and equipment or devices containing microchips. A great deal has already been written and reported about the Year 2000 and its possible worldwide impact. In summary, the risks are characterized by the manner in which dates had been captured allowing only two digits for the year (i.e., 1999 would typically have been recorded and stored as 99). When the century changes to the year 2000, under the old format the year would be recorded as 00. Computers and/or microchips may then interpret this to be the year 1900 or some other system base year. As a result, computations or processes dependent on dates may be performed incorrectly or not at all.

3.2   Year 2000 is not just an information technology (IT) problem. It has long been recognized as a business problem which may have an impact on many facets of an organization's operations and the dependencies among and between business partners. Even where an organization can achieve its own Year 2000 compliance, it still needs assurance that its business partners will do so as well. Therefore, there will always be risks that are external to an organization and beyond its control.

How well has the world been progressing during 1999?

3.3   In August 1999, GartnerGroup, an independent research firm, released its "*Year 2000 World Status, 2Q99: The Final Countdown*". In that report, it commented

> "*In the comparatively brief period between our 4Q98 survey and this one, the basic self-reporting survey material shows an unprecedented level of progress. Many countries and industry sectors appear to show a level of progress in three months that it took others a year or more to achieve. However, when self-reporting is compared to other data sources, the reason for this apparent progress seems clear: the level of self-reporting bias has escalated to the point at which self-reporting has become less reliable. The effect is particularly noticeable in the developing world, where GartnerGroup analysts have become aware through many other sources of the sudden engagement of governments and trade associations that have realized that developed trading partners are likely to scale back operations where there was seen to be little willingness to tackle the problem.*"

3.4   That being said, it is also important to note that GartnerGroup surveys over the past few years have consistently shown Canada among the leading countries in the world in relation to Year 2000 preparedness.

3.5   A representative of the U. S. Central Intelligence Agency (CIA) in an appearance before the Special Senate Committee on the Year 2000 Technology Problem in October 1999 stated the following in relation to foreign preparedness:

> "*Russia, Ukraine, China and Indonesia are among the countries most likely to experience significant Y2K-related failures. Countries in Western Europe are generally better prepared, although we see the chance of some significant failures in countries such as Italy. Major economic powers such as Germany and Japan are making great strides in Y2K remediation, but their late start and the magnitude of the effort suggest that even these*

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countries are at risk of some failures. Canada, the UK, Australia, Singapore and Hong Kong are very well prepared and have a lower chance of experiencing any significant Y2K failures."

3.6   In March 1999 Statistics Canada released the results of a cross-Canada survey comprising more than 10,000 organizations. The survey, conducted in February and March 1999, indicated that

"*Completion of Year 2000 preparations was expected to continue until late in the year for some organizations.*

Many organizations appeared to be targeting June or September for completing various phases of their Year 2000 projects. As a result, some 23% of large organizations said they would not complete all Year 2000 preparations required to ensure the continued delivery of products and services until after September. This compared to 20% for small organizations and 18% for medium.

Similar results were observed across all industrial sectors. The only exception is the health sector, where 49% of large hospitals said they would not complete their preparations until sometime during the last quarter of this year.

Some providers of municipal services were also leaving Y2K-related work until late in the Year. Among large municipalities, some 34% of police, 9% of ambulance, 22% of fire, 17% of water and 17% of sewage services said they would not finish critical preparations until after September."

RESULTS IN BRIEF

3.7   The following are our principal observations based upon information available to us up to the end of October 1999.

- ■   In the past year, the government has reported significant progress in dealing with the Year 2000 issue in terms of both remediation efforts as well as the provision of Business Continuity Plans for essential and mission critical services.

- ■   Many lessons have been learned, tools developed and management and technical skills acquired and enhanced. It would be appropriate to take the opportunity to review, identify and share the many and varied experiences (positive and negative) encountered during the efforts. In that light we strongly suggest that the government consider conducting a post-implementation review of its Year 2000 efforts both at the corporate and departmental levels.

SCOPE OF REVIEW

3.8   The objective was to review and update the general status information related to the preparedness of the Nova Scotia government in its plans and actions to deal with the Year 2000 issue. We did not perform an audit and consequently cannot provide assurance as to the preparedness of the government.

3.9   Since the tabling of our 1998 Report in early January 1999, we have continued to monitor the government's progress in its preparations for Year 2000. The nature and extent of our review comprised the following activities:

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■   We monitored the departmental status reports detailed on the Province's Year 2000 web site and updated monthly.

■   We met with management of the central Year 2000 Project Office to discuss status and issues.

■   We participated in an advisory capacity on the Provincial Internal Audit Committee's (PIAC) Year 2000 Sub-Committee. This sub-committee was established to gather information and formulate a common audit strategy for internal auditors to use in reviewing and assessing departmental Year 2000 projects.

■   We reviewed the reports of the internal auditors to the extent that they were performed and the results provided to us.

■   We reviewed the minutes of the Year 2000 Working Committee, comprising members of the Year 2000 Project Office as well as the departmental Year 2000 Coordinators.

■   We continued to monitor and research other sources of information related to Year 2000 including review of:

    –   other legislative auditors' reports dealing with the Year 2000 issue; and

    –   independent published surveys such as GartnerGroup and Statistics Canada.

PRINCIPAL OBSERVATIONS

Has the Nova Scotia government made sufficient progress in the past year?

3.10   Over the past year, since the completion of our last Report and based primarily upon the progress being reported by each department, there has been very significant progress reported across the government. Status reports posted on the Government's Year 2000 web site indicate that at the end of October 1999:

■   87 of the 99 departmental *Essential and Mission Critical Services* are reported as "Ready".

■   93 of the 99 departmental *Essential and Mission Critical Services* related Business Continuity Plans are reported as "Ready".

■   140 of the 209 other departmental Projects are reported as "Ready".

3.11   Further, in regard to these statistics, the following additional comments are important in order to clarify the Province's overall readiness.

■   The *Essential and Mission Critical Services* which were not yet completed at October 31, 1999 are scheduled for completion by November 30, 1999.

■   The other departmental projects may be categorized in the following ranges of completion at October 31, 1999:

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- Ready	140
- 90% - 99% Complete	45
- 80% - 89% Complete	7
- 70% - 79% Complete	6
- less than 70% Complete	11

■ Many of the remaining departmental projects are scheduled for completion by November 30, 1999.

3.12 In regard to the Health Care Organizations which comprise four Regional Health Boards and four Non-Designated Organizations (QEII, IWK, Cape Breton Healthcare Complex and Nova Scotia Hospital) the following is the status at October 31, 1999 as reported on the Province's Year 2000 web site:

■ 24 of the 64 *Essential and Mission Critical Services* are reported as "Ready".

■ 25 of the 64 *Essential and Mission Critical Services* related Business Continuity Plans are reported as "Ready".

■ 3 of the 8 organizations' other projects (not *Essential and Mission Critical Services*) are reported as "Ready". In this regard, each organization is summarized as a single project.

■ The organizations' other projects may be categorized in the following ranges of completion:

- Ready	3
- 90% - 99% Complete	5

3.13 It is important to note that these organizations collectively utilized a different risk assessment methodology than the government in identifying and assessing Year 2000 risks and priorities. Therefore, although they have reported their summary status on the government Year 2000 website using the government reporting model, as summarized above, they have also reported their summary status on the Department of Health website in accordance with their reporting model. This reporting model focuses on five key areas or services common to each of the eight organizations as follows:

- Biomedical equipment

- Laboratories

- Diagnostic imaging

- Facilities

- Information systems

3.14 Each of these areas or services is then reported by each organization in relation to four milestones as follows:

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- Remediation

- Implementation

- Contingency plans created

- Contingency plans validated

3.15   A more detailed reporting of the Year 2000 status of these organizations using their reporting model as at October 31, 1999, was provided to us by Health's Y2000 Project Coordination Office. It is attached as Exhibit 3.1 on page 39.

3.16   In regard to the projected total costs of the Province's Year 2000 efforts, the status reports at October 31, 1999 show those at approximately $70.9 million ($38.6 million for the health care organizations and the balance of $32.3 million for departmental efforts).

What strategy was used in 1999 by the government to refocus its efforts?

3.17   Since last year, when there was one primary category of projects for each department which encompassed all Year 2000 related activities, a new strategy emerged. First, the government appointed the Business and Technology Advisory Committee (BTAC) to function as the Year 2000 Steering Committee. This elevated the priority of the government's efforts since BTAC is comprised of selected Deputy Ministers. In this capacity, BTAC was constantly kept apprised of the progress and issues and was responsible for all strategic decisions regarding the government's efforts.

3.18   Secondly, early in 1999 the government adopted a new risk management methodology which was deployed across all government departments. This risk management methodology provided the criteria for departments to review and assess their business functions in terms of importance. Business functions were assessed into four categories:

- impact on Nova Scotians;

- impact on obligations;

- impact on employees; and

- financial impact.

3.19   The category *Impact on Nova Scotians* was then used as the basis for defining all *Essential and Mission Critical Services*. The specific criteria used to measure this level of impact consisted of those services which directly affected the health, safety, security and economic well-being of Nova Scotians as well as those which directly impacted on the environment. All services meeting these criteria are ones for which any interruption could have serious consequences for Nova Scotians.

3.20   In late February 1999, a final listing of *Essential and Mission Critical Services* was prepared and submitted by the departments to BTAC for review and approval. It was then presented to the full Committee of Deputy Ministers on March 1, 1999 and was then presented to, and approved by, Executive Council. The consolidated listing for the departments comprised 99 high priority services.

3.21   Once the *Essential and Mission Critical Services* were reviewed and approved, the Year 2000 Project Office began tracking progress on these services as a separate category. From that point on,

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the web site provided monthly status updates on both *Essential and Mission Critical Services* as well as all other departmental Year 2000 Projects.

3.22 The nature and timing of the status updates on the Province's web site made it much easier for Nova Scotians to periodically check on the progress of the government and it also made our general monitoring efforts much more efficient.

What were the government's primary Year 2000 related accomplishments in the past year?

3.23 The following is a summary of the primary accomplishments by the government in the past year related to the Year 2000 issue, based on the information and representations provided to us by the Year 2000 Project Office.

- In the publications, *Government By Design 1999-2000*, and *Crown Corporation Business Plans 1999-2000* there were 16 of 17 departments and 10 of 26 crown corporations/agencies for which the Year 2000 issue was specifically identified as a priority. These publications represent two of the key government planning documents and this level of recognition of the Year 2000 as a priority is a substantial increase over 1998-99 when there was very little recognition of the issue as a priority in these documents.

- The risk management methodology, approved and acquired late last year, was deployed and implemented across all government departments. The full risk management assessment was performed and completed in February 1999 with final approval by the Deputy Ministers Committee on March 1, 1999. It was subsequently presented to, and approved by, Executive Council.

- The Project Office in consultation with the departmental Year 2000 Coordinators continued the weekly Year 2000 workshops and technical sessions, where information was shared and issues raised and discussed. Several focused workgroups were established to research and provide guidance on issues of common interest.

- The Year 2000 Project Office, led by the Deputy Minister of the Technology and Science Secretariat, appeared before the Public Accounts Committee on March 31, 1999 in an effort to provide information on the government's progress and issues to the House and to the public.

- The Year 2000 Project Office enhanced the information provided on both the government Intranet site as well as the public web site as a means of supporting departments in their Year 2000 projects and providing information and references specific to the issue.

- The Project Office continued monitoring departmental progress reports, which were updated and published on the public web site each month.

- The Department of Health continued its central Y2000 Project Coordination Office in support of the Province's health care organizations.

How should we look back on this very unique experience?

3.24 The Year 2000 issue and all of its associated and often complex interdependencies presented the government, and indeed the whole world, with a very unique set of circumstances and challenges, the likes of which may never again be seen. While the Year 2000 issue is analogous to a potential disaster of world-wide proportions, it was predictable in that everyone knew that it was

coming and specifically when it would arrive. Granted, from a global perspective, organizations were very late in rising to the challenge, however many countries and organizations invested significant time and resources and will in fact succeed in minimizing the potential risks associated with the century change. Those who largely ignored the issue, on the other hand, may not fare so well.

3.25   The Year 2000 issue forced government to put its departments and agencies under a microscope, to identify and assess Year 2000 risks and to work together as a cohesive team with a single common goal. The process in itself provided a very unique opportunity to gain a much more indepth understanding of not only business functions, but also, and perhaps more importantly, the dependancies among and between other organizations.

3.26   Many lessons have been learned, tools developed, and management and technical skills acquired and enhanced. It would be appropriate to take the opportunity to review, identify and share the many and varied experiences (positive and negative) encountered during the efforts. In that light we strongly suggest that the government consider conducting a post-implementation review of its Year 2000 efforts both at the corporate and departmental levels. Such a review should not be performed until the project teams have substantially completed their efforts and the actual impacts of Year 2000 are known, probably in and around the summer or fall of 2000.

CONCLUDING REMARKS

3.27   We have not performed an audit of the Government's Year 2000 efforts and accordingly we provide no assurance as to the completeness and adequacy of those efforts.

3.28   Over the past year, significant progress has been reported across the Nova Scotia government in preparing for the Year 2000. Year 2000 represented a very real threat to government and its ability to provide complete and uninterrupted service upon the turn of the century. The Nova Scotia government took steps to minimize the potential risks through a combination of remediation efforts completed, as well as provision of Business Continuity Plans for essential and mission critical services.

3.29   The unique nature of this problem, and in particular the potential risks to the government, should continue to be of significant and on-going interest to Members of the House of Assembly beyond January 1, 2000. Accordingly, we repeat our recommendation from each of our last two Reports that it would be appropriate for the Year 2000 Project Office to continue providing periodic status reports so government and the Members of the House of Assembly may continue to be kept current on the progress of this very important issue.

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Exhibit 3.1
HEALTH CARE ORGANIZATIONS
REMEDIATION, IMPLEMENTATION AND CONTINGENCY PLANNING SUMMARY

Health Care Organization	Remediation % Complete	Remediation Completion Date	Implemented % Complete	Implemented Completion Date	Cont.Plans Developed % Complete	Contingency Plans Created Date	Contingency Plans Validated	Contingency Plans Validated Date
CBHC	Cape Breton Healthcare Complex							
Biomed	90%	Nov-99	90%	Nov-99	90%	Nov-99	25%	Nov-99
Lab	90%	Nov-99	90%	Nov-99	90%	Nov-99	25%	Nov-99
DI	85%	Nov-99	85%	Nov-99	90%	Nov-99	25%	Nov-99
Facilities	70%	Nov-99	70%	Nov-99	90%	Nov-99	25%	Nov-99
IS	90%	Nov-99	90%	Nov-99	90%	Nov-99	25%	Nov-99
CRHB	Central Regional Health Board							
Biomed	98%	Nov-99	95%	Nov-99	100%	Complete	100%	Complete
Lab	98%	Nov-99	95%	Nov-99	100%	Complete	100%	Complete
DI	98%	Nov-99	95%	Nov-99	100%	Complete	100%	Complete
Facilities	90%	Nov-99	90%	Nov-99	100%	Complete	100%	Complete
IS	80%	Nov-99	80%	Nov-99	100%	Complete	100%	Complete
ERHB	Eastern Regional Health Board							
Biomed	100%	Complete	100%	Complete	100%	Complete	70%	Nov-99
Lab	100%	Complete	70%	Nov-99	85%	Nov-99	40%	Nov-99
DI	100%	Complete	100%	Complete	100%	Complete	90%	Nov-99
Facilities	90%	Nov-99	90%	Nov-99	90%	Nov-99	70%	Nov-99
IS	75%	Nov-99	70%	Nov-99	85%	Nov-99	30%	Nov-99
IWK-Grace	IWK Grace Health Centre							
Biomed	100%	Complete	90%	Nov-99	100%	Complete	60%	Nov-99
Lab	100%	Complete	90%	Nov-99	100%	Complete	60%	Nov-99
DI	100%	Complete	90%	Nov-99	100%	Complete	60%	Nov-99
Facilities	100%	Complete	100%	Complete	100%	Complete	60%	Nov-99
IS	90%	Nov-99	80%	Nov-99	100%	Complete	60%	Nov-99
NRHB	Northern Regional Health Board							
Biomed	100%	Complete	100%	Complete	100%	Complete	100%	Complete
Lab	100%	Complete	100%	Complete	100%	Complete	100%	Complete
DI	100%	Complete	100%	Complete	100%	Complete	100%	Complete
Facilities	100%	Complete	100%	Complete	100%	Complete	100%	Complete
IS	100%	Complete	100%	Complete	100%	Complete	100%	Complete
NSH	Nova Scotia Hospital							
Biomed	100%	Complete	100%	Complete	100%	Complete	95%	Nov-99
Lab	100%	Complete	100%	Complete	100%	Complete	95%	Nov-99
DI	100%	Complete	100%	Complete	100%	Complete	95%	Nov-99
Facilities	100%	Complete	100%	Complete	100%	Complete	95%	Nov-99
IS	100%	Complete	100%	Complete	100%	Complete	95%	Nov-99
QEII	Queen Elizabeth II Health Sciences Centre							
Biomed	100%	Complete	100%	Complete	100%	Complete	40%	Nov-99
Lab	100%	Complete	100%	Complete	100%	Complete	40%	Nov-99
DI	100%	Complete	100%	Complete	100%	Complete	40%	Nov-99
Facilities	100%	Complete	100%	Complete	100%	Complete	40%	Nov-99
IS	100%	Complete	100%	Complete	100%	Complete	40%	Nov-99
WRHB	Western Regional Health Board							
Biomed	90%	Nov-99	85%	Nov-99	100%	Complete	25%	Nov-99
Lab	95%	Nov-99	85%	Nov-99	100%	Complete	25%	Nov-99
DI	95%	Nov-99	85%	Nov-99	100%	Complete	20%	Nov-99
Facilities	100%	Nov-99	90%	Nov-99	100%	Complete	25%	Nov-99
IS	85%	Nov-99	85%	Nov-99	100%	Complete	40%	Nov-99

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