

**White Paper on
Actuarial Considerations
Related to
Y2K Insurance Exposures
and Potential Liabilities**

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I. INTRODUCTION

The Y2K Work Group was organized by the Casualty Actuarial Society to develop an issues paper discussing actuarial considerations related to Y2K insurance exposures and potential liabilities. Owing to the many issues that make the Y2K problem unique, this problem is in many ways unlike anything the insurance industry has had to deal with in the past.

Actuaries have the opportunity to prepare for this upcoming event and to consider the possible impact of Y2K claims. This preparation may involve making changes to data collection systems, evaluating alternative loss estimation methods, and addressing issues related to financial disclosures and statements relating to Y2K reserves. In this paper we discuss some considerations, preparations and possible approaches that may assist actuaries when dealing with this unusual exposure. These discussions are based upon our research into this area, including surveys we conducted of state regulators and accounting firms. This paper deals with issues related to U.S. insurance companies and accounting practices; the issues may be different in other countries.

The remainder of this paper is organized as follows:

- II. Overview of the Y2K Problem
- III. Summary of Findings and Observations
- IV. Discussion of Issues
- V. Evaluation Methods

- Appendices –
- A) Evaluation Checklist
 - B) Data Requirements
 - C) Results of a Survey of the Big 5 Accounting Firms
 - D) Results of a Survey of 13 State Regulators
 - E) Y2K Timeline
 - F) Legislation

II. OVERVIEW OF THE Y2K PROBLEM

Computer systems, whether mainframe, client/server, or PC, require varying degrees of modification so that programs using date fields or inputs will continue operating (and/or producing correct answers) when dates for the year 2000 and afterward begin to be processed. Many articles have appeared in the press highlighting the significance of potential problems.

These problems can occur when computer software programs and hardware-based calendaring/timing components utilize a two-digit date field to designate the year, causing the year 2000 to be expressed as "00," which the computer system could interpret as the year 1900 or a null field. Programs that utilize dates in computations or comparisons of such dates may produce erroneous results or fail to function.

Insurance claims could result from failures not only of hardware or software in mainframe or personal computers, but also of embedded computer chips that drive many mechanical devices. Many analysts believe embedded chips may prove to be the most difficult potential failures to detect and repair and there may be significant product recall implications.

The types of damages related to the Y2K problem cover a broad spectrum, potentially triggering insurance claims in several lines of insurance. Examples of the types of damages that might be claimed include:

- The cost of Y2K remediation
- The extra cost of staying in business after a failure has occurred
- Loss of profits or reduction in income due to a total or partial shutdown
- Bodily injury or property damage
- Loss of value in the company's stock
- Damage to the business of a client

Damages could be caused as a result of the failure of something directly controlled by the insured or they may be caused indirectly, such as from non-performance of a supplier. While many lines of insurance could be affected, Y2K insurance claims are probably more likely to be seeking coverage under:

- Comprehensive General Liability (CGL)
- Directors & Officers liability (D&O)
- Errors & Omissions (E&O)
- Property/Business interruption

III. SUMMARY OF FINDINGS AND OBSERVATIONS

- Potential liabilities for Y2K related claims are in many ways unlike any other claim liabilities the insurance industry has seen. There are some similarities to mass torts and catastrophes, but there are significant differences as well.
- There are many coverage issues to consider in determining whether Y2K claims will be paid by insurers.
- Most accountants and state regulators we surveyed agree that the liabilities for individual insurers are not yet reasonably estimable for reserving purposes, and won't be at December 31, 1999, absent sufficient data on actual claims. Thus, at December 31, 1999, reserve estimates may not be expected (except perhaps on known claims). However, disclosure may still be called for, and additionally an insurance company may want to evaluate its potential for Y2K related liabilities in order to better understand and manage its risks from this exposure.
- Current and future federal and state legislation (and associated court interpretations) may have a material impact on the Y2K liabilities of insurers.
- Most insurance regulators surveyed believe that Y2K losses will not have a significant impact on insurer profitability or solvency.
- Several different methods may be available to evaluate potential Y2K liabilities, some of which differ greatly from traditional actuarial methods. The methods that may be appropriate for one company might not be appropriate for another and the data available for such evaluations could vary widely.
- Preparation is advisable if data is to be captured that would allow for an appropriate evaluation of potential liabilities, as the data specifications may differ from those for other insurance claims. Data issues may include the proper segregation of losses for ratemaking purposes.

IV. DISCUSSION OF ISSUES

There are many issues involved with the actuary's role in estimating reserves and/or preparing the appropriate disclosures for potential Y2K losses. This section will discuss some of the major ones, namely:

- A. Uniqueness of the Y2K problem
- B. Phases of the problem (i.e., the Y2K timeline relative to insurance)
- C. Reserves possibly affected by Y2K, by phase
- D. Coverage issues
- E. Coverage triggers
- F. Accounting requirements
- G. State regulator requirements
- H. Data requirements
- I. Legislation

A. Uniqueness of the Y2K problem

The Y2K problem is unique in many ways.

- **Advance knowledge of the problem.** This problem has received steady media exposure well before "The Event". We can see it coming, and policyholders have the opportunity to prevent damages.
- **Date-defined.** We also know exactly when the biggest problems are expected (January 1, 2000 and shortly thereafter). Many mass torts are not as date-defined.
- **Legal preparations.** Due to the pre-event warnings (and hype), both plaintiff and defendant bars have been able to prepare in advance. Both sides should be able to start discussions with well thought out and planned positions. This is in stark contrast to the A&E situation, where the legal arguments took many years to evolve. This may not speed things up, but may simply lead to a greater level of complexity and sophistication of the issues to be resolved.

While Y2K has unique aspects, it also shares some common characteristics with many mass torts.

- **Significant potential costs.** The influence of computers and embedded computer chips is pervasive in modern society. This is true not only in the U.S., but in much of the rest of the world as well. U.S. businesses generate tens of billions of dollars in sales each day. Therefore any interruption of business could generate significant costs in a short period of time.
- **Significant number of insurance policies with potential for claims.** Medium to large-size businesses generally have liability insurance policies and use computers and

products with embedded chips. Claims might result from Y2K failures and involve a potentially large number of general liability policies. Similar claim potential may also exist for other policies, such as those covering D&O, medical malpractice, commercial property, personal property, etc.

- **Major role of coverage disputes.** Coverage disputes played a major role in the early days of asbestos liability claims, and still play a major role for certain issues (such as non-products coverage). Environmental liability also involved (and still involves) extensive coverage litigation costs, although the issues being disputed are frequently different from those raised during asbestos-related litigation. Attorneys involved with Y2K litigation preparation have compiled a list of coverage issues, particular to the Y2K problem. Much of the uncertainty in the insurance industry's Y2K liabilities may remain until the time when these issues are largely resolved.

B. Phases of the problem (i.e., the Y2K timeline relative to insurance)

The Y2K problem can be viewed as having definite and discrete phases.

- ***Phase 1 - generally pre-1997***, when the underlying problem was building and awareness of the problem ranged from limited to non-existent.
- ***Phase 2 - generally from 1997 to mid-1999***, involved growing recognition of the problem and most of the remediation efforts.
- ***Phase 3 - from mid-1999 to the end of 1999***, involves last minute remediation and preparations.
- ***Phase 4 - January 1, 2000 to soon thereafter***, is when many of the Y2K failures and related damages are expected to occur.
- ***Phase 5 - the remainder of the year 2000***, when the legal and insurance reactions to Y2K failures are generally expected to build, and Y2K failures and related damages could continue to occur.
- ***Phase 6 - 2001 to 2003***, when the dust starts to settle and the issues and liabilities surrounding Y2K will probably become better understood. Issues may not be resolved, but the battle lines are likely to be fully formed, more data will probably be available and initial lower court decisions should begin to come in. (Some Y2K failures and related damages may continue to occur.)
- ***Phase 7 - 2004 to about 2010***, when most remaining Y2K issues are generally expected to be resolved.

A more complete Y2K timeline is included in Appendix E.

C. Reserves possibly affected by Y2K, by phase

Y2K insurance claim activity is generally not expected until Phase 4. Isolated claim activity may arise before then, but this is not expected for all companies, nor are material amounts generally expected for most companies that do receive pre-Phase 4 claims.

In the absence of a significant number of reported claims, actuarial issues prior to Phase 4 are generally expected to center on disclosures and possibly premium deficiency reserves¹, but not actual Y2K loss and LAE booked reserve estimates. To the extent that actual claims have been filed, related reserves may need to be set up, but material claim amounts are not generally expected for most companies. Some might assume that standard reserving methods may address Y2K reserves during this period, given the sparseness of such claims.

At the end of Phase 3, insurance companies reporting under GAAP accounting rules may be considering the materiality of potential Y2K claims in their evaluation of premium deficiency reserves. Companies may also wish to consider whether to book reserves for loss expense associated with Y2K coverage litigation (i.e., declaratory judgment or DJ expense) or other Y2K loss and loss expense reserves. Isolated unearned premium reserve issues may also arise, to the extent that companies provide specific Y2K related coverage with a separately identifiable premium charge². (Note: Year-end 1999 reserves will not be publicly reported until sometime in Phase 4 or Phase 5. At that time, some companies may find the need for some type of “subsequent event” disclosure.)

Phase 1 - pre '97 <i>The gathering storm</i>
Phase 2 - 97 to mid 99 <i>Recognition and remediation</i>
Phase 3 - mid 99 to year-end 99 <i>Last minute preparations</i>
Phase 4 - 1/1/2000 <i>D-Day</i>
Phase 5 - the year 2000 <i>A rising cloud of Y2K related actions</i>
Phase 6 - 2001 to 2003 <i>The dust settles, things become easier to see (but perhaps still not clear)</i>
Phase 7 - 2004 to 2010? <i>Resolution?</i>

What will happen in Phase 4 is the big unknown. The Y2K claim “explosion” could be a whimper, a bang, or something in between. Insurers may experience a flurry of activity and possibly a large inflow of data, but not necessarily sufficient information to reasonably estimate ultimate losses.

As Phase 5 progresses, premium deficiency reserve issues are less likely to exist, but loss and loss expense issues may call for more definitive action. First party Y2K claims will probably come first. To the extent that Y2K problems lead to clearly covered perils such

¹ This reserve exists for GAAP purposes only. It is set up if the unearned premium reserve is not expected to be able to cover anticipated losses, loss expenses and related remaining underwriting expenses resulting from the runoff of the unearned premium. Investment income can be considered in the calculation of the premium deficiency reserve, but this election must be disclosed if taken. Starting January 1, 2001, the "codification" project would also require such a reserve calculation for statutory accounting (but by then, the Y2K issue will be a loss and loss expense issue, not a premium deficiency issue). While less likely, this reserve may also be an issue earlier in 1999.

² Any UPR calculation would also have to recognize return of premium rules given policy mid-term cancellation.

as fires, payments may be expected. Coverage issues on some first party claims may lead to DJ reserve estimation issues. To the extent that third party claims arise, DJ and defense reserve issues may be raised. Liabilities for disputed first party and for many third party claims may take longer to incorporate into booked estimates than for non-disputed first party claims. Subrogation reserving issues may also be raised, beginning with first party claims, and possibly later with third party claims.

While some level of Y2K failures are expected to occur during Phase 4, additional Y2K failures may also occur during or after Phase 5. For example, an embedded chip in a fire alarm may fail, but not until a fire occurs, which may not be until Phase 5 or later.

During at least the early part of Phase 5, data and estimation problems may lead to disclosure rather than booking of certain Y2K reserve items. By the end of Phase 5, mere disclosure may not be acceptable. Reserve estimates for all potential reserves (DJ, defense, adjusting, indemnity, subrogation) may be required³, although the year-end 2000 reserves won't be publicly reported until early in Phase 6.

During Phase 6, companies may be expected to refine their estimates, which in some cases could lead to significant reserve adjustments. Amounts that were considered inestimable before may become estimable.

If Phase 7 follows a pattern similar to mass torts, the early part of this phase would see a noticeable number of material reserve adjustments (assuming the Y2K problem results in either material eventual liabilities or material initial estimates). Over time, the sizes of these adjustments are likely to decrease.

D. Coverage issues

Many Y2K coverage issues are currently being discussed by attorneys and claims people associated with Y2K. A full discussion of these items is best left to those experts. The list below is meant to be a brief (non-expert) overview of some of the major coverage issues being discussed. Note that not all the issues listed below apply to all types of insurance policies.

- **Fortuitous event** - the element of risk or fortuity is a central feature of insurance. Insurance is not meant to cover deliberate acts resulting in expected or intended damages. Is a Y2K failure a fortuitous event?
- **Y2K exclusions** - The Insurance Services Office (ISO) and many individual companies have developed and implemented Y2K exclusions. The interpretation of these exclusions may be the focus of some coverage litigation.

³ By some or all of the following: regulators, auditors, rating agencies, stock analysts, and shareholders.

- **Definition of damages** - If a machine stops working due to a Y2K failure, is it "damaged"? If data is lost, is there damage?
- **Definition of property** - Some policies only cover loss or damage to "tangible property". Is the loss of data the loss of "tangible property"?
- **Date of occurrence** - If a policy covers occurrences during the policy period, what was the date of the "occurrence"? Was it the date physical damage or loss occurred? Was it the date of installation (and if so, what was the date of installation)? (See "Coverage triggers" section for further discussion on this issue.)
- **Definition of occurrence** - When a Y2K failure occurs, is the program or chip merely doing exactly what it was programmed to do? As such, is this an accident or occurrence under the terms of the policy?
- **Covered peril** - Some property policies list the perils that are covered. If so, could a Y2K failure lead to a loss construed to be caused by one of the listed perils? An analogous issue could exist for some Business Interruption forms, where the policy may cover only those interruptions caused by physical damage or loss to property resulting from a covered "cause of loss".
- **Specific exclusions** - Policy forms contain various exclusions. For example, some property policies may exclude damage from inherent design defects or defective maintenance. Errors & Omissions policies may not cover work not yet completed. Liability policies may contain "business risk" exclusions.
- **Duty to defend clause** - The duty to defend in liability policies has been interpreted by certain courts to be broader than the duty to indemnify. This may add an additional level of complexity to coverage litigation.
- **"Sue and Labor" clause⁴** - Some property manuscript policies (mostly from the broker market) contain "sue and labor" clauses. These clauses provide coverage for expenses relating to prevention or mitigation of actual or imminent loss or damage. Some policyholders have filed claims under these clauses, seeking reimbursement for Y2K remediation expenses, claiming these expenses were needed to prevent damages.

As the language in these clauses (where they exist) can vary drastically from policy to policy, the coverage issues can vary from policy to policy. Some potential issues include:

⁴ More information on the "Sue and labor" clause can be found in the Wall Street Journal (August 16, 1999 edition, page C1), other news publications such as BestWire and from various legal publications such as Mealey's.

- Would the insurance policy cover the prevented losses? This could involve questions as to covered perils and/or trigger date.
- Were the losses "imminent"?
- Were the expenses reasonable relevant to the potential damages?
- Could these expenses be described as maintenance expenses, and if so, does the clause provide coverage for maintenance expenses.

As with previous insurance coverage litigation, many of the above coverage issues are likely to be decided jurisdiction by jurisdiction. Both plaintiffs and defendants will have an incentive to shop for the most favorable jurisdiction.

This initial jurisdiction "shopping" will probably start based on educated guesses, as the final interpretation of various policy language in a particular jurisdiction may not be decided until cases reach the highest court (typically, the state supreme court). This will probably take many years, both due to the lags involved in moving through the various levels of the court system, and due to the jockeying for the best "test case" to bring to the highest court(s) by the various parties to the suits. Even after decisions from the various state supreme courts, uncertainty will still be present, as many legal issues are decided on unique facts and circumstances of the case at hand. Hence many court decisions will be limited in their applicability to other cases.

There have been some technology related lawsuits to-date that may give some indication as to how these issues will be decided by certain jurisdictions⁵. The number of these precedents is relatively limited, however, and they may apply only to certain contract wording, which may or may not be consistent with the wording prevalent on current policy forms.

In conclusion, there are many potential areas for coverage disputes. This could lead to high DJ costs, which may taper off as various court decisions are made. The issues are likely to be decided state-by-state, so that knowledge of where cases are being tried may be an important factor in the Y2K reserve analysis. In addition, unique facts and circumstances may be more important than previous legal precedents for evaluating certain large cases.

E. Coverage triggers

The following is a list of possible coverage triggers being advanced by some. While the date of damage may be the most prevalent trigger claimed, at least some of the others may be argued in future claims. Only future court decisions and the unique facts and circumstances of individual cases will determine which items in this list will survive.

⁵ For example, suits related to loss of data on magnetic tapes, and loss of use of a product due to failure of a disk drive.

(Note that trigger date is generally more of an issue for occurrence policies than for claims-made policies, although extended reporting endorsements on claims-made policies may blur some of the distinction.)

- **Date of actual damage.** As mentioned above, this trigger date may be the most common one claimed, and the least controversial.
- **Date of remediation.** This date may be claimed by those arguing for insurance reimbursement of remediation costs incurred to mitigate potential future Y2K related damages.
- **Date of installation or manufacture.** The date the chip or program that was non-Y2K compliant was actually installed or manufactured.
- **Date of design.** This date may be more readily available in some cases than the installation or manufacture date. This may be the case for a mass-produced embedded chip, especially if numerous chips of various manufacture and/or installation dates can be found on a single machine.
- **Continuous trigger.** Some may argue that damage occurred continuously from installation date to damage date, such as through the use of programs that continually populated data files with 2 digit year fields during this period, thereby increasing remediation costs.

(Note that the next two triggers may be issues for claims made Directors & Officers policies with extended reporting endorsements. These endorsements may extend coverage to claims reported after the original expiration date, but only if the claim arose from an action that occurred before the original expiration date.)

- **Date of critical failure to act.** The negligent act (of the directors/officers) may be alleged to be the date around which a failure to act or begin remediation doomed the eventual remediation efforts. Some people claim that failure to act several years in advance makes it practically impossible for Y2K remediation efforts to be completed in time.
- **Date of negligent disclosure.**

The type of policy form and/or exclusions may affect the trigger being claimed. For example, a manufacturer faced with a Y2K related loss, but with a Y2K exclusion on its policy effective January 1, 2000, may attempt to construe coverage under an earlier policy as a way of getting around an exclusion. Such a strategy may be effective even if it only triggers a duty to defend and not indemnify, as defense costs for these cases may be significant.

F. Accounting requirements

For U.S. GAAP accounting, principal standards for when (and how) to account for a liability are set by Statements of Financial Accounting Standards (FAS) numbers 5 and 60. FAS 5 is titled "Accounting for Contingencies" and is applicable to all reporting subject to

U.S. GAAP rules (e.g. manufacturers, financial service firms, etc.). FAS 60 deals specifically with "Accounting and Reporting by Insurance Enterprises".

Until the implementation of codification, effective January 1, 2001, statutory accounting rules are not always well specified with respect to when to book a liability and when to disclose a liability. In general, most companies apply the same rules for GAAP and statutory accounting.⁶

FAS 5 says to book a liability when:

- It is **probable** that the liability has been **incurred** by the valuation date, **AND**
- the amount of loss can be **reasonably estimated**.

The same standard requires a disclosure when:

- One or both of the above conditions are not met, or
- "an exposure to loss exists in excess of the amount accrued," **AND**
- there is a "reasonable possibility that a loss or an additional loss may have been incurred"⁷.

In addition, GAAP standards generally consider materiality in their application.

Based on the above, central issues involved with accounting for Y2K liabilities will be the determination of when it is "**probable**" that a liability has been incurred, whether it is material, and when the liability can be "**reasonably estimated**". If it is only possible (and not probable) that a liability exists, or if the liability can be estimated, but not reasonably, then only disclosure may be called for. *The ability to estimate the liability is not sufficient to trigger booking of the estimate. The liability must be reasonably estimable, not merely estimable.*

The issues of materiality, probability of incurral and reasonable estimability of a liability may have to be applied separately for different components of the Y2K reserve. For example, one may determine that the DJ portion of the potential Y2K liability meets FAS 5 standards for booking an estimate, but may determine that the indemnity piece is not yet reasonably estimable. Alternatively, one may determine that the liability for indemnity payments is reasonably estimable in regards to some coverages but not others. (Note that if the **total** Y2K liability is deemed reasonably estimable, inability to reasonably split the total into pieces will probably not be an issue.) The status for any particular portion of the total (if so analyzed) is likely to change over time, as more data becomes available and the available data becomes more mature.

Given the various accounting-related uncertainties involved with the above, the Work Group undertook a survey of the "big 5" accounting firms. (The full report on this survey is found in Appendix C). Eight questions were asked to help us determine how the

⁶ This statement is based on general knowledge and discussion with various accountants.

⁷ Paragraphs 8 and 10 of FAS 5, as issued by the Financial Accounting Standards Board (FASB).

various FAS 5 and FAS 60 standards might be interpreted relative to Y2K liabilities. The principal findings from that survey were:

- Some accountants believe that Y2K liabilities will not be probable or reasonably estimable until actual claims have been received. This belief could lead some to defer booking Y2K loss reserves (except for isolated cases) until after January 1, 2000. Others are open to booking a reserve under the right conditions (see discussion of question 5 in Appendix C).
- Consistent trigger assumptions or valuations will not be required across insurers, or between insurers and insureds, for clients of the audit firms. Each company will be expected to record its own estimates based on its own facts and circumstances (and legal opinions).
- The consensus of the firms was that the top-down market share approach is not an acceptable method for estimating the liability (for booking purposes), prior to the emergence of significant industry claims experience. A majority of those surveyed felt that this approach would be unacceptable under any circumstances as the sole support for a booked estimate.
- Most accountants believe that year-end 1999 financial statement accruals will not be affected by events subsequent to December 31, 1999 but prior to release of the financial statements. They believe that any data available by the 1999 statement release will be too immature to rely upon, regarding December 31, 1999 liabilities.

G. State regulator requirements

State regulators will also have an impact on how companies report potential Y2K liabilities. In order to gain insight into the expectations regulators may have for actuaries (regarding Y2K), a sampling of state regulators were surveyed. (See Appendix D for a full report on this survey.)

The principal findings from this survey were:

- The majority of the states felt that while there would be claim activity associated with Y2K problems, they did not expect it to have a significant effect on insurer profitability or solvency. Furthermore, the regulators surveyed were unanimous in their opinion that legal expenses would be equal to or greater than indemnity costs for these claims.
- The majority of state regulators do not anticipate requiring companies to establish reserves for year-end 1999 financial statements. Several states indicated that they have not completely formulated their positions on Y2K reserve disclosures, as their efforts so far have been primarily directed toward ensuring insurance company systems preparedness. However, most intend to closely monitor claim activity after January 1,

2000 and more than half expect to be proactive in gathering additional information and monitoring company activities related to Y2K claims.

- There was strong consensus among the regulators that it would be inappropriate for them to mandate the booking of reserves for Y2K claim liabilities at December 31, 1999. Rather, they opined that it should be the judgment of the reserving experts to determine if liabilities exist, and, if quantifiable, to estimate their ultimate costs.

H. Data requirements

The needs of the actuary's internal and external audiences will drive the data requirements. The first requirement is that Y2K claim activity be separately identified. This is necessary in order to:

- Meet external reporting requirements and questions (e.g., from rating agencies) regarding the level of Y2K reserves and the resulting impact on profitability,
- Estimate Y2K liabilities,
- Avoid distorting non-Y2K reserving data and ratemaking data.

The ability to track Y2K claim activity within the existing claim database may be desirable. This will aid reconciliation to Schedule P (for actuarial opinion purposes) and should minimize errors in isolating Y2K activity for non-Y2K analysis purposes. Where the claim system already has the capability to track unique types of claim activity (such as asbestos, construction defect, etc.) there still might be time to incorporate codes to track Y2K loss information, even as late as fourth quarter 1999. Otherwise, a parallel monitoring system may be the only alternative.⁸

Companies may want to ensure that sufficient information is captured to track Y2K claim activity consistent with the insurer's Y2K underwriting strategy. For instance, if Y2K exclusions were instituted for certain industry classifications (e.g., software companies), then, to test those exclusions, it might be desirable to track how many claims are filed by industry classification. It might also be valuable to know whether claims are filed by industry classifications that didn't have a Y2K exclusion, or whether many claims came in from industries believed to be at low risk for Y2K problems.

It may be appropriate for *all* affected claim systems to have consistent and adequate coding of Y2K activity. Companies may have distinct direct claim handling systems, reinsurance systems, subrogation & salvage systems, deductible systems, coverage litigation systems, etc. Higher level systems such as reserving, ratemaking and possibly even accounting systems may also need to track Y2K impacts. These other systems may be just as important as the direct claim handling system.

⁸ Parallel systems are generally not optimal solutions, due to problems with controls, reconciliation to other systems, incompatibility with downstream systems and possible duplication of effort.

Setting up codes to track Y2K claims, and the existence of Y2K exclusions, may not be sufficient. How actual claims will be coded under these systems may also need to be thought out. For example, should a claim be coded as a Y2K claim if the damage was caused by a fire, which in turn was caused by a Y2K software failure⁹? How would a claim be coded (as to Y2K) if the fire was caused by something not related to Y2K, but the resulting damage was made worse by a Y2K related failure (such as the failure to notify the local fire station)? Finally, if only one code exists to track unusual claims, how should a claim be coded if it involved both Y2K and another attribute being tracked (such as paraplegia). Companies may want to decide issues such as these in advance, and depending upon how they are resolved, there may be some need to adjust non-Y2K data accordingly for reserving and ratemaking purposes.

Training will be an issue. How will the claim department (and all other affected departments) train those entering the data to enter the proper Y2K codes? What controls exist to ensure that the coding is correct?

Identifying those responsible for the data gathering process in advance could be very helpful. This applies to claim systems support, accounting areas, actuarial areas, etc. If a deluge of claims starts to come in during the beginning of the year 2000, there might not be enough time to find appropriate (data and analysis-related) resources at that late date.

I. Legislation

Some Y2K related legislation has passed, and there may be more before January 1, 2000. Some of this legislation will have a narrow impact on the insurance industry, if any. For example, legislation providing immunity to state and local governments might affect only those entities and their insurers¹⁰. While it is still uncertain at the date this paper was published, it is possible that Y2K legislation (state and/or federal) does or will exist that will materially impact insurer losses. A further discussion of some of the legislation that may affect Y2K claims is included in Appendix F. Note in particular the discussion of the federal "Y2K Act" passed this summer.

⁹ Such a fire could be caused by an engine turbine, turned on before the valve to the coolant was opened, due to a date-defective program.

¹⁰ Although immunity given to those entities could lead to cost-shifting, whereby parties secondarily responsible might be sued.

V. EVALUATION METHODS

As mentioned earlier, the Y2K problem can be viewed as having relatively distinct phases. In the early phases, generally pre-January 1, 2000, only a few insurance claims may exist, industry-wide, with some or many companies having no claims. After January 1, 2000, more claims will probably be made, affecting the number of evaluation methods available and the options in applying them. Therefore, the evaluation methods for losses are shown in this section in two parts -- evaluation methods prior to the availability of actual claims data, and evaluation methods after actual claims data becomes available.

Several of the methods described here are similar to, and somewhat derived from, techniques used for evaluating asbestos and environmental liabilities. Other methods were developed for use in the pricing of new and/or unique exposures. The application of these methods should evolve as the available data and experience with the Y2K problem evolves.

It should be understood that just because an evaluation method is described here does not necessarily mean that it can be used as the basis for establishing reserves. But the Work Group feels that, even so, these methods may potentially provide useful information for planning and management purposes.

Approaches to Evaluating Liabilities *Before* Claims are Made

Analogies

Some observers have found it useful to somehow relate potential Year 2000 loss to other major losses experienced in the past, either industry-wide or for a given company. For example, they might hypothesize that Y2K losses would be unlikely to be more than five hurricane Andrews, or one-fifth of A&E. While this may be helpful in grasping potential magnitudes and their significance, it does not seem to provide any realistic basis for establishing a provision for Y2K loss liabilities. The types of policies giving rise to Y2K loss are substantially different from those giving rise to A&E or hurricane losses.

Percent Increase in Annual Claims Dollars

Some have considered establishing upper bounds on potential Y2K liabilities by hypothesizing some maximum Y2K-related increase in claims activity at the very beginning of 2000. For example, they might conjecture that in personal automobile, a reasonable upper bound might be two extra weeks worth of claims, or roughly 4% of annual claims dollars. Similar to the Analogies method mentioned above, this approach is more useful for grasping the potential significance of the issue than for establishing a provision for Y2K liabilities.

Top-Down – Market Share

In a Top-Down approach, the basic idea is to make use of one or more broad global estimates of the possible Year 2000 underlying economic losses applying, for instance, to the whole United States. Then a series of adjustments are made to pare the global estimate down to the portion that might be the potential liabilities of an individual company. Some of the more important adjustments include: the portion insured; the extent to which claims will be made; and the company's likely share of losses (probably by line and by year, and possibly by industry and size of insured).

The analysis might also include the possibility of claims alleging coverage dates prior to January 1, 2000, at least for evaluating defense and DJ costs.

If not in the global estimate, provisions for coverage litigation, defense costs, and reinsurance recoveries are needed.

These global estimates could be available at the level of industry group and size, such as might be generated by the Exposure-Based Model discussed below.

Advantages

This approach can provide rough quantifications of the potential losses or size of the issue with minimal data and cost. It does not require extensive system efforts and, by definition, does not even require actual claim experience. As such, it can be used to quickly evaluate whether a disclosure issue may exist and whether additional effort and cost is warranted.

This method can also be continually updated as additional facts are known, also at minimal costs. For example, initial estimates of society-wide or insurance industry-wide losses may be based on conjecture or theory, in the absence of actual claims data. However, once claims are submitted to some companies, these global estimates can be refined. For example, at an early stage, assumptions about claim filing rates can be updated, and, when the claims have sufficient maturity, an estimate of ultimate losses for a portion of the industry could be used to extrapolate a new industry-wide loss total. Therefore, individual components of the model can easily be updated without significant disruption to the rest of the model.

Disadvantages

The fact that a method can be described does not mean that an estimate using this approach necessarily has much or any certainty. Of necessity, some of the steps in such estimation have substantial amounts of potential error or uncertainty.

Probably the most important step in this method is the starting point, the estimate of global loss. The basis of the global estimate must be carefully evaluated. Some may believe that any global estimate is totally speculative and that potential Y2K losses are not reasonably estimable prior to their occurrence. Different analysts may make substantially different estimates, and even individual analysts can vary their estimates over time. Others may believe that there is a very wide possible range, with the higher side of the range being ten or one hundred times the lower end.

Similar estimability concerns may exist for likelihood of claims and market share. Some may believe that coverage litigation and defense costs can be better estimated than indemnity losses.

The question of estimability will need to be considered in the context of the particular entity being evaluated, consistent with specific accounting directives.

To the extent that the underlying assumptions cannot be tested, or the range of estimates resulting from the model is too wide, this method may be more suited for supporting disclosures, or supporting estimates based on other approaches. It may not be as appropriate on a stand-alone basis to substantiate a booked reserve.

Note that the accounting profession also seems to view gross market share methods with skepticism (see Appendix C). As such, documentation requirements may be more stringent than normal if used for booking reserve estimates.

Exposure-Based Models

An Exposure-based model uses exposure information for the individual policies for the book of business being evaluated, such as the distribution by type of insured, risk classification, policy deductibles, retentions and limits. The model simulates the process by which the underlying economic damages are generated, how people pursue recovery of those damages through the legal and insurance systems and how the terms and conditions of the insurance contract serve to define the insured portion of those damages. Such models have proved particularly useful in evaluating potential exposure to mass torts, such as asbestos and environmental.

In developing such a model to evaluate Y2K losses, the first step is to describe the processes to be used, including the key model parameters (drivers) of each process. For example, the key drivers of the first process to be modeled, underlying economic loss, might include sales, profits, operating expenses, remediation costs and the probability and

duration of a critical business interruption due to a Y2K failure. The key drivers of the second process, the legal and insurance systems, might include propensity to sue, the likelihood of winning those suits, the propensity to file insurance claims and the likelihood of winning DJ actions. The key drivers defining the third process, the portion of a loss that might be covered by insurance, include the retentions, deductibles, policy limits and applicable reinsurance coverage terms.

It might be desirable to divide the underlying exposure (insured population) into segments that are likely to affect the magnitude of the key parameters. For example, it is widely believed that failure rates may vary significantly by type of industry exposed (e.g., manufacturing, retail, financial, etc.) and by size of business. To the extent that one can parse the exposure into segments within which there is a lower variability in the range of possible parameters, the resulting range of projections will tend to be narrower.

Once the model segments and the key drivers are chosen, the next step is to develop the characteristics of each parameter, and, if a range of results is desired, its probability distribution. This information provides a basis for selecting values of each parameter with a likelihood corresponding to one's evaluation of the possible parameter outcomes.

Exposure-Based models can be used to either develop the "global" estimates for a Top-Down approach, or to develop Bottom-Up projections. Such projections might use the modeling parameters developed prior to the availability of claim data, based solely on external information, projections or assumptions. The models can also be rerun to determine revised projections as new information becomes available for critical parameters, without waiting for "complete" information.

Advantages

As noted above, the method is highly flexible and can be used Top-Down or Bottom-Up, and prior to, or at various stages of, the emergence of Y2K insurance data.

The primary advantage of such models is that they attempt to mimic the loss occurrence and insurance process, breaking down that process into bite-size components. Some of the ranges of those components may be readily available or estimable based upon knowledge and experience with other major insurance events, e.g., the propensity to file insurance claims. Other components, where judgments are more difficult and arguably speculative (e.g., the percentage and duration of Y2K failures), can be tested in broader ranges to determine the sensitivity of the resulting losses to those judgments. This allows follow-up efforts to be focused on updating the most important parameters at the earliest possible time, as new information becomes available.

This approach is particularly useful for evaluating losses from events such as Y2K, where it is likely that new information will become available in stages. For example, in the case of Y2K, the parameters describing the underlying economic losses will become known

first, followed by those that describe the entry into the legal and insurance system, followed by the DJ action outcomes as a result of court decisions.

Disadvantages

Large uncertainty still exists with this method. Projections still need to be made and those projections are still more difficult prior to the reporting of Y2K claims and resolution of key coverage and liability issues by the courts.

Exposure-based models are generally expensive and time consuming to develop.

It may be difficult to obtain policyholder information by industry and coverage in adequate detail to develop such projections. Most policyholder data does not conform to a single, uniform classification system, and tends to vary by size of business.

Also, it may turn out to be difficult to make use of new information on a timely basis to update the model — both because the immediately available information may be anecdotal rather than quantitative in nature and because there may be significant time lags in getting it.

Approaches to Evaluating Liabilities *After* Claims are Made

Once significant numbers of claims have been made, the situation could change markedly. Data regarding actual claims will become available and an indication will emerge of how large some individual claims may be.

Top-Down – Market Share

The Top-Down Market Share method applied after claims have been made is similar to the approach taken before claims have been made. A global estimate is obtained, and then modified appropriately for the particular insurer as previously explained. The difference is that once significant numbers of claims have been recorded, it may be possible for some industry analysts to improve their projections of total insurer liabilities for Y2K either to date or ultimately.

Advantage

The emergence of claims is likely to reduce the degree of uncertainty about the global estimate used as a starting point. As before, if the global estimates and market shares are by industry and by size, the uncertainty associated with market share may be reduced.

Disadvantages

The emergence of claims will not necessarily reduce the degree of uncertainty about the market share aspect. An unrelated problem is that analysts may have to deal with the use of different definitions of Y2K losses by different insurers. Even with the best refinement, it is still possible to conceive of ranges with the high end being orders of magnitude times the low end.

Aggregate Claim Methods

Traditional actuarial methods rely on looking at the past, and assuming it will repeat itself (with adjustments). Such traditional methods may include:

- aggregate paid development
- aggregate reported development
- average values times developed claim count
- stratifying claims into size groupings, with simpler methods applied to the smaller claims, more customized approaches to the larger claims.

The problem with Y2K is that there is no history, hence traditional methods such as development triangles cannot be used. This problem won't go away until sufficient actual claim experience emerges, which may not be until many of the Y2K liabilities are already paid or are near settlement.

An alternative is to find surrogates for Y2K claim history. For example, some may believe that Y2K claims will evidence characteristics similar to professional liability in the areas of claim investigation, use of expert opinions, and court complexities. These beliefs would have to be considered in conjunction with the likely nature of Y2K losses to decide in what way professional liability loss development would have to be modified to be appropriate for evaluating Y2K losses. Hence, appropriately modified claim development histories for these professional liability claims might be used to evaluate Y2K reported claims. Then, as sufficient Y2K claim experience emerges, the surrogates could be modified.

The surrogate chosen may vary by category of liability. For example, the surrogate that may seem appropriate for indemnity costs may not work for DJ costs.

The analyst may benefit by being aware of the potentially sweeping impact of court decisions on all claims of a certain type, within a given jurisdiction or globally.

Given the likely clustering of claims around January 1, 2000, it may make more sense to use report quarter or report month development patterns rather than accident quarter or accident year. Some adjustment may be necessary for the clustering of claims near January 1, 2000.

Advantages

These are methods familiar to management, auditors, actuaries, and tax experts. As such, there should be fewer problems in explaining the approach and getting buy-in.

These methods may also allow projections of workflow, cash flow, etc. As additional data comes in, these projections can be compared to actual data and modified as appropriate.

The reliance on the selected surrogate can be adjusted or reduced over time, as actual claim experience emerges.

Also, these methods have the distinct advantage that the foundation of projections is based on actual reported claims — either on a paid basis or an incurred basis.

Disadvantages

These methods require identifying suitable surrogates, and then obtaining the data for those surrogates. This may be much easier for some insurance companies (those that already write lines with similar claims issues and have credible historical data for such lines) than for others. Some similar data may be available from industry or competitor Schedule P exhibits, but this publicly available data is likely to include many other lines, rather than just the surrogate.

Additionally, there is no getting around the fundamental issue that the choice of surrogates is in and of itself highly judgmental.

Exposure-Based Model

The Exposure-Based Model previously described, as applied to an individual company's exposures, can be updated based on actual data as it becomes available.

Advantages

The updating can occur before much is known about actual claims experience. Also, the model can be updated in its various parts, without disruption to other parts. As a result, rather fast updates very soon after January 1, 2000 should be possible.

Disadvantages

To the extent actual claim data is not used, the results will not have the credibility of estimates based on actual claims data. Also, it may be difficult, early on, to get meaningful quantitative data to update this model.

Evaluating Coverage Litigation Expense and Defense Costs

As mentioned above, the approach used may differ depending on the nature of the element being evaluated (i.e., indemnity, defense, DJ, subrogation, etc.) For some elements, an indirect approach, such as the Ratio Approach described below, might be warranted.

Ratio Approach

For example, one approach might be to take the ratio of DJ Expense (or defense costs) paid to total losses paid, and apply this ratio to ultimate loss to project DJ cost (or defense cost). This could be further modified by a judgmental recognition that DJ (or defense) expense will tend to be relatively larger in the early days than at ultimate, hence the application of an unadjusted "paid-to-paid" ratio (as mentioned above) would probably be biased high. The ratio of DJ (or defense) paid to indemnity paid over time for a surrogate could be tracked to get a sense of the evolution of this ratio, measured against percent of ultimate paid.

Advantage

There are fewer data requirements than if each potential liability category is evaluated separately in full detail.

Disadvantage

Use of surrogates or paid to paid ratios includes certain assumptions that may not hold for these types of claims. For example, it could be argued that most coverage issues will be settled before most indemnity losses are paid; hence, DJ costs may be reasonably estimable before indemnity costs.

If legal costs are greater than indemnity costs (as many believe is possible for Y2K insurance liabilities), then the ratio of expenses to losses would be greater than one, perhaps significantly so. As such, the ratio may prove to be unstable.

Segmentation by Size

Another approach to estimating DJ costs would be to group known DJs into size categories, say small/medium/large DJ costs. This categorization could be done by the claim or legal department, based on the complexity of the coverage litigation issues. (The assumption is that lawyers should be able to recognize up-front the relative complexity of

a legal dispute, regardless of the particular subject matter.) Average values for small and medium litigation sizes can be based on data for other types of coverage litigation, which have been categorized by the same groupings of small, medium or large. (Values for the large cases would involve great uncertainty, and may require case-by-case analysis.) The accuracy of both the size categorization and average values can be tracked over time based on closed cases and revalued case data, with appropriate adjustments made to the reserve indications.

The average value method mentioned above requires a separate IBNR calculation. While many Y2K claims are likely to emerge soon after January 1, 2000, some later claim count development seems possible. The assumptions regarding later claim count development (by size category) would be highly judgmental, but could be adjusted quickly for actual data. Performing the analysis by industry group may be beneficial.

Advantage

This approach is based on actual litigation experience (relative to legal dispute complexity). It also allows for regular testing and updating of assumptions.

Disadvantage

Due to a focus on known claims, it provides limited guidance as to the number (hence the overall dollar impact) of IBNR claims. It also assumes that legal staff will correctly identify the level of complexity resulting from a new category of claims.

Evaluating Claims Handling Expenses

To evaluate future claims handling costs, at least two approaches exist. The more difficult approach is to build a financial model of claims offices handling Y2K claims. Then, using assumptions about claim reporting patterns, claim complexity, claim settlement patterns, and appropriate staffing model assumptions, the costs to handle claims can be projected. The advantage of this approach is that it has potential for greater accuracy. Disadvantages include the cost involved and additional assumption problems (such as the claim adjuster workdays per Y2K claim.)

A simpler approach is to assume a set ratio of ULAE to indemnity loss, by line, with this ratio applied to loss to project ultimate ULAE. Surrogates could be used that are assumed to match the Y2K claim handling workload. Adjustment could be made for differences in both the amount of claim handling expenses and the average claim size. For example, many Y2K liability claims may involve an allegation of lost profits, which might increase the normal complexity of liability claim evaluation to include an expensive business interruption evaluation component. This may tend to increase the average dollar amount of the ULAE. Other scenarios could lead to a reduction in the average dollar amount of the ULAE. Likewise, average claim sizes could turn out to be higher or lower

than typical for the surrogate, making it more difficult to predict whether these adjustments will increase or decrease the ratio of ULAE to indemnity loss.

The advantage of the simpler approach mentioned above is that it is much cheaper to apply and may be more cost beneficial, as the ULAE portion of Y2K reserves may be relatively minor compared to indemnity, ALAE or DJ costs. A disadvantage is the general difficulty in finding a suitable surrogate.

A slight enhancement of this approach might try to factor in the impact of claims closed without payment, or possibly closed with defense cost only. There may be a disproportionate number of claims initially denied, with many of them dropped by the claimant. Further, some policyholders may file a claim primarily to recover defense costs, with no realistic expectation of indemnity loss recoveries.

Reinsurance Recoveries

Provision for reinsurance recoveries will depend on the interplay of reinsurance programs and the gross or direct Y2K losses. Several different approaches are possible for evaluating potential reinsurance recoveries. One is to simply assume that losses will be reinsured by the same percentage that premiums are ceded. Alternatively, historical ratios of ceded loss to direct loss might be used.

To go further, it is necessary to consider the actual reinsurance programs and the likely sizes of Y2K losses by line. A variant of simply using the ceded premium ratio is to modify it judgmentally based on whether Y2K losses are likely to be reinsured more than average or less than average. For example, in property catastrophe, non-proportional reinsurance, the “occurrence” definition will generally allow for accumulation of all freeze losses (subject to insurance/reinsurance) in a geographic region served by a power company which experiences a temporary outage. The outage may add to otherwise normal freeze losses, increasing the insured loss subject to the reinsurance coverage and increasing the recovery. But the reinsurance coverage may not permit the aggregation of freeze claims from two geographic regions, served by two distinct power companies. Separate “retentions” may have to be satisfied, and that will mean more or less than average reinsurance recoveries will be made.

A more elaborate approach is to model Y2K losses by size and by line and apply the actual reinsurance programs in place. Issues of aggregation, both for satisfying retentions and for applicable reinsurance coverage limits, would be considered in that modeling.

Recovery for defense costs would depend on how defense is treated in the reinsurance contracts. They may be included as “pro rata recovery in the same percentage as reinsured loss” or counted towards the limits as losses are.

Coverage litigation expense may have substantially lower recovery than defense costs or loss. Most reinsurance companies do not consider these as recoverable expenses in the scope of coverage (without specific reinsurance contract wording to the contrary).

Subrogation or salvage recoverables on direct losses can affect reinsurance recoveries according to the reinsurance program terms and conditions.

If Y2K losses are projected to be very large, it may be appropriate to consider whether reinsurance due can actually be fully collected. Reinsurers have many programs in effect from a variety of ceding companies and lines of business, so that their accumulations are multiples of the single company recoverable (also called “contagion of losses”).

The company may also have purchased a specific (possibly finite risk) Y2K reinsurance contract that would apply before or after recoveries from other reinsurance in place.

Issues for Reinsurers

Reinsurers will have the usual reporting delays typical of catastrophe event losses or large liability losses, made worse by the additional delays that may occur because of DJs, and uncertainties associated with a one time event (e.g., no historical precedents to analyze or surrogates to use). Due to the notoriety of this exposure, ceding companies may accelerate reporting (or cash calls for advancing of funds) with projections of subject claims and expenses. Thus, on balance, it is not clear whether reporting will be faster or slower than normal. It will, though, likely take reinsurers longer to get credible data to estimate IBNR reserves than their ceding companies.

Reinsurers might take a global Top-Down, modified Market Share, approach once industry projections are available to evaluate their possible liabilities. They might also rely on representations and analyses from ceding companies. Once actual claims start being reported, then they could begin to make use of other methods, such as the various aggregate methods. However, some believe that estimability will be even more of an issue for reinsurers.

Finally, reinsurers will also be affected by retrocessional program recoveries and collectibility issues.

APPENDIX A – Evaluation Checklist

The following is an illustrative checklist for organizing or scheduling the workload related to evaluating Y2K liabilities. It is meant to illustrate and raise some of the potential scheduling issues, nothing else. It is not intended to be (and is most likely not appropriate for use as) a model for any particular actuary or company.

JULY—SEPTEMBER 1999

- Determine coding for Y2K claims, and determine if claims adjusters, processing people, and electronic data systems are prepared to code and process this data. Various coding and data issues are mentioned in this paper, some of which are in Appendix B.
- Agree on responsible parties for Y2K liability evaluation and reporting in the actuarial and financial reporting areas.

SEPTEMBER—OCTOBER 1999

- Review literature on possible Y2K loss exposure and begin to determine whether it is plausible that there could be material Y2K exposure to the particular insurance company.
- Review claims department preparedness for Y2K claims, and planned frequency of reporting starting the first week of January.
- Commence ongoing review of competitor disclosures.

NOVEMBER 1999

- Talk to outside auditors about possible exposure and proposed approaches, and obtain their views on disclosure and timing.
- Make initial evaluation as to whether a year-end 1999 accrual, or disclosure, or possibly a premium deficiency accrual, might be appropriate (for DJ, defense, and/or indemnity reserves).
- Identify initial alternative methods for evaluating Y2K liabilities.
- Present issues and proposed approaches to management, including claims counsel, and possibly the Board of Directors.
- Determine the company position relative to Y2K and premium deficiency reserves (if any reporting is done on a GAAP basis).
- To the extent surrogates will be used for any of the methods, start obtaining the surrogate data, so it will be ready when Y2K claims data starts becoming available.
- Define various computer programs needed to analyze data, and commission the necessary work to get them in place by January 1, 2000. Test these programs.

DECEMBER 1999

- Evaluate potential need for a 1999 accrual or disclosure.

JANUARY 2000

- Based on information available prior to the close of the books for 1999, if it is believed that an accrual for 1999 is needed, make such an accrual; note that this accrual would NOT be for Y2K losses that go against exposure year 2000.
- As adequate data becomes available, produce initial projections of liabilities.
- Determine whether or not to discuss Y2K in the December 31, 1999 actuarial opinion (relative to significant risk factors).
- Evaluate need to disclose as a material subsequent event.

JANUARY—MARCH 2000

- Re-evaluate status as claim data develops.
- As appropriate, change or refine methods.
- Review compliance with evolving Y2K disclosure standards set by the state, the actuarial profession, and other similar parties.

APRIL 2000

- In early April, evaluate potential accrual for exposure year 2000 as of March 31, 2000.
- Update accrual (if any) for exposure years prior to 2000.

SUBSEQUENTLY

- Continue reviewing claims and loss data, re-evaluating quarterly, at least through the end of 2000.

APPENDIX B – Data Requirements

The following list identifies some data elements that may be particularly useful for Y2K claims. These classifiers would be in addition to other normally captured data such as policy ID, claim ID, producer ID, transaction date, date of loss, line of business, etc.

- 1) Type of Y2K failure
 - a) Embedded chip failure
 - b) Written program code failure
 - c) Remediation—no failure
- 2) Y2K exclusion? (Y or N)
- 3) Coverage defense issues? (Y or N)
- 4) Injury description
- 5) Y2K was immediate cause or aggravating
- 6) Alleged Trigger
 - a) Manifestation
 - b) Installation
 - c) Design
 - d) Continuous
 - e) Remediation
- 7) SIC Code or equivalent

APPENDIX C – Survey of Big Five Accounting Firms

As part of this white paper on Y2K insurance liabilities, the Work Group conducted separate telephone interviews with accountants representing each of the Big Five accounting firms. While the goal was to ascertain the positions of the firms as opposed to individual opinions, it was clear during the interviews that firm policy was still developing at this point and that not all issues in the survey had been fully addressed or resolved by each firm.

Each of the Big Five accounting firms was contacted through members of the CAS. We requested that our survey be directed to people within their respective firm who had responsibility for shaping firm policy relating to insurance accounting matters. All respondents were promised confidentiality and were guaranteed that their firm would not be identified regarding specific responses. All of the Big Five firms willingly participated.

The survey questions are listed below, in bold, followed by a summary of the responses.

Representations

Question 1. Have you or will you require any special representations from your property casualty insurance or reinsurance audit clients concerning their exposure to Y2K losses?

If yes, what would the nature of the representations be, and at which accounting dates would you require them?

- a. December 31, 1998**
- b. December 31, 1999**
- c. Interim quarters during the 1999 calendar year**
- d. Post January 1, 2000**

If no, why not?

No firm indicated that such a representation had been required at December 31, 1998.

As for subsequent accounting dates, no firm indicated that a decision had been made as yet to require such a special representation. However, one firm did indicate that they would want audit clients to demonstrate their awareness of Y2K coverage issues such as policy exclusions, whether claims had been asserted and whether management believed that they could quantify such exposure.

Two firms indicated that the issue of future representations was still being studied and no position had been reached to date. The remaining two firms indicated that individual circumstances would dictate the need for a specific representation. One firm added that Y2K insurance liabilities should not be treated differently from any other material exposure and that current representation requirements are sufficient.

Coverage Triggers

Question 2. In the case of a product malfunction that causes an insured loss, some may allege the date of the loss is the date the product was designed or manufactured, while others may allege the date of loss is the actual date of malfunction. The event that results in coverage under the policy is called the “trigger”.

Will your audit process include a check on the coverage trigger assumptions the insurer is using? If yes, what processes would you use as a check?

- **A process based on an analysis of its policy language, lines of business and types of insureds written?**
- **Examination of the specifics of claims reported to date, if any?**
- **Your view based on what others in the industry are doing?**
- **Your view based on trigger interpretations for other mass torts?**
- **Other?**

All respondents indicated that a review of the individual company facts and circumstances would be a necessary part of an audit. One respondent left it at that, stating that Y2K raised no unique issues relative to this issue, hence it was not on their radar screen.

As to the individual items listed above, one respondent stated that they would start with the first item on the list, while another respondent would do all but the first item (which was characterized as ineffective). All four with opinions would review claims reported to date. Three of the firms indicated that industry treatment of trigger assumptions as well as prior experience with mass torts would play a role in their audit tests, while two firms stated that these latter two items would not be a factor (as only the company’s own experience relating to Y2K would be relevant). All of the firms agreed that a legal opinion on the appropriateness of the trigger assumptions would be important and that absent a judicial opinion to the contrary, they would be hard-pressed to challenge such an opinion.

Will you be comparing the various trigger assumptions across your client base to ensure reasonableness of your clients’ disclosures and reportings?

All of the firms indicated that they expect to see differences in trigger assumptions until judicial rulings have been made. Therefore, while some may review their client base, no one indicated that they would do so with an eye towards requiring consistency in assumptions.

Tests for “No-Exposure” Representations

***Question 3.* If an insurer represents that they have no material exposure to Y2K losses, what audit procedures will you employ to test or verify that this is an appropriate representation? Will your audit procedures vary depending upon the lines of business insured or reinsured by your clients?**

All of the respondents indicated that tests would vary based on individual circumstances, including whether or not the company had obtained a legal opinion supporting this position; what the claims history had been to date and which lines of business the company had written. One firm indicated that the scope and nature of the testing would depend upon the company’s general risk and control environment. One firm offered the opinion that it would be very difficult to make such a representation before January 1, 2000.

A. **If yes, which lines of business are you most concerned about?**

- **Warranty**
- **Directors and Officers**
- **Professional Liability/Errors and Omissions**
- **Casualty Quota Share Reinsurance**
- **Business Interruption**
- **Boiler and Machinery**
- **General Liability**
- **Personal and Commercial Automobile**
- **Workers Compensation**
- **Property**
- **Ocean Marine**
- **Inland Marine**
- **Other, please elaborate**

One of the respondents did not identify specific lines of business. Of the remaining four respondents, all identified products liability, D&O and professional liability (E&O) as lines with (or close to) the greatest potential for some exposure. Three respondents identified general liability and business interruption, while two respondents identified concern with warranty and boiler & machinery.

Balancing Accruals

Question 4. What efforts will you take to balance accruals and disclosures for Y2K exposure made by your insurance and reinsurance audit clients with those made by insureds and potential claimants? For example, how would you handle a situation such as the following: A client that is a manufacturer of a product that has suffered a Y2K malfunction discloses that exposure to loss, while material, will be covered by their insurance policies. At the same time, your insurance client asserts that product malfunction due to Y2K is not covered under a standard product liability policy.

All of the respondents indicated that it would be highly unlikely that there would be mirror accounting entries between insureds and insurers (or for that matter between insurers and reinsurers). In addition, it was indicated that it would be inappropriate to compare one client to another.

FASB has promulgated more restrictive standards for recognition of assets versus liabilities. An accrual for a liability is based on Statement of Financial Accounting Standards No.5 (FAS 5). According to FAS 5, if it is probable that a loss has been incurred and the amount of loss is reasonably estimable, then a provision must be recorded in the balance sheet. Therefore one would expect that, if reasonably estimable, both insureds and insurers would need to record provisions for Y2K losses should they be deemed probable. On the other hand, there is a higher standard for recording of an asset; namely the company must demonstrate collectibility. It is conceivable that for a period of time, should Y2K losses occur, liabilities would be recorded on the balance sheets of both insureds and insurers but assets representing recoveries from insurance policies would not be recorded.

Recording of Reserves

Question 5. Under what circumstances will you allow an insurer to record a material reserve for Y2K claims? When would you require such a reserve? Consider the following:

- **No claims have yet been filed against any insurers, but an insurer is reasonably certain that claims will be made, and that some will allege exposure on in-force or expired policies. The insurer plans to fight any such claims, and does not know if it will be successful. Would the insurer be allowed to reserve for anticipated declaratory judgment expenses (i.e., expenses incurred in litigating coverage issues)? Would the insurer be allowed to reserve for indemnity losses that may have to be paid out on these IBNR claims?**

There was no consensus of opinion. Two firms indicated that the fact that no claims had been filed would indicate that exposure to loss was unlikely and therefore no accrual for indemnity would be allowed. One of the two indicated that not even declaratory judgment

costs could be accrued since claims had yet to be filed, the other would allow such an accrual. One firm indicated that the specific facts and circumstances would dictate the outcome; if there were a valid legal opinion indicating that losses were probable, a reserve would be required. Another firm agreed that given valid individual facts and circumstances, a reserve would be allowed. They further specified that they can not require any provision be recorded, they can only opine on the accuracy and fairness of the overall financial statements. The final firm did not wish to comment on specific scenarios.

- **Amend the above situation so that claims have been filed against other insurers, but the insurer you are auditing has not yet received any claims. Does that change your answer in any way?**

This did not produce a change in the opinion of any of the four respondents.

- **A claim is filed against an insurer, and the insurer plans to fight the claim. The insurer is uncertain of the eventual outcome, given that there have not yet been any judgments regarding the coverage issue being disputed. Would the insurer be allowed to record a reserve for the possible indemnity loss? Would the insurer be allowed to record a reserve for the anticipated declaratory judgment expense associated with the claim? Would the insurer be allowed to record IBNR reserves (indemnity and/or declaratory judgment expenses) for claims that may be filed in the future?**

Under this scenario, all four respondents would allow an accrual for defense or declaratory judgment expense given the fact that a claim had been filed. Two of the firms would also allow provisions for potential indemnity to be accrued, provided it was estimable. One of these two firms stated that an indemnity reserve would be required if it was believed to be material to the company.

- **Assuming an insurer is allowed to record reserves, they would also record reinsurance recoverables for those reserves expected to be ceded to reinsurers. The insurer expects that the reinsurers will dispute the claims. Should the insurer be allowed to record a reserve for disputed reinsurance recoverable?**

Three of the four respondents indicated that they would allow the ceding company to record an asset representing the recovery under the contract. One of the three indicated that they had yet to see Y2K exclusions in reinsurance contracts, another indicated that they would expect reinsurers to follow form with insurers and the third expressed concern as to whether the reinsurance recoverable could be accurately estimated. The lone dissenting opinion stated that if the reinsurer was disputing a recovery, the ceding company would need a strong basis for recording an asset.

- **An insurer has policies in-force that are not yet fully earned as of 12/31/99. An unearned premium reserve is booked, based on the written premium for the policy and the percentage of the policy period that remains. However, given the**

Y2K exposure remaining on the unearned portion of the policy, the insurer does not feel that the unearned premium reserve is adequate to cover claims that may take place in the remainder of the policy period. Should the insurer be allowed to record a premium deficiency reserve? Does the answer vary according to whether or not there have been any Y2K claims reported to the insurer, or to the industry? Does the answer vary depending upon the length of the policy (i.e., long-duration or short-duration contract)?

Of the four respondents three would allow posting such a provision provided that the event is probable and the provision is estimable. The fourth firm had serious doubts as to whether a company could sufficiently demonstrate that future losses are probable in the absence of current reported losses, and therefore, would not allow a premium deficiency accrual. (Policy length did not seem to be an issue, possibly since at least one didn't expect a material volume of impacted long duration policies to exist.)

Earning of Premiums

Question 6. If an insurer includes a charge for Y2K exposure in its premium for a policy and assumes that the trigger for some (or all) of the expected Y2K claims would be 1/1/2000, it appears that the premium should not be earned in a steady manner; instead, the bulk of the premium should be earned at or around 1/1/2000. What is your opinion of this? Should the earning of the premium relate to the establishing of reserves discussed above in #5? For example, if premium specifically charged for Y2K exposure is earned before 1/1/2000, should a corresponding loss reserve be established? Conversely, if a loss reserve is not allowed, should the premium charged for Y2K exposure be earned into income or kept as unearned premium?

Four of the firms indicated that they would allow an earnings pattern that would be other than pro rata, though one of these four indicated that the rebuttable presumption would be that all premiums would be earned pro rata and the insurer would need to demonstrate why such an uneven pattern is supportable. One of the four noted that the earnings pattern would also be impacted by the return premium (in the event of cancellation) provisions in the insurance contract.

The remaining firm would not allow other than a pro rata earnings pattern.

Acceptable Methods for Quantifying Exposure to Loss

Question 7. What support would the insurer have to provide to justify the reserves recorded in #5? What is your position regarding loss reserve estimates based on the following approaches:

- Market share method, whereby the reserve is calculated by multiplying an estimate of the total insurance industry loss by the specific insurer's estimated share of the industry's losses. This calculation could be done by line of business and by year.
- Loss development methods, whereby losses for reported claims are multiplied by a factor to account for future claims and development on known claims.
- Estimates made by assuming that the losses will be x% higher than normal, due to Y2K, with x% estimated using judgment.
- Ground-up estimates made based on assumptions regarding the frequency of events for which each individual insured is likely to file claims and the severity of those events, with comparisons made between the assumed severity of the individual events and the limits and deductibles associated with each insured to estimate the covered loss per claim. The assumptions could vary by line of business, policy year, and the specific nature of the individual insureds (industry, size, etc.).

All of the firms agreed that not all of the methods noted above would be acceptable at all time periods (e.g., standard loss development methods are useless until there is reported loss activity).

Method #4 was considered the best by all of the respondents, provided there is loss activity to model. Method #1 was considered the least reliable by the group, with four of the respondents strongly arguing that such a method would not be acceptable to justify recording a liability; the fifth expressed skepticism but did not rule it out altogether. All would allow Method #2, at some point in time, and the group was mixed regarding the validity of Method #3.

Impact of Post-January 1, 2000 Activity on December 31, 1999 Audit Opinions

Question 8. What impact will loss activity (both in terms of underlying policyholder losses and claims filed against insurers) during the first quarter of 2000 have on your 1999 audit opinions?

All of the respondents indicated that the individual facts and circumstances involved would dictate the action. The primary concern would be whether or not the magnitude of the loss activity would require a going concern disclosure on the audit opinion. One firm

expressed doubt that one quarter of activity would be sufficient to change a valid audit opinion, especially if no judicial opinions had been rendered. Another firm indicated that even if the activity was substantial, it would be difficult to determine in short order whether or not the losses were first quarter events (hence no impact on year end audit opinion) or if in fact they were prior year events.

APPENDIX D – Survey of 13 Regulators

This section of the White Paper documents the responses of regulators from 13 state insurance departments to 12 questions related to insurance company losses resulting from Y2K failures. The departments were selected so that there was a representative sample of both large and small states. The questions were mailed to regulators in advance and were answered during telephone interviews conducted during the month of April 1999.

The questions were mailed to the department's chief examiner or deputy overseeing property/casualty company examinations. In most cases, the telephone interviews involved the examiner plus a department actuary and other staff that the examiner deemed appropriate. The questions were discussed in an open-ended format with two members of the CAS Work Group who then summarized the results of the interviews from their notes. Throughout the interviews, regulators were encouraged to share their own opinions as well as those of the department. In all cases, the departments were assured that individual state responses would be kept confidential.

The section below reproduces the questionnaire and, following each question, provides a summary of the responses. The Work Group has attempted to present the summaries in a way that would indicate where there was a consensus, or at least a majority view, in response to a particular question. Where appropriate, minority opinions are included, as well as relevant comments that might help clarify the feelings of the regulators.

Question 1. Most industry experts expect that there will be claims for Year 2000 (Y2K) related problems, primarily for GL, Products, Business Interruption, D&O and Professional Liability (Errors and Omissions, Medical Malpractice) coverages. Estimates however, range from relatively minor to very significant amounts (e.g., similar to A&E exposures).

Which of the following statements best reflects your view of the significance of Y2K claims for insurers?

- **I am very concerned. I expect a large number of Y2K claims, and some insurer insolvencies are possible.**
- **I am concerned that insurers will see significant decreases in profitability or surplus as a result of Y2K claims.**
- **I expect some claim activity, but do not expect it to have a significant effect on insurer profitability.**
- **I do not expect significant claim activity.**
- **I have no opinion on the matter.**

Does your answer to the above question vary depending on whether the focus is on insurers domiciled in your state, insurers licensed in your state but domiciled in other states, or the U.S. insurance industry as a whole? If so, how?

Ten of the 13 states surveyed believed that there would be some Y2K claim activity, but that it would not have a significant effect on insurer profitability, either for domestic or

foreign insurers. Three states foresaw a significant effect on profits or surplus for *some* companies. D&O, E&O and products writers were cited, but these were generally not a concern for states that commented because no domestic companies fit that description. Six states that expect a significant number of claims also stated that they expected few paid losses. One state cited exclusionary language in policies as a reason. One state saw Y2K remediation efforts as having a more significant impact on insurer profitability than Y2K claims.

Question 2. What proportion of these losses do you anticipate will be for legal defenses, including the cost of coverage defenses (i.e., declaratory judgment costs)?

The states unanimously foresaw legal expenses equal to or exceeding indemnity payments, i.e., greater than or equal to 50% of total costs. Five states expected expenses to equal or exceed 75% of total costs. Of the seven states expressing a view on the proportion of legal costs associated with DJ actions, five expected DJ costs to exceed policyholder defense costs, and one thought they would be about equal.

Question 3. Has your state approved policy exclusion language for Y2K exposures?

All of the states interviewed have approved some form of Y2K exclusionary language. 12 of the 13 states mentioned that the most common exclusions were standard ISO exclusions, and six states specified that they have approved exclusions other than ISO. Several of the states indicated that there were instances where exclusions were not allowed, as follows:

- Two states stated that exclusions for Y2K-related claims that were caused by other perils were not allowed. One gave examples of exclusions that were rejected (burglaries that take place while burglar alarm fails due to Y2K cannot be excluded from burglary coverage, Y2K-related power failure causing damage cannot be excluded if power failure is covered cause of loss, insurance agents providing bad advice on Y2K cannot be excluded from insurance agents E&O, etc.), while the other stated that exclusions containing concurrent causation language are rejected.
- Two states stated that exclusions were approved for commercial policies only, with one of those states stating that it had issued a bulletin clarifying the use of Y2K exclusions.
- One state indicated that they do not accept exclusions on a blanket basis; they require the companies to justify their appropriateness by class of business.
- One state said that they rejected language that attempted to exclude all date-related claims (such as those that may arise from 9/9/99).

One state noted that they felt they had no leverage to reject the Y2K exclusions, as the industry had been able to exclude other potential causes of loss, such as exposure to lead.

Question 4. Are policies that provide Y2K coverage approved for use in your state?

All of the states but one stated that they had seen some policies filed that cover Y2K claims (the other state was not certain, as they did not have a representative from their rates division present). Eight of the 12 that had seen some form of coverage stated that it was primarily the ISO endorsements that allow the buyback of coverage otherwise excluded. Only five states said that they had seen policies other than these, while two specifically stated that they have not seen anything but the ISO buyback endorsements. Only one state said that they did not approve the policies providing coverage – they stated that the ISO buyback endorsement was rejected because they felt it would mislead insureds about the amount of coverage they would actually get. Two states commented that the policies specifically providing Y2K coverage were fairly rare, and another commented that they speculate that the underwriting expense would make such coverage unattractive.

Question 5. Do you anticipate any special disclosure procedures during calendar year 2000 (related to Y2K claims) in support of examinations conducted on year end 1999 financial statements?

Five states will specifically ask for comments regarding Y2K-related issues either in financial disclosures, the management discussion and analysis, or elsewhere. The remainder will not adopt any special procedures, but will rely on normal rules of disclosure and routine questions about subsequent events to uncover any significant Y2K issues. One state requires all its domestic companies to comply with the more strict SEC disclosure requirements with respect to management's discussion and analysis and audited financial statements, and is confident Y2K issues will therefore be covered. One state expects to see Y2K disclosures in Statements of Actuarial Opinion. One state favored an NAIC-sponsored mid-year call to assess Y2K claim activity.

Question 6. Some would argue that the occurrence date of a Year 2000 loss event could precede December 31, 1999 (e.g., the manufacture of a defective product). Will you require companies to reserve at December 31, 1999 for such Y2K events that may take place in 2000? Why or why not?

The states were unanimous in their position that they would not arbitrarily mandate a requirement that companies reserve, in their December 31, 1999 financial statements, for losses resulting from Y2K failures that take place in 2000. However, approximately one half of the states opined that the legal profession would make the prior occurrence date argument and that companies would expend significant legal expenses in defense of coverage issues related to occurrence date.

When asked to comment on why they would not specifically require these reserves, states listed a variety of reasons. Among these were the following:

- the reserves would not be reasonably estimable for the December 31, 1999 financial statements,
- the use of modified policy language and claims made policies would eliminate the exposures, and
- the belief that occurrence date is the same as failure date.

However, the most frequent response was that it was the responsibility of the companies' reserving experts to recognize the exposures and prevailing legal environment and to establish reserves accordingly. The states would not force companies to recognize a reserve position that might be contrary to that interpretation.

Question 7. Will an analysis of Y2K-related reserve balances be a priority for your examinations and year-end 1999 reviews? For year-end 2000 reviews?

The states were unanimous in their expectations that they would not have special requirements or make an analysis of Y2K-related reserve balances a priority for year-end 1999 reviews. However, four states indicated that they would make an evaluation of these reserve balances a priority for certain companies during their triennial examinations conducted during 2000. The focus would be on targeted exams for companies with significant potential exposure to Y2K losses. In addition, two other states intended to develop questionnaires that specifically addressed Y2K issues for inclusion in the scope of their triennial exams. Several states also specifically commented that their priority level would increase if the volume of Y2K-related claims turns out to be significant.

For the year-end 2000 reviews, the majority of states indicated that they would determine the level of priority after an evaluation of the significance of actual Y2K claim activity.

Question 8. Do you anticipate requiring companies to provide additional information or analysis in support of either year-end 1999 or year-end 2000 reserve estimates? Do you support the inclusion of a specific reference in the Statement of Actuarial Opinion as to the reasonableness of these reserve balances?

Only three states expected that they would be asking companies to provide specific additional information regarding Y2K-related reserve estimates during 2000. These states expected to obtain this information via the MD&A¹ or specific requests of companies with potential Y2K exposures. When asked about year-end 2000 reserves, approximately half of the states indicated that they would request specific information on Y2K losses.

¹ Management Discussion & Analysis, part of the year-end statutory reporting requirements. MD&As include forward-looking statements.

With regard to the inclusion of a specific reference in the Statement of Actuarial Opinion as to the reasonableness of Y2K-related reserve balances, only three states favored this requirement for year-end 1999, while approximately one half did so for year-end 2000. Several of these indicated that they would favor a reference, even if the reserve balances were not material. On the other hand, of the remaining states that did not favor a specific reference, they generally took the position that the opining actuary has the responsibility to identify any material liabilities in the “relevant comments” section, and therefore, no special requirement is necessary.

Question 9. What activities do you anticipate taking place during 1999 and 2000 to prepare for the reserve reviews, e.g., discussions with companies on data capture and formatting issues, ongoing monitoring of claim activities and strategies, etc.? Are there activities that should take place at the NAIC or the professional actuarial societies?

More than half of the states queried plan to take a proactive role in monitoring and regulating the Y2K activities of insurers and reinsurers. Steps include monitoring claim practices, constructing target exams, sending out questionnaires, reviewing contingency and remediation plans as well as reserve levels and practices, and holding discussions with specific companies.

Roughly half the states expressing an opinion on the NAIC felt that there were specific roles it could play to help state regulators and others to handle the Y2K issue. In general, these states felt that some overall guidance on Y2K reserving issues from the NAIC would be appropriate. One specific example was holding open discussions at the quarterly meetings in order to provide regulators with a forum for sharing ideas and evaluating approaches that companies are using for claim strategies and other Y2K loss-related issues. Others included the NAIC working on data system preparedness and coordinating discussions regarding commonality of data capture and formatting among insurers and states.

Several states suggested prominent roles for actuaries. One felt the Casualty Actuarial Society (CAS) could provide additional continuing education opportunities, a second cited the CAS Work Group’s “Evaluation Methods” section of this White Paper as a positive contribution. Several noted that input from the actuarial community was ultimately critical to the reserve evaluation process for Y2K liabilities.

Question 10. Do you think that most companies domiciled in your state (or most companies licensed in your state) have a good handle on what to expect for Y2K type claims given their exposures?

Six of the thirteen states interviewed felt that insurance companies had a reasonably good handle on what to expect on Y2K claims. Three states felt that companies did not have a

good handle on Y2K, although several of these states framed this opinion within an overall context that it is likely that no industry has a good measure of this problem. Four states were unsure, in part because any positive impressions they might have had come from self-audits and opinions of the insurance companies themselves.

Concerns seemed to revolve around whether companies were adequately prepared for Y2K outcomes worse than anticipated, ranging from reasonably adverse to “worst case” scenarios. For example, regulators feel that a significant volume of claims may be filed, with resulting high legal expenses, and that some companies may not be sufficiently prepared for this. They also worry that some companies either don’t have the resources to adequately address Y2K issues or are in denial as to its potential impact. Some regulators also stated that many companies are focusing largely on their own internal Y2K operations/systems issues, which may distract them from equally important Y2K underwriting issues.

Question 11. Do you anticipate that there will be ratemaking issues arising from Y2K claims? For example, have any carriers submitted filings that specifically reflected anticipated additional claim activity for policies with exposure after 1/1/2000? For future filings that will be submitted that may include actual claim data for Y2K losses, would you expect some kind of special adjustments to account for the one-time nature of this event (similar to catastrophes)?

None of the states had seen any filings that explicitly included a provision for Y2K claims.

For future filings, nine of the states said that they would expect some adjustment made to the data, if losses are significant. Two of these expect the losses to be spread over a large period of time, as is done with hurricanes, while six expect the losses to be removed altogether. One of the six specifically said that the losses should not be spread over time, as ratemaking is not a recoupment process and Y2K is different from a catastrophe. One of these states recognized that some future policies, such as claims-made D&O policies, could have Y2K claims, and so a provision may be appropriate.

Of the remaining four states, two believed that competitive pressures would prevent companies from including Y2K claims in their ratemaking data, while the other two will take more of a “wait-and-see” approach, with their actions depending on the magnitude of the claim activity.

QUESTION 12. Are there any other Y2K issues or concerns that we haven't talked about that you would like to raise?

Regulators in individual states raised a number of other issues or concerns, including the following.

- The possibility of bad faith charges against insurers was noted, both from reinsurers and claimants.
- Some state legislatures have passed statutes limiting Y2K liability - this may mitigate Y2K exposures in those states.
- Prior to the actual occurrence of Y2K related failures and the subsequent filing of claims, it is difficult for regulators to force companies to take specific steps. State statutes don't provide for this and the most regulators can do is try to ensure that companies are prepared with contingency plans and Y2K-compliant systems.
- The responsibility for the analysis and evaluation of liabilities for Y2K-related losses belongs with the actuarial profession. Actuaries need to be sure that they are "up to speed" on the issues involving Y2K claims, and that their analysis follows professional standards and methods.
- The issue of good data, i.e., uniformly captured with "clean" definitions of what a claim is, was stressed. The regulator felt that actuaries had an important role to play in this area.
- How will reinsurers handle Y2K? Specifically, will they argue that this is a single occurrence or a series of events?
- The need for general and legal preparedness, plus extensive contingency planning by the companies, was stressed by several states.

APPENDIX E – Y2K Timeline

History up to current time

<u>Time</u>	<u>Event</u>
1950s +	<u>Mainframe software with 2-digit date fields</u> created and implemented.
1980s +	<u>Embedded chips with 2-digit date fields</u> and date dependent operation created and implemented.
1990s +	<u>PC software (for higher-powered PCs) with 2-digit date fields</u> created and implemented.
Mid to late 1990s	<u>Remediation efforts begin</u> (for most companies).
1997	<u>ISO Y2K exclusion endorsements created</u>
July 1997	<u>First Y2K related legislation</u> Provides for a form of governmental immunity from Y2K related lawsuits, for the state of Nevada and political subdivisions.
August 1997	<u>First documented Y2K lawsuit</u> ¹ Alleged a breach of warranty, as well as other claims, involving inability of system to process year 2000 credit card expirations. First lawsuit to have claimed actual damages (e.g., loss of business).
December 1997	<u>First documented Y2K class action lawsuit</u> ² Alleged breach of warranty, fraud, deceit, and fraudulent and unfair business practices, involving cost of updating non-Y2K compliant software (that had yet to have a Y2K failure).
April 1998	<u>Congressional Y2K committee established</u> Senate Special Committee on the Year 2000 Technology Problem approved April 3, 1998, to be chaired by Senator Bennett.
May 1998	<u>First Y2K related D&O suit</u> ³
October 1998	<u>Federal Y2K legislation</u> Year 2000 Information and Readiness Disclosure Act enacted. This act gives limited immunity for good-faith Y2K related disclosures.

- December 1998 **First Y2K related DJ**⁴
Insurance provider claiming no obligation to defend, indemnify or pay defense costs to a software manufacturer for Y2K related damages or expenses.
- January 1999 **First Y2K class action against a government entity**⁵
The second Y2K lawsuit to claim actual damages (inability of welfare recipients to purchase goods due to Y2K-related computer failures affecting electronic benefits cards, which are similar to ATM cards.)
- June 1999 **First Y2K DJ regarding insurance coverage for remediation expenses**
Insured is claiming remediation expenses are covered under the "sue and labor" clause of a four-year property policy spanning January 1, 2000.⁶
- July 1999 **Federal "Y2K Act" passed**
Supersedes state laws for certain Y2K civil actions. See Appendix F for a partial description.
- August 1999 Through August 2, 1999, nearly all suits have involved software patch/upgrade or hardware upgrade/modification costs to prevent Y2K damages. Only two suits claim "actual" damages, out of around 69 lawsuits, with two DJs filed regarding remediation expense reimbursement (both regarding the "sue and labor" clause).
- Through August 2, 1999, there were about 50 bills passed in state legislatures.⁷
- Through August 2, 1999, there were still some major states that had pending Y2K bills that had not yet adjourned their 1999 state legislative session (e.g., California).

Remainder of 1999

3rd, 4th Qtr 1999

More Y2K lawsuits could develop prior to actual damages. Potential for some with actual damages (e.g., erroneous inventory destruction).

Additional Y2K legislation passed. Much of this legislation can be grouped into general categories of:

- i. governmental immunity.
- ii. limited immunity for Y2K related disclosures.
- iii. bills reforming or limiting the tort process regarding Y2K systems failures, including lists of affirmative Y2K related defenses, mandatory "cooling off" periods, etc.

Note that most state legislatures closed their 1999 session by August 2, eliminating any chance for additional Y2K legislation before January 1, 2000. In addition, it is not known how the federal "Y2K Act" will affect Y2K lawsuits or state legislation through the remainder of 1999.

January 2000 - one possible scenario

Time

January 2000

Scenario Event

Y2K related failures occur, causing one or more of the following.

- i. Remediation expenses
- ii. Damage to data
- iii. Business interruption
- iv. Physical damage
- v. Bodily injury

These events start 1/1/00, but continue occurring through the first quarter, and possibly subsequent quarters.

First party insurance claims filed due to Y2K failures.

- i. Damage to data
- ii. Business interruption
- iii. Physical damage

Lawsuits filed due to Y2K failures, seeking to recover costs from

- i. Remediation expenses
- ii. Property damage
- iii. Bodily injury

Insurance claims filed due to the lawsuits.

Lawsuits filed due to Y2K related loss of shareholder value.

Many Y2K insurance claims denied.

- i. Remediation
- ii. Damage to data
- iii. Business interruption
- iv. Possible other areas

Certain Y2K related insurance claims settled due to individual facts & circumstances (e.g., policy language, nature of injury/damage). Claims involving actual property damage to physical objects, or involving bodily injury, on first party policies, are the ones most likely to be settled early.

Y2K related subrogation lawsuits. (These may be deferred by some insurers until after sufficient case law develops.)

Post 2000 - one possible scenario

1 st Qtr 2001	<p>2000 financials disclosed. These would reflect decisions regarding 12/31/00 Y2K reserves for indemnity, defense and DJ costs.</p> <p>Trigger issues now are focused more on avoiding Y2K exclusions, and not in determining a loss versus premium deficiency split.</p> <p>Year-end actuarial opinions due, including opinion on Y2K related loss and LAE reserves.</p>
2001	<p>Additional lawsuits filed, leading to additional insurance claims.</p> <p>More court decisions finalized, including appeals court decisions. These decisions impact the filing of future suits. Plaintiff wins lead to more suits. Defendant wins lead to fewer suits. (Note: the existence of more lawsuits does not necessarily mean more insurance claims. That would depend on the outcome of DJ actions, mentioned below.)</p> <p>Some insurance coverage related DJ court decisions (from lower courts). These impact the likelihood of the above-mentioned lawsuits resulting in insurance claims, despite the fact that appeals are possible.</p>
2002	<p>Statute of limitations reached for filing some Y2K related claims.</p>
2007-2010	<p>Most of Y2K related litigation should be finalized, and cash flow consequences settled.</p>

Source for legal references:

Information Technology Association of America (ITAA), www.ita.org/year2000/legis3.htm as of May 21, 1999 and July 6, 1999.

Next Millennium Consulting, Inc., www.consult2000.com/litigati2.htm as of May 20, 1999 and July 6, 1999.

DISCLAIMER: NMC and ITAA are providing the information contained in these tables for informational services only. This information is not to be construed as legal advice. NMC and ITAA make no representations, assumptions or opinions as to the facts or outcomes of these cases.

Federation of Insurance & Corporate Counsel, www.thefederation.org/Public/Y2K/lawsuits.htm, as of May 20, 1999 and July 6, 1999

¹ (Produce Palace International v. TEC-America [and its local service vendor All-American Cash Register Inc.]), filed August 4, 1997. Dealt with inability of cash registers to process credit card transactions with a Year 2000 expiration date.

² (Atlaz International Inc. v. Software Business Technologies) Date filed: December 2, 1997. Class-Action Suit. Cause of Action - Breach of Warranty; fraud; deceit; fraudulent and unfair business practices.

Atlaz alleges new version of software differs only by ability to recognize Year 2000 date change and that defendants are requiring plaintiff class to pay for this essential upgrade.

³ (Doney v. Command Systems, Inc.) Date filed: May 6, 1998. The underlying actions alleged that initial share prices of Command Systems, Inc. were artificially inflated because the company used public concern over the Y2K problem to falsely represent that it would focus on selling Y2K solutions to businesses.

⁴ (Cincinnati Insurance Company v. Source Data Systems, Inc. et al.) Date filed: December 4, 1998. Insurance provider asked a court for declaratory judgment that it has no obligation to defend a software manufacturer in a Y2K claim brought by a purchaser, no duty to indemnify, and no obligation to pay defense expenses.

⁵ (Miller v. James and the State of Alabama) Date filed: January 14, 1999. This is the first class action lawsuit filed against a government entity. Plaintiffs are Alabama welfare recipients and recipients of state-administered child support payments. They allege that they have experienced delays in payments, and malfunctions of electronic benefits transfer cards (similar to ATM cards), due to Y2K-related computer failures, resulting in the inability to purchase goods. They also allege that the state of Alabama has failed to take actions to remedy serious potential Y2K problems in government systems. Plaintiffs also allege that the Alabama Legislature improperly mandated Y2K fixes in government systems without appropriating funds for the work, and that government departments are diverting funds from essential services for Y2K fixes.

⁶ The "sue and labor" clause originated with marine policies and deals with prevention and mitigation expenses. This clause is not part of the standard ISO policy forms. It is generally associated with certain manuscript forms.

⁷ See Appendix F for a list of some state Y2K bills passed as of August 2, 1999.

APPENDIX F – Legislation

The following is meant to be a brief (non-comprehensive) summary of major Y2K-related legislation of interest to actuaries. It is not and is not meant to be a legal evaluation or interpretation of these laws, but only a starting point for further investigation into these issues.

Federal Legislation

As of July 27, 1999, there have been 2 major federal laws passed of relevance to evaluating Y2K insurance liabilities. These are:

- The Year 2000 Information and Readiness Disclosure Act
- The Y2K Act

The Year 2000 Information and Readiness Disclosure Act

This act, signed into law on October 19, 1998, focuses on improving disclosure of Y2K readiness by various businesses. It does not appear to have a direct impact on Y2K insurance liabilities, other than by raising an awareness of certain issues. A more complete summary, taken from the Information Technology Association of America (ITAA) web page, follows.

"This act is designed to encourage businesses (suppliers of goods and services - both IT and non-IT) to voluntarily share information on the extent of their Year 2000 ("Y2K") strategies, solutions and tools with their contract partners, customers, and the public at large. Concern about the potential for legal liability associated solely with the disclosure and exchange of Y2K information has impeded such disclosure. By making the statements (even if inadvertently erroneous) inadmissible in any Federal or State legal action, companies will provide important and helpful information in the short time remaining before January 1, 2000. This Act will not impact the ability of wronged parties from taking action against entities, in which they are in a contractual relationship, for failures or breaches of contract - only the ability of them to use the Y2K Statement as a basis for the legal action."

Source: Information Technology Association of America web page - "www.ita.org/year2000/irdasum.htm", as of July 27, 1999

"The Y2K Act"

This act, signed into law on July 20, 1999, was designed specifically to deal with possible widespread litigation arising out of Y2K software and embedded chip failures, among others. It is effective for civil actions brought after January 1, 1999 in federal or state court arising from or related to an actual or potential Y2K failure occurring prior to January 1, 2003. Key provisions of this act include:

- Exclusion of cases involving bodily injury. The exact wording is "This Act does not apply to a claim for personal injury or for wrongful death", where personal injury is defined as "physical injury to a natural person".
- Scope includes failure to recognize the year 2000 as a leap year.
- Deferral of legal action. A plaintiff must send an advance written notice to the defendant before proceeding with any legal action¹. The defendant then has 30 days to respond in writing with; (1) how the problem identified will be addressed, and (2) their willingness to participate in alternative dispute resolution (ADR). After responding, the defendant has 60 days from the end of the 30-day notice period "to complete the proposed remedial action or alternative dispute resolution" before any civil action can commence. If the plaintiff does send any advance notice, the defendant can treat the filed legal complaint as if it was an advance notice, thereby delaying the start of any legal action for up to 90 days (30 days to respond in writing, plus 60 days to remediate).
- Establishes proportionate liability for other than contractual suits. Except where fraud or specific intent to injure exists, proportionate liability will apply to non-contractual suits. Special rules exist for allocation of uncollectible shares².
- Special rules where settlements occur that affect subrogation rights and the plaintiffs ultimate award. A defendant who settles with a plaintiff in non-contract actions cannot be subrogated against by other defendants to the action (except where wrongful death or personal injury exist). Likewise, the settled defendant is precluded from subrogating against the other defendants. In addition, any final award or judgment against the remaining defendants shall be reduced by the greater of
 - a. *The final award or judgment times the settled defendant's proportionate share of liability; or*
 - b. *The amount paid by the settled defendant.*(These rules might discourage a confident plaintiff from settling with just a subset of the defendants.)

¹ except when seeking only injunctive relief.

² including application of joint and several liability for the uncollectible share resulting from an individual consumer suit (i.e. non-class action, non-business-to-business).

- Limited restrictions on punitive damages. Exempts government entities from punitive damages. Requires proof by the plaintiff via "clear and convincing evidence" that the applicable standard for awarding punitive damages has been met, before punitive damages can be awarded. Caps³ punitive damages where the defendant is an individual with under \$500,000 in net worth or is a business with fewer than 50 full-time employees. (The cap equals the lesser of \$250,000 and three times compensatory damages.)
- Restricts class actions. Federal courts have original jurisdiction in class actions unless the number of members in the class is under 100, the damages claimed are under \$10 million, or the defendant and a substantial majority of the class members are from the same state. Class actions arising from a product or service defect are allowed only if the defect would be a material defect for a majority of the class members.
- Disallows suits based solely on control of a faulty product, component, etc. "The fact that a Y2K failure occurred in an entity, facility, system, product, or component that was sold, leased, rented, or otherwise within the control of the party against whom a claim is asserted in a Y2K action shall not constitute the sole basis for recovery of damages in that action."
- Requires plaintiffs to mitigate damages. Damage awards shall not compensate the plaintiffs for damages they "could reasonably have avoided", with certain exceptions for defendant(s) intentional fraud.
- Does not allow recovery of "economic damages" (e.g., lost profits) in certain situations. Recovery for "economic damages" is disallowed for non-contract related tort actions unless damage arises directly from damage to "tangible or real property". Exception exists for intentional acts. The term "economic damages" is defined in the act.
- Does not supercede "**The Year 2000 Information and Readiness Disclosure Act**".
- Does supercede state law, except where state law applies greater protections to defendants. "Nothing in this Act shall be construed to affect the applicability of any State law that provides stricter limits on damages and liabilities, affording greater protection to defendants in Y2K actions, than are provided in this Act."

(Note: This act contains other provisions not listed here that the reader may find of interest.)

³ This cap does not apply if there is clear and convincing evidence of specific intent to injure the plaintiff.

State Legislation

Below is a list of state Y2K-related legislation taken from the internet (various sites) as of July 28, 1999 that had been passed by that date. It is not meant to be a complete list, and has not been extensively verified against individual state legislature web sites. In addition, while many state legislatures had closed their 1999 sessions by July 28th, several were still active and capable of passing additional Y2K legislation.

The list is divided into four main categories:

1. Governmental immunity.
2. Liability limits and affirmative defenses.
3. Disclosures/assessments
4. Financial institutions and credit unions

1. Governmental immunity

Alabama (SB 270) - deals with governmental immunity.

Arkansas (HB 1968) - deals with governmental immunity.

District of Columbia (12-732) - deals with governmental immunity.

Florida (HB 3619) - deals with governmental immunity.

Georgia (SB 638) - deals with governmental immunity.

Hawaii (SB 3043) - deals with governmental immunity.

Indiana (SB 94) - deals with governmental immunity.

Louisiana (SB 665) - deals with governmental immunity.

Maine (HB 825) - deals with governmental immunity.

Maryland (HB 901) - deals with governmental immunity.

Maryland (SB 232) - deals with governmental immunity. (Companion to HB 901.)

Nebraska (LB 661) - deals with governmental (and financial institution) immunity.

New Mexico (HB 697) - deals with governmental immunity.

Nevada (SB 180) - deals with governmental immunity.

Ohio (HB 283) - deals with governmental immunity.

Oregon (S 268) - deals with governmental immunity

Rhode Island (HB 5817) - deals with governmental immunity.

Rhode Island (SB 263) - deals with governmental liability for Y2K-related lawsuits.

South Dakota (HB 1303) - deals with governmental immunity.

Tennessee (SB 1783) - deals with governmental immunity.

Virginia (HB 277) - deals with governmental immunity at state level.

Virginia (HB 1669) - deals with governmental immunity at local level.

Virginia (HB 2158) - deals with governmental immunity for state and local officers and employees.

Wyoming (HB 300) - deals with governmental immunity.

2. Liability limits and affirmative defenses

Alaska (HB 82) - limits liability and establishes affirmative defenses relating to Y2K civil actions.

Arizona (SB 1294) - establishes affirmative defenses for Y2K-related lawsuits.

Colorado (HB 1295) - limits liability and establishes affirmative defenses relating to Y2K civil actions. Establishes a one-year statute of limitations.

Colorado (SB 222) - establishes affirmative defenses and a three year statute of limitations for Y2K civil actions against hospitals.

Florida (SB 80) - limits liability (including liability of governmental entities) relating to Y2K civil actions. Specifically addresses some D&O issues.

Hawaii (HB 1111) - limits liability and establishes affirmative defenses relating to Y2K civil actions. Does not apply to computer software and hardware manufacturers.

Minnesota (SB 1262) - establishes affirmative defenses for Y2K-related lawsuits where the defendant did not own, operate or control the computer device associated with the Y2K failure.

North Carolina (SB 1005) - limits liability relating to Y2K civil actions.

North Carolina (SB 1074) - establishes affirmative defenses for Y2K-related lawsuits.

North Dakota (HB 1037) - limits liability of state and local governments.

Oklahoma (HB 1325) - limits liability and ability to file class actions for Y2K-related lawsuits.

Oregon (HB 3245) - establishes rules and affirmative defenses for civil actions arising out of Y2K failures.

South Carolina (HB 3759) - limits Y2K-related liability to economic damages, with exceptions (e.g. personal injury, fraud)

South Dakota (SB 186) - establishes affirmative defenses for Y2K-related lawsuits.

Texas (SB 598) - - limits liability and establishes affirmative defenses relating to Y2K civil actions.

Virginia (SB 983) - limits liability relating to Y2K civil actions.

Washington (HB 2015) - limits governmental liability and establishes affirmative defenses for businesses for Y2K failures.

3. Disclosures/assessments

California (SB 1173) - immunity for disclosure of information relating to Y2K.

Virginia (HB 1663) - deals with the admissibility of documents created during Year 2000 assessments conducted from January 1, 1996 to January 1, 2002.

Virginia (HB 1671) - immunity for disclosure of information relating to Y2K.

4. Financial institutions and credit unions

Colorado (SB 170) - prohibits foreclosures and other enforcement actions where the default is due to Y2K-related information processing failures.

North Dakota (SB 2303) - limits liability of financial institutions and credit unions for Y2K failures.

Tennessee (HB 808) - restricts ability to foreclose or declare a default due to a Y2K computer problem.