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Abstract
The National Association of Insurance Commissioners (NAIC) has worked since the mid-1990s to facilitate pre-event tax-deferred catastrophe reserves. The proposal was adopted by the NAIC in 2001.

The catastrophe reserve will not be a traditional liability reserve, nor will it specifically be included in the scope of the NAIC Statement of Actuarial Opinion on loss reserves. However, actuarial expertise will be needed to evaluate additions and drawdowns of the reserve. The reserve should be evaluated, along with additional information in the Annual Statement and from other sources, as part of a program to protect a company's financial integrity.

This paper provides background information on the problem and constraints currently faced by the insurance industry with respect to accumulating funds for catastrophic events. It also presents a description of the catastrophe reserve. This explanation includes definitions pertinent to this reserve, recommended statutory accounting treatment of the reserve and step-by-step instructions on annual calculations needed. Example calculations are provided and described in detail. The evolution of this proposal is discussed, along with changes to the current design that might be made over time. Finally, the paper outlines future activities needed to enable and fully implement the catastrophe reserve.

Reserving for Catastrophes

Introduction
The NAIC has worked since the mid-1990s to facilitate pre-event tax-deferred catastrophe reserves. The proposal, which includes recommended accounting treatment, was adopted by the Property & Casualty (C) Committee at the June 12, 2001 meeting in New Orleans and by the entire NAIC membership (Plenary) at the October 24, 2001 meeting in Washington, D.C. The Internal Revenue Code changes that are needed are being closely monitored.

The catastrophe reserve will not be a traditional liability reserve, nor will it specifically be included in the scope of the NAIC Statement of Actuarial Opinion on loss reserves. However, actuarial expertise will be needed to evaluate additions, accumulations and drawdowns of the reserve. The reserve should be evaluated, along with additional information in the Annual Statement and from other sources, as part of a program to protect a company's financial integrity.

The purpose of this paper is to summarize the development of the reserve proposal, provide an explanation of how it might work, and discuss changes to the current design that might be made over time.

Problem and Constraints
Catastrophes, whether natural or man-made, pose a significant challenge to the U.S. economy and to the U.S. insurance industry. As the 2001 terrorist attacks demonstrated, unexpected extreme events can, and do, occur. The insurance industry's successful response to such events relies on insurance companies' ability to manage their risk exposures prior to the occurrence of a catastrophic event.

Current tax laws and accounting principles discourage U.S. property and casualty insurers from accumulating funds specifically to pay for catastrophe losses for which the probability of occurrence in any given year is very low. Presently, loss reserves are established upon the occurrence of an insured event. As a result, payments for losses from a future catastrophic event must come from unrestricted policyholders' surplus. Existing U.S. tax law does not permit deduction of reserves for losses that have not yet been incurred.

Solution
Companies can currently use a variety of methods to manage their risk exposure, such as deductibles, co-payments, coverage limits, loss mitigation, geographic spread of risk and reinsurance. Recent additions to this repertoire include capital market securitizations to reduce the net amount of risk held by the company.

Insurance regulators in several foreign countries allow, and some even require, some form of pre-event reserves. These reserves are set aside prior to a loss occurring and are used by insurance companies to manage earnings during years in which significant losses are sustained. The NAIC Tax-Deferred Pre-Event Catastrophe Reserve has

some similarities to, and some significant differences from, these reserves. Tax advantages are included in the NAIC proposal, but earnings management is limited to mitigating the effects of extreme catastrophes. More details regarding pre-event reserves for other countries can be found in the Other Countries' Approaches section and in Appendix G.

The catastrophe reserve is a pre-event reserve to be used solely for catastrophic losses. The reserve is designed to remove disincentives for long-term management of catastrophe exposure. When an insurance company experiences significant losses from a catastrophe, the company can draw upon these segregated funds to maintain financial strength. The reserve does not provide a measurement or quantification of the maximum amount a catastrophic event may cost an insurance company or the insurance industry.

Description of NAIC proposal
The NAIC Catastrophe Reserve Subgroup was appointed to design a mechanism that would address the issues mentioned above. After much discussion, the following general conclusions were reached:

1. The best solution is a private market mechanism that encourages prudent management of risk.
2. Only mega-catastrophes should be allowed a tax deferral.
3. Capital should be used efficiently; trapped capital is not desirable.
4. The mechanism should be as simple as possible and should be auditable.

Traditional loss reserves are only established upon the occurrence of a covered event and are estimated to be the amount of the expected ultimate payout. In contrast, the catastrophe reserve is established to cover future losses for which the company's ultimate payout is not yet known. The intent of the catastrophe reserve is to provide segregated funds for use upon the future occurrence of a catastrophic event. It is recommended that it be reported as a liability for statutory accounting purposes, separate and distinct from loss, loss adjustment expense and unearned premium reserves. As such, it is easily identifiable for tax purposes, solvency regulation, and stockholder and policyholder scrutiny.

An insurance company may elect to establish such a reserve in order to have funds readily available when catastrophes occur. The maximum amount a company can have in the reserve is determined by multiplying its net written premium for each covered line of business by a factor. The resulting amounts for each line of business are summed to obtain a single aggregate reserve cap for the company. The factors have been determined by line of business and are designed to address that portion of the premium that could be associated with low-frequency mega-catastrophes. Appendix C provides a description of the methodology used to derive the reserve cap factors.

The proposed federal tax treatment provides for a phase in of tax-deferral for reserve contributions over a period of 20 years. The deferral allowed equals the full amount at

the end of that period. In this proposal, the targeted accumulation amount for the entire property/casualty insurance industry is $40 billion. The NAIC proposal is designed to work in conjunction with federal legislation, but it does not contain the phase-in language.

The annual statement lines of business covered include fire, allied lines, farm owners, homeowners, commercial multi-peril (non-liability portion), earthquake, inland marine, auto physical damage and non-proportional reinsurance for the qualifying lines.

Losses from the following catastrophic events are covered by the reserve: wind, hail, earthquake and fire following, winter catastrophes, fire, tsunami, flood, volcanic eruption and lahar.

A company can access its catastrophe reserve in three situations. Primarily, the catastrophe reserve would be used for losses incurred as a result of a catastrophic event in a covered line of business. In this case, the reserve is drawn down according to criteria designed to protect solvency and to limit use of the reserve to the payment of truly catastrophic losses.

A second situation in which the company may need to draw down its catastrophe reserve is when the reserve balance exceeds the reserve cap.

Finally, the company's domiciliary Commissioner may require an insurer to release its catastrophe reserve as a rehabilitation, conservation or liquidation measure or to forestall insolvency of the insurer.

Annual Calculations
A company would need to go through the following steps annually to determine the amount of its catastrophe reserve.

1. Calculate the reserve cap for the year. The reserve cap is the sum of the amounts determined by multiplying the catastrophe reserve cap factor for each qualifying line of business by the insurer's net written premium for the corresponding line.

2. Determine qualifying losses. Qualifying losses for the catastrophe year are those that arise from a covered peril, are attributable to a covered line of business and are due to a catastrophe. Appendix B provides an outline of the conditions an event must meet to be considered a catastrophe for the purposes of the proposal.

   Qualifying losses must be evaluated by catastrophe year, the year in which the catastrophe began. The development of losses from a covered catastrophic event must be monitored since such losses may not reach one of the thresholds for withdrawal from the reserve until several years after the occurrence. Therefore, each company must maintain losses by catastrophe year along with

the qualifying loss limitation thresholds as a permanent benchmark.

Although the drawdown triggers are not complicated, the proposal is somewhat confusing in its descriptions. Item 7 in the Summary and Definitions section of the proposal (Appendix B) defines gross qualifying losses, which do not recognize any reduction for salvage, subrogation, or recoveries from risk transfer mechanisms. This amount is used for calculating what amounts can be released from the reserve and provides a benchmark of how large the catastrophic event is for the company. Item 11a of the Summary and Definitions section also refers to qualifying losses. This is discussed in more detail below.

3. <u>Calculate thresholds and determine allowable drawdown.</u> "The Catastrophe Reserve shall be drawn down in an amount not to exceed the lesser of the amount determined under subparagraph (1) or (2):

   (1) Qualifying Losses for the Catastrophe Year net of contractual payments from catastrophe management resources and net of salvage and subrogation, or

   (2) Qualifying Losses for the Catastrophe Year to the extent that such Qualifying Losses exceed the lesser of:

      i. 100% of the insurer's prior year Reserve Cap, or

      ii. 30% of the insurer's surplus at December 31 of the prior year."[4]

   It is helpful to look at each subparagraph individually. The drawdown can never be more than the amount described in 3(1), the company's losses net of salvage, subrogation, and other recoveries. Losses include loss adjustment expenses and non-recoverable assessments, surcharges, etc. Catastrophe management resources are defined in item 7 of the Summary and Definitions section.

   Drawdowns are further limited by comparison to items that reflect, but do not necessarily measure, a company's catastrophe exposure and financial resources. Paragraph 3(2) above selects the lesser of an insurer's prior year reserve cap, which is related to catastrophic loss exposure, and 30% of its prior year surplus, which is related to ability to absorb the impact of catastrophic losses. Since the reserve cap amount is based on net written premium in lines of business that tend to be affected by catastrophes, the amount of the cap is reflective of how much catastrophe exposure the company has on its books.

   If the insurer's prior year reserve cap is more than 30% of prior year surplus (which means the amount in 3(2)(ii) is the lesser), the company can be considered more vulnerable to the financial impact of catastrophic events than a company whose percent of surplus exceeds the reserve cap. Note that this is independent of how much the company has actually set aside in the reserve. The trigger is designed to recognize this company variation by allowing the larger

of the two amounts in 3(2) to be compared to the net qualifying losses in 3(1). Losses in excess of the smaller of two amounts will lead to the larger resulting loss amount.

The qualifying losses used in the 3(2) calculation are gross qualifying losses.

An example may be helpful. Suppose a company has these characteristics.

Gross qualifying losses	1,350
Salvage, subrogation & other recoveries	800
Net qualifying losses	550
Prior year-end surplus	6,175
30% of prior year-end surplus	1,853
Prior year reserve cap	584

The maximum amount the company could withdraw according to paragraph 3(1) above is the net qualifying losses of $550. However, the drawdown is further limited according to the calculations involving its prior year reserve cap and prior year surplus, as described in paragraph 3(2). The prior year reserve cap of $584 is less that 30% of the prior year surplus of $1,853. So, the calculation specified by paragraph 3(2) is the gross qualifying losses minus the prior year reserve cap or $1,350 – $584 = $766. This is more than the net qualifying losses of $550. Therefore, the maximum allowable drawdown amount is $550.

4. Reduce the previous year-end reserve balance by the current year drawdown amount calculated in step 3.

5. Determine the maximum amount of the current year reserve addition by subtracting the reserve balance after drawdowns from the reserve cap calculated in step 1. Contributions to the reserve are tax-deferred to the extent of additions that result in a balance that does not exceed the reserve cap, with a 20 year phase in.

6. Calculate the PMLE and decide the best balance of reinsurance, other risk transfer mechanisms, and pre-event reserving that will suit applicable regulatory safeguards and the company's own goals and management philosophies. Many companies may choose to contribute to a reserve based on its net PMLE, after the effects of any risk transfer have been evaluated.

7. Add the selected amount to the reserve.

8. Verify that the resulting reserve balance does not exceed the reserve cap. The company must draw down its reserve if the reserve amount exceeds the allowable cap, as calculated in step 1.

Financial Statement Disclosures
The amount, if any, to be added to the reserve each year is up to each company. However, if a reserve is established, specified accounting procedures must be followed.

Calculation of amount to be added to the reserve
The reserve balance at the end of the year cannot exceed the cap. Each company calculates its own cap. As an example, consider a company that writes only 2 lines of business: Homeowners and Private Passenger Auto. The reserve cap is determined as shown below.

Line of Business	(A) Net Premiums Written	(B) Reserve Cap Cap Factor	(A x B) Reserve Cap Amount
Homeowners	100,000	.60	60,000
PPA liability	150,000	na	0
Auto Physical Damage	80,000	.01	800
Total	**330,000**		**60,800**

If we assume that this company is setting up its reserve in the first year after the tax change has been enacted, 1/20th of this $60,800 cap, $3,040, can be tax-deferred if set aside in a catastrophe reserve.

Note that the reserve cap amount does not have a contribution from the liability portion of the Private Passenger Auto business. Only property lines that have been identified as being catastrophe-prone have factors to allow contribution to the reserve cap calculation. The total amount in the reserve is available in response to a catastrophe in any of these property lines. For example, the entire reserve amount for the company shown here could be used to pay for homeowners losses sustained by this company in any part of the country.

A more detailed exhibit showing how a company would calculate its reserve cap is shown in Appendix H.

Notes to Financial Statements
The following entries would be made in the Notes to the Financial Statements for the first year's accumulation of the reserve, based on the information in our example above and assuming that no qualifying losses occurred:

Catastrophe Reserve Balance at the Beginning of Year	$	0
Current Annual Reserve Addition to the Catastrophe Reserve	$	3,040
Current Drawdowns Due to Qualifying Losses	$	0
Current Drawdowns for Amounts in Excess of the Reserve Cap	$	0
Catastrophe Reserve Balance at the End of the Year	$	3,040

Balance Sheet - Liabilities, Surplus And Other Funds
A new line, Line 16 - Catastrophe Reserve, will be added to the Balance Sheet –

Liabilities, Surplus and Other Funds. This amount will change over time, and should reflect the amount in the reserve at the end of the year for which the statement is being filed. For our example it should show $3,040. A copy of the proposed page 3 is shown in Appendix F.

Underwriting and Investment Exhibit – Statement of Income
Line 4 - Change in Catastrophe Reserve is to be added to the Underwriting Income section of the Underwriting and Investment Exhibit. Additions to and drawdowns from the catastrophe reserve are addressed in the proposed Statement of Statutory Accounting Principles, which is shown in Appendix E. Since our example is for the first year of accumulation, Line 4, Column 1, Change in Catastrophe Reserve, Current Year would show $3,040 ($3,040 – $0). The federal tax change will allow this amount as a deduction from taxable income for the year the contribution is made, similar to current tax treatment for setting up a traditional loss reserve. If we use a tax rate of 35% and assume that all else in the company's tax situation remains the same, the tax savings to the company for this year would be $1,064 ($3,040 x .35).

When any amounts from the reserve are drawn down to pay for losses, the amounts withdrawn from the reserve are added back into taxable income. A reserve withdrawal is most likely to happen due to an extremely large catastrophe, rather than due to an overpayment or financial difficulties. Large underwriting losses in the catastrophe year are expected to offset this increase in reported income. It is likely that much of the catastrophe reserve will be, in effect, tax-free.

Company Considerations
Since the NAIC proposal allows voluntary participation, each company must decide if a catastrophe reserve is appropriate, given its unique exposure to catastrophe risk. There is not a documented method to determine when the accrual of a catastrophe reserve is appropriate. Generally speaking, the costs and benefits of establishing a catastrophe reserve should be compared to the costs and benefits of other catastrophe management tools available to the company.

It is not expected that every company will accumulate reserves to the maximum amount allowed. There will be situations where prudent financial planning dictates other uses of funds. Nevertheless, it is instructive to look at how various companies could use this mechanism to pre-fund catastrophic loss payments.

Exhibit 1, below, shows data for 12 companies of various sizes, as well as countrywide information. The data was extracted from the 2000 NAIC Annual Statements, with the reserve cap factors applied to each company's net written premium. Appendix H gives more detail on how the reserve cap for each company was calculated and contains detailed information on Company B in Exhibit 2.

Columns (3), (4) and (5) compare maximum reserve amounts that could be set aside for each company. Column (3) shows the percentage of premium that is in catastrophe-prone property lines. Columns (4) and (5) show how each company's reserve

compares to its net written premium for all lines and for the catastrophe-prone lines, respectively. As can be seen, the reserve cap varies widely by company when measured relative to the net written premium. This is due, of course, to the mix of lines that each company writes. The range in percentages narrows somewhat if the reserve cap is compared to the net written premium for covered lines only, Column (5). A wide range is still expected, since the reserve cap factors for covered lines range from .01 to over 15.

Column (6) applies to catastrophic losses that might have occurred during 2001. The reserve cap and surplus used are both prior year-end, based on 2000 Annual Statement data. Since the reserve amount that can be drawn down is dependent on qualifying losses in excess of either the reserve cap or of surplus, a comparison of these two items is in order. Column (6) indicates which of these two will be the amount entering into a drawdown calculation. If the amount in Column (6) is less than 100%, then the qualifying losses in excess of the prior year reserve cap is used in the drawdown calculation. If it is greater than 100%, then the qualifying losses in excess of 30% of the prior year's surplus is used. As stated above, this latter situation might mean that a company is considered more vulnerable to the financial impact of catastrophic events.

As additional information becomes available, amounts actually accumulated, as well as amounts paid, for catastrophic events can be evaluated and analyzed.

EXHIBIT 1

(1) Company	(2) 2000 Net Written Premium (000s)	(3) Covered Lines Net Written Premium As % Of All Lines Net Written Premium	(4) Reserve Cap As % Of All Lines Net Written Premium	(5) Reserve Cap As % Of Covered Lines Net Written Premium	(6) Reserve Cap As % Of (Surplus x .30)
Countrywide	318,739,936	42.0%	15.3%	36.4%	
A	7,821,650	46.8%	16.8%	36.0%	66.1%
B	3,415,196	60.3%	17.1%	28.4%	31.5%
C	3,051,503	39.6%	0.7%	1.7%	7.0%
D	2,146,285	26.6%	10.1%	37.9%	39.9%
E	1,058,715	16.5%	6.0%	36.4%	19.9%
F	959,759	46.3%	29.4%	63.4%	109.4%
G	870,624	59.6%	37.6%	63.1%	223.4%
H	207,302	53.4%	15.5%	28.9%	66.3%
I	119,993	0.3%	0.0%	1.0%	0.0%
J	41,394	64.2%	10.5%	16.3%	48.6%
K	22,863	11.7%	3.5%	30.0%	2.5%
L	22,008	100.0%	61.6%	61.6%	437.4%

Companies will also be interested in how rating agencies view the accrual of a catastrophe reserve. The reserve does not transfer risk, but does assure that specified funds will be immediately available to pay for catastrophic losses. Will accruing a catastrophe reserve have a positive or negative impact on a company's rating? How will it be viewed in comparison with the use of other catastrophe management tools? To date, rating agencies have not commented on this.

The reserve should not have any effect on rates charged by companies to their policyholders. However, consumers may be more accepting of the need for long-term catastrophe charges in their premiums if they know there are funds specifically set aside for this purpose.

Evolution of Proposal

In December 1995 the NAIC established the charge to "Develop a proposal for a reserve for future catastrophes that will include consideration of how and where the reserve should be shown in the financial statements, calculation of contributions to the reserve, calculation of withdrawals from the reserve, calculation of a maximum reserve, treatment of reinsurance ceded and reinsurance assumed and how to obtain federal tax deferment." [3] The Catastrophe Reserve Subgroup of the Catastrophe Insurance Working Group was appointed to carry out this charge.

The Reserve Subgroup was composed of state regulators with expertise in actuarial science, accounting, economics, financial examination and law. Industry representatives were invited to participate in the discussions and development of the proposal; they provided invaluable feedback and input. These interested parties were also instrumental in the analysis leading to the development of the reserve factors. The proposal was exposed for public comment and discussion at several points throughout the development.

Tax Deferral

As discussions began regarding the design of the proposal, it became apparent that certain characteristics of the reserve would generate significant discussion. One major item that insurance regulators and insurance industry representatives readily agreed upon is the tax-deferral. Regulators agree that the reserve should only be established to the extent that the federal government allows tax-deferred status. As of this writing, the tax code has not yet been changed to allow the categorization of these pre-event funds as tax-deferred.

Mandatory vs. Voluntary

The proposal began as a mandatory reserve requirement. All insurance companies writing the covered lines would be required to establish a catastrophe reserve based on the factors developed. As work continued, concerns were voiced about a mandatory reserve. Each company has a unique mix of business and risk profile, which make it difficult to specify an optimal tax-deferred reserve for prudent catastrophe risk management for all companies to use. There was also the possibility that requiring a specific level could lead to capital trapped in the reserve. As a result, the proposal became a voluntary, pre-event tax-deferred reserve within a regulatory framework.

Lines of Business

Line of business and peril were selected as identifiers that would be effective, simple and auditable. Determining lines of business generated significant discussion.

At the time the proposal was conceived, it was assumed that natural catastrophes would be most likely to cause market disruptions, as evidenced by Hurricane Andrew and the Northridge Earthquake. Property lines of business were targeted as being the most exposed. Discussion was given to the inclusion of workers compensation risk, specifically due to the earthquake-related exposure. The decision was reached to leave

workers' compensation out of the proposal at that time.

Boiler and machinery was also discussed, and was incorporated into early designs. Because its inclusion contributed so little to the reserve and because it appeared to lend itself to the possibility of trapped capital for some writers, it was eliminated. Auto physical damage, not normally considered a line prone to catastrophic disruption, was evaluated carefully, and finally included since significant payouts were observed after both Hurricane Andrew and the Northridge Earthquake. Inland marine was initially excluded from the proposal because losses for this line are generally not included with the data used, but was added in the final proposal with an appropriate factor.

Excess reinsurance was not originally included, at the request of the professional reinsurers. They did, however, ask for these lines to be included in the final proposal, and sufficient changes were made to incorporate their request into the design.

While the reserve cap factors (and hence reserve amounts) vary by line, the reserve does not "belong" to any one line of business. Reserves can be used to pay for qualifying losses for any of the lines or perils defined in the proposal.

Perils

The perils to be included also generated some discussion. In its current state, the proposal allows fund drawdowns for losses resulting from wind, hail, earthquake and fire following, winter catastrophes, fire, tsunami, flood, volcanic eruption and lahar. These events must be designated a catastrophe by the Property Claims Service or any successor organization or declared a catastrophe by the President of the United States pursuant to the Stafford Act. Discussions on specifically including terrorism are underway.

Net Written Premium as Base

Net written premiums were decided upon as a surrogate for a company's catastrophe exposure. Premiums were selected since they should vary with coverage, geographic location and other classification factors that measure relative exposure. In addition, net premiums should reflect the risk a company is comfortable retaining. To the degree that lines are cross-subsidized, that premiums are excessive or inadequate, or that data is inaccurately reported, the usefulness of premium as a surrogate for exposure is reduced.

Factors by Line of Business

The factors are intended to indicate the portion of premium that can be associated with low-frequency catastrophic events. The analysis and development included looking at industry events everyone agreed were truly catastrophic. These appeared to be relatively well defined by line, by state, and by peril. Since there was data available in this amount of detail, the most useful factors originally appeared to be those that would take all of these categorizations into account. The details of the methodology to develop the first set of factors, which varied by state as well as by line, can be found in the NAIC Proceedings.

A simpler structure for the factors was later selected based only on line of business since catastrophic exposure is assumed to vary with geographic location, which should already be incorporated in the premium. The factors were developed by determining the relative contribution of each line of business to the target accumulation amount, $40 billion, with specified assumptions and adjustments. This was selected as an amount that would provide stability following a catastrophic event in developing for both the by-state, by-line factors and the current by-line factors.

Reserve Cap Factors

As mentioned above, the original proposal was for a mandatory annual reserve accumulation, calculated with annual accumulation factors that varied by line and by state. Caps on the total amount that could be accrued were also part of the calculations. Although annual accumulation factors are no longer needed, a cap on the total amount that can be accumulated is necessary since the IRS is not likely to allow an infinite tax-deferral.

A voluntary reserve provides each company with greater flexibility than a mandatory reserve. A single pre-event fund with one cap for all lines, regions and perils also provides some diversification benefits. The American Academy of Actuaries has expressed the belief that countrywide cap factors should be set at a level that will allow all companies to receive full benefit from the reserve. [1]

The reserve cap factors are in Appendix B and the methodology used to derive them is in Appendix C. The NAIC will periodically review the factors and the reserve mechanism itself. The factors are not designed to be either a correct or accurate measure of a company's catastrophic exposure. As a set, they help define a mechanism for individual companies to defer federal tax payments on monies that will be used to pay catastrophic claims.

State Catastrophe Programs

Many states have programs to assist their voluntary markets in providing catastrophe insurance. These programs are targeted towards the perils, lines of business and demographic characteristics that are of concern to a given state. A discussion of the structure, coverage, administration and specific characteristics of each program are beyond the scope of this paper. However, consideration must be given to the interaction of state catastrophe programs with both the financial responsibility framework discussed below and the catastrophe reserve.

The Florida Hurricane Catastrophe Fund (FHCF) acts as a reinsurer for the hurricane peril for all companies writing residential property coverages in the state. Participation in the program is mandatory. Like any other reinsurer meeting certain standards, credit for this risk transfer is allowed in the ceding company's financial statements. Since the premiums are considered "ceded to a non-affiliate," the premium paid to the FHCF each hurricane season does not enter into the reserve amount calculation. Any losses reimbursed by the FHCF are netted out of net qualifying losses. Since each company

can select its participation percentage in the FHCF (45%, 75% or 90%), a company has some discretion as to how much FHCF coverage it purchases. Each company could then fund as much of its retained hurricane risk as it desires, up to the net reserve cap.

Membership in the California Earthquake Authority (CEA) is voluntary. The CEA offers basic earthquake insurance for California homeowners, renters, condominium owners and mobile home owners. The CEA participating insurers write about two-thirds of the homeowners premium in California. The earthquake coverage for participating insurer homeowners policyholders is provided directly by a CEA policy, although the companies market and service the policy.

The CEA has approximately $7 billion in capacity, from participating insurer capital contributions, retained earnings, letters of credit, reinsurance or bonds. About half of the capacity comes from two layers of potential assessments of the participating insurers. Although the participating insurers have a potential liability that must be backed by surplus or reserves, they do not have any net premium and thus they would not be able to set aside tax-exempt catastrophe reserves under the proposal.

Regulatory Framework
Regulators agreed to make the reserve voluntary as long as a company demonstrates to regulators that it has adequately managed its catastrophe exposures. The regulatory mechanism for evaluating this exposure management is currently known as the Framework for Demonstrating Insurer Financial Responsibility for Catastrophe Loss Exposures and has yet to be finalized and adopted. The framework provides a level of assurance to regulators that an insurance company has adequate financial resources to deal with its catastrophe exposures. The reserve is an integral part of the framework since it can be a useful tool for a company to fund losses that might threaten its solvency.

The framework requires an insurance company to determine its probable future losses using generally accepted actuarial methods. The analysis produces an estimate of the insurance company's Probable Maximum Loss Exposure (PMLE).

The insurance company must also look at the resources it has to manage its exposure. Besides the catastrophe reserve, resources currently accepted by regulators include reinsurance, securitizations, unrestricted surplus, capital notes, surplus notes, commissioner-approved support agreements from parent or affiliated entities, and other risk transfer arrangements as permitted by state law or regulation or approved by the commissioner of the state of domicile.

Once the insurance company has determined its PMLE and has identified all of its resources for managing that exposure, it is to provide a report (Net PMLE Report) to the regulator demonstrating that it has adequate resources to handle its exposures. If the insurer's net probable maximum loss exposures are unacceptable to the regulatory authority, then the insurance company must provide a plan that demonstrates how the company will resolve the deficiency.

As currently proposed, a qualified actuary must evaluate the Net PMLE Report. The American Academy of Actuaries, in response to a request from the NAIC, has commented that actuaries are qualified to provide an opinion of this nature. [2] The AAA continues to monitor the work of the NAIC on the reserve proposal and related topics.

There are many issues that still need to be addressed relative to the currently proposed framework. These items are more fully addressed in the section titled Enabling and Implementation Activities.

Other Countries' Approaches

Other countries allow, and some even mandate, pre-event reserves. We conducted a survey to learn more about the types of reserves that are established on a mandatory and voluntary basis in other countries. Based upon this research it is apparent that the following countries have some kind of pre-event reserve: Australia, Barbados, Canada, Finland, Germany, Italy, Japan, Puerto Rico, Switzerland and the United Kingdom. It is also evident that in different countries the needs vary because the reserves are designed to cover different exposures and release of the reserve is triggered by different events.

There are two important considerations to keep in mind when comparing the NAIC proposal to what other countries have done. One is that required disclosure, accounting practices and terminology vary from country to country. Second, equalization reserves do not serve exactly the same purposes as the proposed catastrophe reserve. As the name implies, equalization reserves may be used as a management tool to even out uneven performance from year to year, while catastrophe reserves are specifically designed only to pay losses and related expenses from catastrophic events. Appendix G contains more information about the specific reserves of some of the countries mentioned above.

Enabling and Implementation Activities

Although the full body of the NAIC has adopted the NAIC Catastrophe Reserve Proposal, before it is implemented and used by insurance companies several things must happen.

Federal Tax Law

Federal tax law must be changed to allow for tax deferral of funds held for future catastrophe losses. HR 785 was referred to the House Ways and Means Committee on February 28, 2001 as the "Policyholder Disaster Protection Act of 2001." No further progress has been made on this bill.

HR 785 proposes changes to Section 832 of the Internal Revenue Code that decrease a company's taxable income for the amount of contributions to the reserve in the year the contributions are made and add withdrawals from the reserve back into taxable income in the year they are drawn down. In addition, the bill phases in the reserve tax-

deductibility over 20 years at the rate of 5% (1/20th) per year. Assets are "required to be invested in a manner consistent with the investment requirements applicable to the qualified insurance company under the laws of its jurisdiction of domicile," and "the net income for the taxable year derived from the assets in the fund is required to be distributed no less frequently than annually."[6]

NAIC Actions

Possible Additions

Due to the significant losses experienced by insurance companies from the tragic events of September 11, 2001, discussion has begun with respect to updating the catastrophe reserve proposal to specifically include terrorism as a covered peril or catastrophic event. Inclusion of workers' compensation as a covered line of business is also being considered. The Catastrophe Insurance Working Group is analyzing these issues and may recommend changes.

Update and Review

Upon passage of the federal tax legislation, the NAIC will have the task of periodic review and update of the Catastrophe Reserve Factors. Analysis of the expected losses to pre-fund will need to be reviewed as additional years of experience are accumulated and as existing modeling techniques are refined and new ones are developed. How much companies use the reserve for contributions and for drawdowns will need to be evaluated, as well as the tax revenue losses. The mix of business written by the U.S. admitted voluntary primary market, reinsurance and other risk transfer mechanisms, and changes in accounting may all require adjustments to this initial design.

NAIC Annual Statement Blanks

NAIC working groups must address additional specifics of the catastrophe reserve proposal. The NAIC Blanks Task Force must approve a proposal that would add disclosure of the reserve amount and disclosure of annual changes in the reserve amount to the NAIC Property and Casualty Annual Statement. They must also add a description of the process to the NAIC Annual Statement Instructions. These items are shown in detail in Appendix F. However, the catastrophe reserve can be used before these items are finalized since both the Balance Sheet and Underwriting and Investment Exhibit contain lines for write-in items.

Statutory Accounting Principles

The NAIC Statutory Accounting Principles Working Group needs to add guidance to the Statutory Accounting Principles. A proposed Statutory Issue Paper and Statement of Statutory Accounting Principles have been drafted. They can be found in Appendix D and Appendix E, respectively. These two items provide detailed discussion of the issue that the catastrophe reserve is meant to address and specifics on how a company would calculate its catastrophe reserve additions and draw downs. They also indicate the appropriate disclosures needed by a company that has established a catastrophe reserve.

Risk-Based Capital and IRIS Ratios
The NAIC Property and Casualty Risk-Based Capital Working Group must address how the catastrophe reserve will be viewed in light of the current minimum capital requirements. The current formula is being evaluated to ascertain how to best incorporate the reserve in the required calculations. The NAIC Financial Analysis Research and Development Working Group must undertake similar analysis with respect to the IRIS Ratios.

Regulatory Framework
The NAIC Framework for Demonstrating Insurer Financial Responsibility for Catastrophe Loss Exposures that accompanies the Catastrophe Reserve Proposal is still in proposal form. However, the catastrophe reserve can be adopted and used by companies before the framework is finalized or implemented. There are many issues that still need to be addressed relative to the framework.

- Should demonstrating financial responsibility be limited to catastrophic exposures?
- Should gross exposure rather than, or in addition to, net exposure be required?
- Are there parts of risk transfer arrangements that need to be kept confidential?
- Should reviewing the framework be part of the more traditional financial exam?
- How should review of the framework fit into target exams?
- Should the reserve become mandatory in the event a proposed plan is not acceptable to a domiciliary commissioner?
- What will be required as part of an actuarial review?
- Is it appropriate for regulators to be concerned with the mix of catastrophe management tools and if so, how should this be evaluated?

Conclusion
It is the authors' hope that this document provides guidance for both insurance regulators and actuaries. Insurance regulators will be responsible for reviewing insurance companies' catastrophe reserves. Their review is likely to encompass the appropriateness and adequacy of the reserve as well as compliance with statutory accounting requirements. Actuaries are expected to play an integral part in the analysis needed to establish and fund the reserve.

Even more importantly, regulators must verify that each company has selected a prudent mix of catastrophe management resources in light of its unique book of business. Actuaries may be asked to evaluate and comment on the specifics of a company's overall catastrophe management program. We hope this paper contributes to the understanding of how the catastrophe reserve will work as part of a company's catastrophe risk management program.

Appendices

Explanation of Appendices

Appendices A through F comprise the NAIC Pre-Event Catastrophe Reserve Proposal as adopted by the NAIC Plenary and as it has been referred to in this paper. They are NAIC copyrighted materials. Along with or subsequent to its adoption by the NAIC, the following changes to these appendices should be noted:

1. The discussion in Appendix B about the potential treatments of assumed excess reinsurance resulted in the acceptance of the Model 1 factors shown in Appendix F. Details of the discussion may be found in the NAIC Proceedings for the June 2001 meetings.
2. All references to the reserve factors will be maintained by the NAIC and updated annually. The factors will be available via the NAIC website. Factors will not be part of the NAIC Annual Statement Instructions or any other instructions. This is to facilitate and expedite any changes to the factors as they are made.
3. The Underwriting and Investment Exhibit, Statement of Income, found in Appendix F contains a typographical error. Line 4, Change in Catastrophe Reserve should say Page 3, Line 16, Column 1 minus Column 2.

Appendix A: Problem Statement

PROBLEM STATEMENT
NAIC TAX-DEFERRED PRE-EVENT CATASTROPHE RESERVE

(Original Adopted July 28, 1997 – Changes proposed below)

Catastrophes present a significant challenge to the U.S. economy and to the U.S. property-casualty insurance industry, posing financial solvency, capital accumulation and insurance availability issues.

Insurers should be encouraged to engage in prudent risk management behavior. Existing methods to manage insurer risk include loss mitigation, geographic spreading of risk, reinsurance, capital market instruments, derivatives products and short and long-term pre and post-event financing. One additional method proposed to encourage prudent risk behavior - which should augment, not supplant those existing risk management methods - is to permit insurers to establish tax-deferred reserves for future catastrophes.

Current tax laws and accounting principles discourage U.S. property and casualty insurers from accumulating assets specifically to pay for future catastrophe losses. Instead, payments for catastrophe losses are made from unrestricted policyholder surplus after the losses are incurred.

Current U.S. tax law does not permit deduction of reserves for future catastrophe losses.

Current U.S. accounting principles (both Generally Accepted Accounting Principles and Statutory Accounting Principles) applicable to property and casualty insurers: 1) limit the recording of loss reserves to losses which have already occurred, and 2) require the recognition of catastrophe premiums in periods prior to the periods in which catastrophe losses are incurred.

Some non-U.S. insurers, because of their domestic tax laws and accounting principles, are able to deduct reserves for future catastrophe losses free of tax. That ability gives those non-U.S. insurers a competitive advantage over U.S. insurers enabling them to attract insurance and reinsurance business, which would otherwise be written, by U.S. insurers.

U.S. State insurance regulators believe that existing tax treatment of catastrophe risk fails to maximize the ability of insurers to appropriately respond to catastrophe coverage related solvency and availability issues. State insurance regulators recognize that the portion of approved rates earmarked for catastrophes is intended to finance catastrophe losses that are not expected to occur on an annual basis. If these funds are not set aside in a dedicated reserve for these losses, funds may not be available to meet policyholder obligations. Accordingly, regulators may be more inclined to approve catastrophe-related rates if they were assured that the resultant premiums would be set aside for their intended purpose until the indicated catastrophe exposure has had adequate opportunity to materialize.

Some state insurance regulators recognize that U.S. property and casualty insurers, in the absence of assurance that approved catastrophe insurance rates will reflect past experience and

projected exposures, are reluctant to maintain or expand their catastrophe insurance writings in regions with significant historical or projected catastrophe exposures.

In the absence of tax deductibility and in consideration of domestic accounting principles, a required or permitted catastrophe reserve would provide no additional assets to finance insured catastrophe claims. Requiring or permitting such a reserve without tax deductibility would diminish insurer's capital and would likely restrict availability of insurance coverages to consumers.

It is in the public interest to consider whether current U.S. accounting principles and tax law should be revised to permit tax-deferred reserves for future catastrophe losses.

While considering those steps, it is in the public interest to determine whether a tax-deferred reserve for future catastrophes can be structured in such a way as to provide incentives for:

- property and casualty insurers to appropriately manage their catastrophic loss exposures by making specific provision for future catastrophe losses while continuing to provide and expand catastrophe insurance coverage in regions with significant catastrophe exposure, and

- state insurance regulators to approve catastrophe insurance rates which, among other appropriate factors, reflect past experience and projected exposures,

so that the U.S. federal government and taxpayers benefit, in the form of possible reduced demand for catastrophe relief, as a result of these changes in the insurance regulatory and tax systems.

PROPOSAL - SUMMARY AND DEFINITIONS

NAIC VOLUNTARY TAX-DEFERRED PRE-EVENT CATASTROPHE RESERVES

For regulatory purposes, certain insurers that write qualifying property lines of business will be allowed to establish voluntary tax-deferred pre-event catastrophe reserves within the parameters set forth in the definitions and related materials set forth below. These parameters contemplate that such voluntary reserves will be accorded tax-deferred status under federal tax law and that implementation of such reserves will not be effected until and unless such tax deferral is granted. Within this voluntary program, insurers may, but shall not be required to, establish and maintain a pre-event catastrophe reserve in excess of amounts that could be accorded tax deferred status under federal tax law subject to the limits set forth below. However, those insurers that choose to establish a tax-deferred disaster fund under federal tax law must establish and maintain a pre-event catastrophe reserve for statutory reporting purposes at a level not less than the outstanding balance of such fund. The following definitions assume that a tax-deferred, pre-event catastrophe reserve has been elected.

This voluntary program is based on the regulatory approach that insurers will be allowed to use voluntary tax deferred pre event catastrophe reserves as one available tool among many to be financially ready to effectively deal with their catastrophe exposures.

1. **Subject Entities** – Insurers shall be allowed to establish a statutory Catastrophe Reserve if they: (1) write property/casualty contracts for the Qualifying Lines of Business; (2) file an NAIC annual statement for property casualty companies and (3) are subject to federal tax on net income.
2. **Catastrophe Reserve** – A voluntary pre-event provision for future Qualifying Losses within specified Thresholds attributable to Qualifying Catastrophe Events that are insured under Qualifying Lines of Business. An aggregate reserve for all Qualifying Lines of Business shall be established.
3. **Statutory Reporting** A Catastrophe Reserve shall be reported in statutory financial statements as a separate liability; distinct from loss, loss adjustment expense and unearned premium liabilities. Additions to, and reductions from, the Catastrophe Reserve shall be reported through a Change in Catastrophe Reserve in the Underwriting Income section of the Statutory Statement of Income. The Catastrophe Reserve shall be included in the scope of the statutory financial statement audit performed by a certified public accountant.
4. **Geographic Scope** – A Catastrophe Reserve shall be established for Qualifying Losses for Qualifying Catastrophes to which the United States, its territories and possessions are exposed in the Qualifying Lines of Business. Insurers domiciled in Puerto Rico shall not establish a Catastrophe Reserve for catastrophes to which Puerto Rico is exposed as a catastrophe reserve is already included in the Puerto Rican insurance code.
5. **Qualifying Lines of Business** - Fire, allied lines, farm-owners multiple-peril, homeowners multiple-peril, commercial multiple-peril (non-liability portion), earthquake, private

passenger auto physical damage, commercial auto physical damage, inland marine and non-proportional reinsurance for the qualified lines of business.

6. **Qualifying Catastrophe Events** – Wind; hail; earthquake and fire following; winter catastrophes such as snow, ice, freezing; fire; tsunami; flood; and volcanic eruption (including lahar). These events shall be 1) designated a catastrophe by Property Claims Service or any successor organization or 2) declared an emergency or disaster by the President of the United States pursuant to the Stafford Act or 3) declared an emergency or disaster in a similar declaration by the chief executive official of a State, territory or possession of the United States or the District of Columbia.

7. **Qualifying Losses** – Direct and assumed losses and loss adjustment expenses incurred and any non-recoverable assessments, surcharges or other liabilities attributable to Qualifying Catastrophe Events borne by such insurer in the qualifying lines of business as reported in such insurer's annual statement that are attributable to one or more qualifying events, plus the amounts by which such losses and loss adjustment expenses have been reduced for contractual payments from catastrophe management resources and for salvage and subrogation. Qualifying Losses shall be determined and maintained by Catastrophe Year for purposes of determining how they apply to the Catastrophe Reserve drawdown criteria.

   Note: Catastrophe management resources may include reinsurance that meets the risk transfer definition contained in Statement of Statutory Accounting Principle No. 62, Property and Casualty Reinsurance, of the *NAIC Accounting Practices and Procedures Manual* and qualifies for credit for reinsurance per the domiciliary state's credit for reinsurance law; insurance risk securitizations that constitute risk transfer or reinsurance per the NAIC or domiciliary state rules; unrestricted surplus, capital notes and surplus notes to the extent that, in combination, they exceed the insurer's Company Action Level Risk-Based Capital of the NAIC Risk-Based Capital Model Act; commissioner-approved support agreements from parent or affiliated entities such as intragroup reinsurance, stop loss, guarantees, net worth maintenance or other similar arrangements; voluntary tax-deferred pre-event catastrophe reserves as defined herein; and other risk transfer arrangements (including contingent equity or contingent surplus notes or contingent capital notes that, when issued, would meet risk-based capital credit, surplus enhancement, credit for reinsurance, or risk transfer requirements) as permitted by state law or regulation or approved by the Commissioner of the state of domicile. Catastrophe management resources are subject to regulatory review.

8. **Catastrophe Year** - Catastrophe Year in concept and application is similar to the insurance accounting concept of accident year since it represents the identification and development of losses occurring within a particular calendar year. Catastrophe Year is somewhat different from accident year, however, since individual Qualifying Losses, which are attributable to a Qualifying Catastrophe Event, are included in the year in which the Qualifying Catastrophe Event started, disregarding the possibility that the Qualifying Catastrophe Event spans more than one calendar year. For purposes of determining Qualifying Losses, Catastrophe Year shall be determined from the time that a Qualifying

Catastrophe Event first occurs and shall include all Qualifying Losses attributable to that Qualifying Catastrophe Event regardless of the year incurred.

9. **Reserve Cap** – The Reserve Cap establishes a maximum limit for the insurer's Voluntary Tax-deferred Pre-event Catastrophe Reserve. The Reserve Cap is calculated using a formula that multiplies Catastrophe Reserve Cap Factors by an insurer's net written premiums (including net written premiums under intercompany pooling arrangements) for each corresponding Qualifying Line of Business. The resulting amounts are added together to obtain a single aggregate Catastrophe Reserve Cap for the insurer. The Catastrophe Reserve shall be established and maintained at a level not to exceed the Reserve Cap. Additions to the Catastrophe Reserve shall be limited to an amount equal to the difference between the Reserve Cap and the reserve balance at the time of the addition.

10. **Catastrophe Reserve Cap Factors** - The following Catastrophe Reserve Cap Factors are to be used to calculate the insurer's Reserve Cap.

Fire	0.25
Allied lines	0.85
Farmowners Multi-peril	0.10
Homeowners Multi-peril	0.60
Commercial Multi-peril	0.30
Earthquake	16.30
Private Passenger Auto Physical Damage	0.01
Commercial Auto Physical Damage	0.01
Inland Marine	0.20
Non-proportional Reinsurance for Other Qualifying Lines	0.45

[Note: The above factors are subject to revision to accommodate non-proportional reinsurance for the qualifying lines of business. Alternative factors (Models 2 & 3) are currently being considered for non-proportional reinsurance and whether Reinsurance A and B should be combined or split. The factors for Model 1 are included above. Model 2 & 3 factors are attached to the Exposure Draft.]

The Catastrophe Reserve Cap Factors will be the same as the factors promulgated under federal tax law to allow tax deferral of such reserves. Given the unique prerogative of the U.S. Congress over the determination of the basis for taxation, these factors may be updated periodically by federal law with advice and counsel from other parties, to include the NAIC. Any changes to such factors for use in the federal tax law shall also be made to the Catastrophe Reserve Cap Factors, herein. The methodology used to determine these factors is included for reference in the Appendix.

11. **Reserve Drawdown/Thresholds** – Drawdowns from the Catastrophe Reserve shall be made in accordance with the following criteria:

3. **Drawdown for Qualifying Losses in Excess of Threshold** –The Catastrophe Reserve shall be drawn down in an amount not to exceed the lesser of the amount determined under subparagraph (1) or (2):

   1) Qualifying Losses for the Catastrophe Year net of contractual payments from catastrophe management resources and net of salvage and subrogation, or

   2) Qualifying Losses for the Catastrophe Year to the extent that such Qualifying Losses exceed the lesser of:

      i. 100% of the insurer's prior year Reserve Cap, or

      ii. 30% of the insurer's surplus at December 31 of the prior year.

Note: Federal enabling tax legislation includes a second event trigger that is not included here subject to further discussion.

b. **Drawdown for Amounts in Excess of Cap** - The catastrophe reserve balance shall be drawn down to the extent it exceeds the Reserve Cap.

c. **Drawdown for Insolvency** - The domiciliary Commissioner may cause an insurer to release the Catastrophe Reserve as a rehabilitation, conservation or liquidation measure or to forestall insolvency of the insurer.

12. **Adjustment for Affiliate Risk Sharing Arrangements** - Many insurers share risk among affiliates through excess of loss or stop loss reinsurance agreements. For such insurers, the reserve cap shall be computed on a consolidated basis for the participating affiliates and then allocated to each participating affiliate on a basis that reasonably reflects the relative retained exposure of each entity to Qualifying Losses.

13. **Effective Date and Transition** - No reporting or calculation of a catastrophe reserve shall be required until enabling federal tax legislation is in effect.

Derivation of Line of Business Catastrophe Reserve Cap Factors
For Voluntary Tax-Deferred Pre-Event Catastrophe Reserves

Objective - Reserve cap factors by line of business were derived to produce a maximum insurance industry reserve of $40 billion when applied to 1999 net written premiums. The reserve cap factors are designed to reflect the historic variability in industry loss ratios for the relevant lines of business, as well as the expected catastrophe losses implied by a catastrophe model.

Reserve Calculation Methodology

The proposed reserve cap factors are based on the following methodology:

1. Adjust the reinsurance A and B premiums and losses to account for the portion attributable to the qualified lines only (qualified lines in reinsurance A are fire, allied, inland marine, earthquake, private passenger auto physical damage, and commercial auto physical damage; qualified lines in reinsurance B are farmowners, homeowners, and CMP non-liability) by multiplying the reinsurance A and B premiums and losses by the following ratio: (reinsurance X qualified lines premiums ceded to non-affiliates)/(total reinsurance X premiums ceded to non-affiliates), where X = A or B.
2. Combine the reinsurance A and B lines into one reinsurance line by summing the respective reinsurance A and B premiums and losses.
3. Calculate industry direct incurred loss ratios (direct incurred losses and loss adjustment expenses divided by direct earned premiums) from 1967 through 1999 for each of the subject lines of business based on data published by A.M. Best. (Farmowners data was only available starting in 1973; commercial multiple peril data was only available in total from 1967 through 1991 [the non-liability portion of CMP was available starting in 1992]; earthquake data was not available in 1971 and 1972; reinsurance A and B data was only available starting in 1976 [only total reinsurance data was available from 1976-1987; beginning in 1988, the data was split into the separate reinsurance lines].)
4. Calculate the mean and standard deviation of the annual direct incurred loss ratios for each line.
5. Adjust the loss ratios from step 3 such that there is no loss ratio greater than the mean plus one standard deviation as calculated in step 4. In other words, if an annual loss ratio is greater than the mean plus one standard deviation, set the loss ratio equal to the mean plus one standard deviation. If an annual loss ratio is less than the mean plus one standard deviation, do not adjust it.
6. Calculate the adjusted mean and standard deviation of the direct incurred loss ratios from step 5 for each line.

7. Calculate a threshold loss ratio for each line, equal to the adjusted mean loss ratio plus two adjusted standard deviations from step 6.
8. Calculate the excess loss ratio for each line and year equal to the excess of the actual loss ratio over the threshold loss ratio. (It was assumed that non-liability represented 50% of CMP premiums and losses during the period 1967-1991. To reflect this assumption, any excess loss ratios during this period were doubled. In addition, CMP excess loss ratios for 1983-1985 were set to zero because the large loss ratios in those years were primarily due to inadequate casualty pricing rather than property catastrophes. For farmowners, the excess loss ratios for 1967-1972 are the homeowners excess loss ratios. For earthquake, the excess loss ratios for 1971 and 1972 are allied lines excess loss ratios.)
9. Calculate losses in excess of the threshold loss ratio for each line by applying the all years sum of the excess loss ratios for each line to the 1999 direct written premium.
10. Prorate the excess losses from step 9 to a total of two thirds of the projected cap (two-thirds of $40 billion based on 1999 premiums).
11. Estimate expected catastrophe losses by line of business, based on an analysis of data published by a prominent catastrophe modeling firm.
12. Prorate the expected catastrophe losses from step 11 to a total of one-third of the projected cap (one-third of $40 billion based on 1999 premiums).
13. Add the amounts from steps 10 and 12 to produce an initial reserve cap by line of business.
14. Calculate an initial reserve cap factor by dividing the reserve caps for each line (from step 13) by 1999 net written premium by line.
15. Cap the factor in step 14 for the private passenger auto physical damage line of business equal to 0.01
16. Cap the factor in step 14 for the commercial auto physical damage line of business equal to 0.01.
17. Using the capped factors in steps 15 and 16, calculate the reserve caps for private passenger auto physical damage and commercial auto physical damage.
18. Prorate the difference between the original private passenger auto physical damage and the commercial auto physical damage reserve caps from step 13 and the reserve caps from step 17 back to the other lines and recalculate the reserve cap factors.
19. Select a reserve cap factor for each line by rounding the ratios calculated in step 18 to the nearest 0.05, with a minimum factor of 0.05 (except the auto physical damage lines).

Appendix D: Statutory Issue Paper

Statutory Issue Paper No. ___

Title:
CATASTROPHE RESERVES

Status:
Revised Draft of the Catastrophe Insurance Working Group February 2001

Type of Issue:
Property-Casualty

SUMMARY OF ISSUE:

1. Catastrophes present a significant challenge to the U.S. economy and to the U.S. property-casualty insurance industry, posing financial solvency, capital accumulation and insurance availability issues. Insurers should be encouraged to engage in prudent risk management behavior. Existing methods to manage insurer risk include loss mitigation, geographic spreading of risk, reinsurance, capital market instruments, derivatives products and short and long-term pre and post-event financing. One additional method proposed to encourage prudent risk behavior - which should augment, not supplant those existing risk management methods - is to permit insurers to establish a reserve for future catastrophes.

2. Current statutory and GAAP accounting limits the recognition of loss reserves to losses which have been incurred. A reserve for future catastrophes is intended to enhance property and casualty insurers' capability to manage their catastrophic loss exposures by allowing specific provision for future catastrophe losses. Existing statutory accounting and tax treatment of catastrophe exposure fails to maximize the ability of insurers to appropriately respond to catastrophe related and availability issues. With respect to solvency issues, the current statutory accounting and tax treatment does not encourage the prudent accumulation of capital to absorb catastrophe losses.

3. It is in the public interest to determine whether a reserve for future catastrophes can be structured in such a way so as to provide incentives for:

   - property and casualty insurers to appropriately manage their catastrophic loss exposures by making specific provision for future catastrophe losses while continuing to provide and expand catastrophe insurance coverage in regions with significant catastrophe exposure, and

   - state insurance regulators to approve catastrophe insurance rates which, among other appropriate factors, reflect past experience and projected exposures,

so that the U.S. federal government and taxpayers benefit, in the form of possible reduced demand for catastrophe relief, as a result of these changes in the insurance regulatory and tax systems.

4. This paper establishes statutory accounting criteria for recording a pre-event catastrophe reserve.

SUMMARY CONCLUSION:

5. Insurers writing property and casualty contracts as defined in SSAP 50 - Classifications and Definitions of Insurance or Managed Care Contracts In Force, writing the lines of business described in paragraph 7 below and required under state law to file a NAIC annual statement shall establish a catastrophe reserve for the purpose of paying for future catastrophe losses occurring in the United States and its territories and possessions. Insurers domiciled in Puerto Rico shall not establish the reserve for Puerto Rico risks as a catastrophe reserve is already included in the Puerto Rico insurance code.

6. The catastrophe reserve shall be a separate liability on the balance sheet distinct from loss and loss adjustment expense reserves and unearned premium reserves. Additions to, and deductions from, the catastrophe reserve shall be reported through a change in catastrophe reserve in the underwriting income section of the statutory statement of income.

7. The catastrophe reserve shall be established in the aggregate for the following lines: fire, allied lines, farm-owners multiple-peril, homeowners multiple-peril, commercial multiple-peril (non-liability portion), earthquake, private passenger auto physical damage commercial auto physical damage, inland marine, and non-proportional reinsurance for the Qualifying Lines of Business.

8. The types of events that must occur for an insurer to be allowed to deduct Qualifying Losses (as defined in paragraph 9 below) from the catastrophe reserve are as follows:

   a. Wind
   b. Hail
   c. Earthquake/fire following
   d. Winter catastrophes (snow, ice, freezing)
   e. Fire
   f. Tsunami
   g. Flood
   h. Volcanic eruption (including lahar)

   These events shall be 1) designated a catastrophe by Property Claims Service or any successor organization, 2) declared an emergency or disaster by the President of the United States pursuant to the Stafford Act, or 3) declared to be an emergency or disaster in a similar

declaration by the chief executive official of a State, possession, or territory of the United States, or the District of Columbia.

9. Qualifying Losses are: direct and assumed losses and loss adjustment expenses incurred and any non-recoverable assessments, surcharges or other liabilities attributable to Qualifying Catastrophe Events borne by such insurer in the qualifying lines of business as reported in such insurer's annual statement that are attributable to one or more qualifying events, plus the amounts by which such losses and loss adjustment expenses have been reduced for contractual payments from catastrophe management resources and for salvage and subrogation.

Calculation and Basis for Reserve Additions

10. Permissible annual reserve additions to the catastrophe reserve will be determined by applying catastrophe reserve cap factors to the insurer's net premiums written. Although the maximum permissible reserve is to be derived from premiums multiplied by an exposure factor, the design of the reserve is not intended to affect rates.

11. Catastrophe reserve cap factors, promulgated under federal law and developed and updated periodically with input from the NAIC, will be established for each line of business written (as specified in paragraph 7). These catastrophe reserve cap factors shall be applied to net written premiums (including net written premium under inter-company pooling arrangements) by qualifying line of business in order to determine the maximum permissible amount of the catastrophe reserve (or "catastrophe reserve cap"). The catastrophe reserve cap factors are included in federal legislation and may be revised periodically. They will be maintained as updated for any subsequent changes, in the *NAIC Annual Statement Instructions – Property & Casualty*.

Criteria for Catastrophe Reserve Drawdowns

12. The following criteria shall be followed for the drawdown of the reserve.

    a. For purposes of the catastrophe reserve drawdown criteria, catastrophe year shall be determined from the time that a qualifying event's first loss occurs and shall include all qualifying losses (as defined in paragraph 9) related to that qualifying event regardless of the year incurred. Catastrophe year in concept and application is similar to the insurance accounting concept of accident year since it represents the identification and development of losses occurring within a particular calendar year. Catastrophe year is somewhat different from accident year, however, since individual losses, which are part of a catastrophic event, are included in the year in which the catastrophic event started, disregarding the possibility that the event spans more than one calendar year. Qualifying losses shall be maintained by catastrophe year.

13. **Reserve Drawdown/Thresholds** – Drawdowns from the Catastrophe Reserve shall be made in accordance with the following criteria:

a. **Drawdown for Qualifying Losses in Excess of Threshold** – The Catastrophe Reserve shall be drawn down in an amount not to exceed the lesser of the amount determined under subparagraph 1) or 2):

1) Qualifying Losses for the Catastrophe Year net of contractual payments from catastrophe management resources and net of related subrogation and salvage, or

2) Qualifying Losses for the Catastrophe Year to the extent that such Qualifying Losses exceed the lesser of:

i. 100% of the insurer's prior year Reserve Cap, or

ii. 30% of the insurer's surplus at December 31 of the prior year.

Note: Federal enabling tax legislation includes a second event trigger that is not included here subject to further discussion.

b. **Drawdown for Amounts in Excess of Reserve Cap** - The catastrophe reserve balance shall not exceed the reserve cap (the sum of the amounts obtained by multiplying each line of business reserve cap factor by its corresponding net written premium for the insurer). The reserve shall be drawn down to the extent the balance of the reserve exceeds the reserve cap.

c. **Drawdown for Insolvency** - The insurer's domiciliary Commissioner may cause an insurer to release the reserve as a rehabilitation, conservation or liquidation measure or to forestall insolvency.

14. Many insurers share risk among affiliates through excess of loss or stop loss reinsurance agreements. For such insurers, the reserve cap should be computed on a consolidated basis for the participating affiliates and then allocated to each participating affiliate on a basis that reasonably reflects the relative retained exposure of each entity to Qualifying Losses.

Disclosures

15. The annual financial statements shall disclose a reconciliation of the catastrophe reserve between years, including:

a. The balance of the catastrophe reserve at the beginning of the year;
b. The annual reserve addition;
c. Drawdowns of the reserve, including the nature of the drawdown; (i.e. qualifying losses, amounts in excess of the reserve cap, etc.)
d. The balance of the catastrophe reserve at the end of the year.

Effective Date and Transition

16. No reporting or calculation of a catastrophe reserve shall be required until enabling federal tax legislation is in effect.

DISCUSSION:

17. Under the preamble to the NAIC Accounting Practices and Procedures Manual effective January 1, 2001, it is contemplated that special reserves may be established for regulatory solvency. That provision of the preamble provides the basis for the establishment of this reserve.

18. Consistent with the solvency and conservatism concepts in the Statutory Accounting Principles Statements of Concepts and Statutory Hierarchy, the statutory accounting model uses numerous accounting methods to accomplish the objective of reporting a company's statutory financial position to demonstrate solvency. Notwithstanding the accounting guidance in SSAP 5 and SSAP 55 recording of a catastrophe reserve is consistent with the solvency and conservatism concepts.

19. The catastrophe reserve does not meet the definition of a liability, which is set forth in SSAP 5 – Liabilities, Contingencies and Impairments of Assets. Nor does the catastrophe reserve meet the definition and characteristics of a liability as defined in FASB Statement of Concepts No. 6 – Elements of Financial Statements. However, it is consistent with the "*ultimate objective of solvency regulation*" as stated in the Statement of Concepts. This states:

    The ultimate objective of solvency regulation is to ensure that policyholder, contract holder and other legal obligations are met when they come due and that companies maintain capital and surplus at all times and in such forms as required by statute to provide an adequate margin of safety.

    Additionally, recording the catastrophe reserve, as a liability is consistent with the Statement of Concepts, which states:

    Liabilities require recognition as they are incurred. Certain statutorily mandated liabilities may also be required to arrive at conservative estimates of liabilities and probable loss contingencies.

20. This issue paper is consistent with certain principles discussed in SSAP 60 – Financial Guaranty Insurance regarding a contingency reserve. Similarities can be draw between the calculation of the contingency reserve as specified in SSAP 60 and the calculation of the catastrophe reserve as specified in this issue paper. Both reserves are on a pre-event basis and reference premiums written. The purpose of both is to protect policyholders.

21. The statutory accounting principles outlined in the conclusion above are consistent with the conservatism and recognition concepts in the Statement of Concepts. Pertinent excerpts follow:

Conservatism

Financial reporting by insurance enterprises requires the use of substantial judgments and estimates by management. Such estimates may vary from the actual amounts for numerous reasons. To the extent that factors or events result in adverse variation from management's accounting estimates, the ability to meet policyholder obligations may be lessened. In order to provide a margin of protection for policyholders, the concept of conservatism should be followed when developing estimates as well as establishing accounting principles for statutory reporting.

22. A catastrophe reserve without tax-deductibility would diminish an insurer's capital and would likely have the effect of restricting availability of insurance coverage to consumers in catastrophe prone areas. It is anticipated that tax-deductibility of the catastrophe reserve will provide incentive for insurers to write in catastrophe prone areas and should result in greater availability of insurance and increase risk-bearing capacity to cover catastrophic exposure.

23. The specified treatment of the annual reserve additions and qualifying losses do not meet the defined recording and treatment of claims, losses, loss/claim adjustment expense, unpaid claims, unpaid losses and unpaid loss/claim adjustment expenses as defined in SSAP 55 - Unpaid Claims, Losses, and Loss Adjustment Expenses or FASB Statement No. 60, Accounting and Reporting by Insurance Enterprises (FAS 60). These pronouncements specify that the event must have occurred for a liability to be recorded and an estimate of the ultimate cost must be determined. However the treatment is consistent with the *"ultimate objective of solvency regulations"* as stated in the Statement of Concepts, please refer to paragraph 18 above.

RELEVANT LITERATURE:

Statutory Accounting Practices and Procedures

- Preamble to the NAIC Accounting Practices and Procedures Manual
- Statutory Accounting Principles Statement of Concepts and Statutory Hierarchy
- SSAP 5 – Definition of Liabilities, Loss Contingencies and Impairments of Assets
- SSAP 55 – Unpaid Claims, Losses, and Loss Adjustment Expenses
- SSAP 60 – Financial Guaranty Insurance

Generally Accepted Accounting Principles

- FASB Statement of Concepts No. 6 – Elements of Financial Statements
- FASB Statement No. 60 – Accounting and Reporting by Insurance Enterprises

State Regulations

- Puerto Rico Statues, Title 26, Ins. Code §25.010, Reserve for Catastrophic Insurance Losses
- Florida Statues, Title XXXVII, Chapter 627, Insurance Rates and Contracts §067.062

Statement of Statutory Accounting Principles No. __

Catastrophe Reserves

Scope of Statement

1. This statement establishes statutory accounting principles for a pre-event catastrophe reserve for property and casualty companies.

Summary Conclusion

2. Insurers writing property and casualty contracts as defined in SSAP 50 – Classifications and Definitions of Insurance or Managed Care Contracts In Force, writing the lines of business described in paragraph 4 below and required under state law to file a NAIC annual statement shall establish a catastrophe reserve for the purpose of paying for future qualifying catastrophe losses occurring in the United States and its territories and possessions. Insurers domiciled in Puerto Rico shall not establish the reserve for Puerto Rico risks as a catastrophe reserve is already included in the Puerto Rico insurance code.

3. The catastrophe reserve shall be a separate statutory liability on the balance sheet distinct from loss and loss adjustment expense reserves and unearned premium reserves. Additions to, and deductions from, the catastrophe reserve shall be reported through a change in catastrophe reserve in the underwriting income section of the statutory statement of income.

4. The catastrophe reserve shall be established in the aggregate for the following lines: fire, allied lines, farm-owners multiple-peril, homeowners multiple peril, commercial multiple-peril (non-liability portion), earthquake, private passenger auto physical damage, commercial auto physical damage, inland marine, and non-proportional reinsurance for Qualifying Lines of Business.

5. The types of events that must occur for an insurer to be allowed to deduct qualifying losses (defined in paragraph 6) from the catastrophe reserve are as follows:

   a) Wind
   b) Hail
   c) Earthquake/fire following
   d) Winter catastrophe (snow, ice, freezing)
   e) Fire
   f) Tsunami
   g) Flood
   h) Volcanic eruption (including lahar)

   These events shall be 1) designated a catastrophe by Property Claims Service or any successor organization, 2) declared an emergency or disaster by the President of the United States pursuant to the Stafford Act, or 3) declared to be an emergency or disaster in a similar

declaration by the chief executive official of a State, possession, or territory of the United States, or the District of Columbia.

6. Qualifying losses are: Direct and assumed losses and loss adjustment expenses incurred and any non-recoverable assessments, surcharges or other liabilities attributable to Qualifying Catastrophe Events borne by such insurer in the qualifying lines of business as reported in such insurer's annual statement that are attributable to one or more qualifying events, plus the amounts by which such losses and loss adjustment expenses have been reduced for contractual payments from catastrophe management resources and for salvage and subrogation.

7. **Calculation and Basis for Reserve Additions**

   a) Annual reserve additions for each insurer shall not exceed the catastrophe reserve cap. The catastrophe reserve cap is the sum of the amounts determined by multiplying the catastrophe reserve cap factor for each qualifying line of business by the insurer's net written premium for the corresponding qualifying line of business.

   b) Catastrophe reserve cap factors, promulgated under federal law and developed and updated periodically with input from the NAIC will be established for each line of business written (as specified in paragraph 4). These catastrophe reserve cap factors shall be applied to net written premiums (including net written premiums under inter-company pooling arrangements) by qualifying line of business in order to determine the maximum permissible amount (or "reserve cap") of the catastrophe reserve. The catastrophe reserve cap factors are included in federal tax legislation and may be revised periodically and will be maintained in *the NAIC Annual Statement Instructions – Property & Casualty.*

8. **Criteria for Drawdown of the Catastrophe Reserve**

   The following criteria shall be followed for the drawdown of the reserve:

a. For purposes of the catastrophe reserve drawdown criteria, catastrophe year shall be determined from the time that a qualifying event's first loss occurs and shall include all qualifying losses (as defined in paragraph 6) related to that qualifying event regardless of the year incurred. Catastrophe year in concept and application is similar to the insurance accounting concept of accident year since it represents the identification and development of losses occurring within a particular calendar year. Catastrophe year is somewhat different from accident year, however, since individual losses, which are part of a catastrophic event, are included in the year in which the catastrophic event started, disregarding the possibility that the event spans more than one calendar year. Qualifying losses shall be maintained by catastrophe year.

b. The Catastrophe Reserve shall be drawn down in an amount not to exceed the lesser of the amount determined under subparagraph 1) or 2):

   1) Qualifying Losses for the Catastrophe Year net of contractual payments from catastrophe management resources and net of subrogation and salvage, or

2) Qualifying Losses for the Catastrophe Year to the extent that such Qualifying Losses exceed the lesser of:

   i. 100% of the insurer's prior year initial reserve cap, or

   ii. 30% of the insurer's surplus at December 31 of the prior year

Note: Federal enabling tax legislation includes a second event trigger that is not included here subject to further discussion.

c. The catastrophe reserve shall be drawn down to the extent it exceeds the reserve cap.

d. The insurer's domiciliary commissioner may cause an insurer to release the reserve as a rehabilitation, conservation or liquidation measure or to forestall insolvency.

9. Many insurers share risk among affiliates through excess of loss or stop loss reinsurance agreements. For such insurers, the reserve cap should be computed on a consolidated basis for the participating affiliates and then allocated to each participating affiliate on a basis that reasonably reflects the relative retained exposure of each entity to Qualifying Losses.

Disclosures

10. The annual financial statements shall disclose a reconciliation of the catastrophe reserve between years, including:

    a) The balance of the catastrophe reserve at the beginning of the year;
    b) The annual reserve addition;
    c) Drawdowns of the reserve, including the nature of the drawdown (i.e. qualifying losses, amounts in excess of the reserve cap, etc.);
    d) The balance of the catastrophe reserve at the end of they year.

Effective Date

11. No reporting or calculation of a catastrophe reserve shall be required until enabling federal tax legislation is in effect. A change resulting from the adoption of this statement shall be accounted for as a change in accounting principle in accordance with *SSAP No. 3 – Accounting Changes and Corrections of Errors.*

Authoritative Literature

Statutory Accounting

- Preamble to the NAIC Accounting Practices and Procedures Manual
- Statutory Accounting Principles Statement of Concepts and Statutory Hierarchy
- SSAP 5 – Definition of Liabilities, Contingencies, and Impairments of Assets

- SSAP 55 – Unpaid Claims, Losses and Loss Adjustment Expenses
- SSAP 60 – Financial Guaranty Insurance

Relevant Issues Papers
- Issue Paper No. ___, Catastrophe Reserves
- Issue Paper No. 5 – Liabilities, Contingencies, and Impairments of Assets
- Issue Paper No. 55 – Unpaid Claims, Losses and Loss Adjustment Expenses
- Issue Paper No. 69 – Financial Guaranty Insurance

SSAP No. __ - Exhibit A Implementation Guidance

Voluntary tax-deferred pre-event catastrophe reserve calculation rules

For insurer's that choose to use the reserve, the reserve balance calculation should be completed on an **annual basis** in the order as listed below.

1. *Calculate the annual reserve cap and thresholds.*

2. *Determine the allowable drawdown for qualifying losses.*

3. *Reduce the reserve balance for the amount of qualifying losses to be drawn down from the reserve subject to the limit in 2 above.*

4. *Determine the maximum amount of the annual reserve addition allowed by subtracting the remaining reserve balance from the reserve cap.*

5. *Add the desired reserve addition to the remaining balance of the reserve subject to the limitation in 4 above*

6. *Determine if the resulting balance exceeds the reserve cap, if so, reduce the reserve for any balance in excess of the reserve cap.*

The determination of qualifying losses is a complicated procedure since all losses shall be maintained by catastrophe year. Catastrophe year in concept and application is similar to the commonly understood insurance accounting concept of accident year since it represents the identification and development of losses occurring within a particular calendar year. Catastrophe year is somewhat different from accident year, however, since individual losses that are part of a catastrophic event are included in the year in which the catastrophic event started, disregarding the possibility that the event spans more than one calendar year.

The development of losses from a qualifying event shall be continuously maintained. Losses from a qualifying event might not reach the qualifying loss threshold for several years after the year of occurrence. Accordingly, each company shall maintain losses by catastrophe year and, their qualifying loss limitation thresholds for each year as a permanent benchmark. Once the annual determination of qualifying losses is completed for the current year the qualifying losses are deducted from the reserve. Favorable loss development should not be used to re-establish reserves previously drawdown.

The reserve cap is the sum of the amounts determined by multiplying the catastrophe reserve cap factor for each qualifying line of business by the insurer's net written premium for the corresponding qualifying line of business.

Proposed NAIC Annual Statement Instructions for Property and Casualty Insurance Companies

LIABILITIES, SURPLUS AND OTHER FUNDS

Line 16 - Catastrophe Reserve

Include: Amounts for catastrophe reserves. Refer to SSAP #__, Voluntary Tax-deferred Pre-event Catastrophe Reserves for guidance regarding these amounts.

The following represents the catastrophe reserve cap factors as specified in SSAP #__, paragraph 7. These factors are used in the calculation of catastrophe reserve cap, which limits annual reserve additions.

Fire	0.25
Allied lines	0.85
Farmowners Multi-peril	0.10
Homeowners Multi-peril	0.60
Commercial Multi-peril	0.30
Earthquake	16.30
Private Passenger Auto Physical Damage	0.01
Commercial Auto Physical Damage	0.01
Inland Marine	0.20
Non-proportional Reinsurance for Qualifying Lines	0.45

[Note: The above factors are subject to revision to accommodate non-proportional reinsurance for the qualifying lines of business. Alternative factors (Models 2 & 3) are currently being considered for non-proportional reinsurance and whether Reinsurance A and B should be combined or split. The factors for Model 1 are included above. Model 2 & 3 factors are attached to the Exposure Draft.]

ANNUAL STATEMENT FOR THE YEAR 2003 OF THE

LIABILITIES, SURPLUS AND OTHER FUNDS	1 Current Year	2 Prior Year
1. Losses (Part 3A, Line 32 , Column 5)		
2. Reinsurance payable on paid loss and loss adjustment expenses (Schedule F, Part 1, Column 6)		
3. Loss adjustment expenses (Part 3A, Line 34, Column 9)		
4. Commissions payable, contingent commissions and other similar charges		
5. Other expenses (excluding taxes, licenses and fees)		
6. Taxes, licenses and fees (including $........net deferred tax liability)		
7. Federal and foreign income taxes (excluding deferred taxes)		
8. Borrowed money $........and interest thereon $		
9. Unearned premiums (Part 2A, Line 36, Column 5) (after deducting unearned premiums for ceded reinsurance of $...........and including warranty reserves of $...........)		
10. Dividends declared and unpaid:		
10.1 Stockholders		
10.2 Policyholders		
10.3 Ceded reinsurance premiums payable (net of ceding commissions)		
11. Funds held by company under reinsurance treaties (Schedule F, Part 3, Column 14)		
12. Amounts withheld or retained by company for account of others		
13. Remittances and items not allocated		
14. Provision for reinsurance (Schedule F, Part 7)		
15. Net adjustments in assets and liabilities due to foreign exchange rates		
16. Catastrophe Reserve		
17. Drafts outstanding		
18. Payable to parent, subsidiaries and affiliates		
19. Payable for securities		
20 Liability for amounts held under uninsured accident and health plans		
21. Capital notes $..................and interest thereon $		
22. Aggregate write-ins for liabilities		
23. Total liabilities (Lines 1 through 22)		
24. Aggregate write-ins for special surplus funds		
25. Common capital stock		
26. Preferred capital stock		
27. Aggregate write-ins for other than special surplus funds		
28. Surplus notes		
29. Gross paid in and contributed surplus		
30. Unassigned funds (surplus)		
31. Less treasury stock, at cost:		
31.1 ....shares common (value included in Line 25 $..................)		
31.2 ....shares preferred (value included in Line 26 $..................)		
32. Surplus as regards policyholders (Lines 24 to 30, less 31) (Page 4, Line 38)		
33. TOTALS (Page 2, Line 24, Col. 4)		
DETAILS OF WRITE-INS		
2201.		
2202.		
2203.		
2298. Summary of remaining write-ins for Line 22 from overflow page		
2299. Totals (Lines 2201 through 2203 plus 2298) (Line 22 above)		
2401.		
2402.		
2403.		
2498. Summary of remaining write-ins for Line 24 from overflow page		
2499. Totals (Lines 2301 through 2403 plus 2498) (Line 24 above)		
2701.		
2702.		
2703.		
2798. Summary of remaining write-ins for Line 27 from overflow page		
2799. Totals (Lines 2701 through 2703 plus 2798) (Line 27 above)		

UNDERWRITING AND INVESTMENT EXHIBIT
STATEMENT OF INCOME

Line 4 - Change in Catastrophe Reserve

Include: Additions to and drawdowns from the catastrophe reserve. Refer to SSAP #__, Voluntary Tax-deferred Pre-event Catastrophe Reserves for guidance regarding these amounts.

ANNUAL STATEMENT FOR THE YEAR 2003 OF THE

UNDERWRITING AND INVESTMENT EXHIBIT STATEMENT OF INCOME	1 Current Year	2 Prior Year
UNDERWRITING INCOME		
1. Premiums earned (Part 2, Line 34, Column 4)		
DEDUCTIONS		
2. Losses incurred (Part 3, Line 34, Column 7)		
3. Loss expenses incurred (Part 4, Line 25, Column 1)		
4. Change in Catastrophe Reserve (Page 3, Line 16, Column 2 minus Column 1)		
5. Other underwriting expenses incurred (Part 4, Line 25, Column 2)		
6. Aggregate write-ins for underwriting deductions		
7. Total underwriting deductions (Lines 2 through 6)		
8. Net underwriting gain or (loss) (Line 1 minus Line 7)		
INVESTMENT INCOME		
9. Net investment income earned (Part 1, Line 15)		
10. Net realized capital gains or (losses) (Part 1A, Line 10)		
11. Net investment gain or (loss) (Lines 9 + 10)		
OTHER INCOME		
12. Net gain or (loss) from agents' or premium balances charged off (amount recovered $ .... amount charged off $ ....)		
13. Finance and service charges not included in premiums		
14. Aggregate write-ins for miscellaneous income		
15. Total other income (Lines 12 through 14)		
16. Net income before dividends to policyholders and before federal and foreign income taxes (Lines 8+11+15)		
17. Dividends to policyholders (Exhibit 2, Line 16, Column 1 plus Page 3, Line 10.2, Column 1 minus Column 2)		
18. Net income, after dividends to policyholders but before federal and foreign income taxes (Line 16 minus Line 17)		
19. Federal and foreign income taxes incurred		
20. Net income (Line 18 minus Line 19) (to Line 22)		
CAPITAL AND SURPLUS ACCOUNT		
21. Surplus as regards policyholders, December 31 prior year (Page 4, Line 37, Column 2)		
GAINS AND (LOSSES) IN SURPLUS		
22. Net income (from Line 19)		
23. Net unrealized capital gains or (losses) (Part 1A, Line 11)		
24. Change in net deferred income tax		
25. Change in nonadmitted assets (Exhibit 1, Line 6, Col. 3)		
26. Change in provision for reinsurance (Page 3, Line 14, Column 2 minus Column 1)		
27. Change in net unrealized foreign exchange capital gain or (loss)		
28. Change in surplus notes		
29. Cumulative effect of changes in accounting principles		
30. Capital changes:		
30.1 Paid in		
30.2 Transferred from surplus (Stock Dividend)		
30.3 Transferred to surplus		
31. Surplus adjustments:		
31.1 Paid in		
31.2 Transferred to capital (Stock Dividend)		
31.3 Transferred from capital		
32. Net remittances from or (to) Home Office		
33. Dividends to stockholders		
34. Change in treasury stock (Page 3, Line 31.1 and (31.2), Column 2 minus Column 1)		
35. Extraordinary amounts of taxes for prior years		
36. Aggregate write-ins for gains and losses in surplus		
37. Change in surplus as regards policyholders for the year (Lines 22 through 36)		
38. Surplus as regards policyholders, December 31 current year (Line 21 plus Line 37) (Page 3, Line 32)		
DETAILS OF WRITE-INS		
0601.		
0602.		
0603.		
0698. Summary of remaining write-ins for Line 6 from overflow page		
0699. Totals (Lines 0601 through 0603 plus 0698) (Line 6 above)		
1401.		
1402.		
1403.		
1498. Summary of remaining write-ins for Line 14 from overflow page		
1499. Totals (Lines 1401 through 1403 plus 1498) (Line 14 above)		
3601.		
3602.		
3603.		
3698. Summary of remaining write-ins for Line 36 from overflow page		
36599. Totals (Lines 3601 through 3603 plus 3698) (Line 36 above)		

NOTES TO FINANCIAL STATEMENTS

The financial statements shall disclose the following:

a. The balance of the catastrophe reserve at the beginning of the year;
b. The annual reserve addition;
c. Drawdowns of the reserve, including the nature of the drawdown (i.e. qualifying losses, amounts in excess of the reserve cap, etc.); and
d. The balance of the catastrophe reserve at the end of the year.

Note: Refer to SSAP #__, Voluntary Tax-deferred Pre-event Catastrophe Reserves for the guidance on calculating and maintaining catastrophe reserves.

Illustration:

i.	Catastrophe Reserve Balance at the Beginning of Year	$__________
ii.	Current Annual Reserve Addition to the Catastrophe Reserve	$__________
iii	Current Drawdowns from Qualifying Losses	$__________
iv.	Current Drawdowns for Amounts in Excess of the Reserve Cap	$__________
v.	Catastrophe Reserve Balance at the End of the Year	$__________

Appendix G: Other Countries' Approaches

As mentioned in the text, we gathered information from other countries with respect to insurance companies' ability to establish pre-event reserves. A brief description of each is provided here. We are aware that France, Mexico and Puerto Rico all have reserves of this nature also, but the details were not available to us.

Barbados

In Barbados, non-life insurance companies are allowed to establish a Catastrophe Reserve Fund to cover natural catastrophes only. This fund is tax deductible and is accounted for as an appropriation of retained earnings. Annually, each company may deduct 20% of its net premium income up to a limit of 100% of its shareholder's equity, from its property insurance business, to be added to its Catastrophe Reserve Fund. The occurrence of any catastrophic event, as defined in the statute, can trigger the release of the reserve.

Canada

Canadian insurers are required to establish pre-event reserves to cover nuclear liability exposures and, at certain levels, to cover earthquake exposures. Each reserve is established differently based upon the exposure it is meant to cover. In the case of the nuclear liability, companies are required to establish an appropriation of surplus equal to 100% of the net written premiums, less commission, for the nuclear liability policies. To cover earthquake exposures, property and casualty companies must demonstrate that they have sufficient resources to absorb losses of a certain level. Otherwise, there is a requirement to carry a reserve, again an appropriation of surplus, up to a certain level. Upon meeting established financial requirements, a company can set aside a reserve on a voluntary basis. Both mandatory and voluntary reserves are tax deductible.

Finland

In Finland, non-life insurance companies are required to establish what we would call pre-event reserves. These reserves serve as an equalization provision[1] for years in which the loss ratio of the accounting year exceeds the average loss ratio from previous years. All classes of business are covered by the equalization provision. Companies domiciled in Finland are also required to establish a pre-event reserve to cover a collective guarantee item in statutory motor vehicle liability and in statutory workers' compensation insurance. In Finland there is a joint liability among insurance companies writing these lines of business in case of an insolvency of one of the companies. This collective guarantee item is meant to cover part of the expenses paid by the company due to an insolvency of another company. These liabilities are tax-exempt.

Germany

In Germany, property/casualty insurers and reinsurers are required to establish an equalization provision and a large risk provision. These provisions are tax deductible. The equalization provision applies to all insurance lines and is concerned with normal

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[1] In Finland, Germany and Switzerland a provision is a liability, used to pay claims, while a reserve is equity.

claims fluctuations occurring at random. It is based upon the assumption that claims vary from year to year and ensures that the yearly fluctuations are spread out evenly. The large risk provision is required for nuclear installation insurance risk and pharmaceutical product risk insurance. It is concerned with fluctuations during the year, which occur because of individually exceptional claims, by providing a further layer of reserve over the general equalization reserve.

Italy
In Italy, companies are required to supplement unearned premium reserves for hail and other natural catastrophes. Companies are also required to establish equalization reserves, which cover nuclear energy and credit risks as well as natural catastrophes. All reserves of this type are tax deductible. Italian law also requires an auditing company to opine on all annual accounts. An actuary must support the auditor and provide a certification of the sufficiency of all technical reserves, including pre-event reserves.

Japan
In Japan, it is mandatory for non-life insurance companies to establish a catastrophe provision. This provision is partially tax-deductible, depending upon the class of business. The main objective is to cover natural catastrophes, however it is not limited to them. The release of the fund is determined by the written paid loss ratio regardless of the event.

Switzerland
Equalization reserves are required in Switzerland for credit insurance and are allowed for other classes of business. Normally, the taxing authority allows the provision to be tax deductible if it is stipulated by law or by the supervisory authority and financed by policyholders. These provisions are established not only to cover natural catastrophes, but also to equalize fluctuations in long-tail lines of business. Companies are also allowed to establish a liability that serves as equity, financed by shareholders and is therefore not tax deductible.

United Kingdom
In the United Kingdom, companies are required to maintain tax-deductible equalization reserves. They are established based upon a formula and a set of rules for the transfer of funds in and out and for the maximum permitted reserve. This requirement covers the following lines of business: property and proportional and non-proportional property reinsurance, business interruption and proportional and non-proportional business interruption reinsurance, ocean marine, aviation, nuclear risks and credit insurance. The company's auditors should check the amount carried as part of the audit. Companies are allowed to release the reserve if their loss ratio calculation for the year for the relevant lines of business is greater than the trigger ratio, or if the company's business in the relevant lines decreases so that the carried reserve is greater than the permitted maximum.

Appendix H: Detailed Example

Annual statements must show specified information about catastrophe reserve additions, balances and drawdowns. The calculation of the maximum dollar amount allowed in the reserve at the end of a year could easily be based on the company's Underwriting and Investment Exhibit, Part 2B and the reserve cap factors mentioned above and described in Appendix C. This calculation is shown in Exhibit 2, below.

The calculation illustrated in Exhibit 2 makes some assumptions about how a company would calculate its reserve cap.

1. The proposal does not specify the data source for the company's net written premium. In this example, the company's 2000 Annual Statement, Underwriting and Investment Exhibit, Part 2B was used.
2. The proposal does not define how a company calculates its split between commercial multiple peril liability and non-liability portions, although the reserve cap factor is to be applied to only the non-liability portion. The proportion can be estimated by looking at lines 5.1 and 5.2 on the company's state pages, which show direct written premium but not net written premium. Company B does not write any CMP, so this was not needed in Exhibit 2. The countrywide percentage of non-liability CMP was used for companies F and G, which did not report any direct written premium. The calculations for companies F and G are found in Exhibit 1.
3. For excess reinsurance, some companies may report certain lines of insurance in Reinsurance A while others may report the same lines in Reinsurance B. For this reason, a single factor, adjusted to reflect the catastrophe-prone property lines only, is used for both of these net written premium amounts.
4. The data is on an individual company basis. Many companies are in a group, and have risk sharing arrangements among affiliated members. "For such insurers, the reserve cap should be computed on a consolidated basis for the participating affiliates and then allocated to each participating affiliate on a basis that reasonably reflects the relative retained exposure of each entity to Qualifying Losses." [5]
5. While the proposal does not differentiate between reinsurance agreements with affiliates and non-affiliates, the annual statement page does. This might be helpful information in analyzing net PMLE, as discussed in the paper.

Exhibit 2
Company B
2000 UNDERWRITING INVESTMENT EXHIBIT PART 2B - 009

		(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)	(6)
			Reinsurance Assumed		Reinsurance Ceded				(4) x (5)
	LINE	Direct Business	From Affiliates	From Non Affiliates	To Affiliates	To Non Affiliates	Net Premiums Written	Reserve Cap Factor	Reserve Cap Amount
1	Fire	44,391,571	13,235	493,695	1,779,501	664,830	42,454,170	0.25	10,613,543
2	Allied lines	43,444,005	0	1,074,589	750,038	3,708,546	40,060,010	0.85	34,051,009
3	Farmowners multiple peril	0	0	0	0	0	0	0.10	0
4	Homeowners multiple peril	837,211,018	556	364,183	334,787	47,881,199	789,359,772	0.60	473,615,863
5	Commercial multiple peril	0	0	0	0	0	0	0.30	0
6	Mortgage guaranty	0	0	0	0	0	0		0
8	Ocean marine	15,629,728	0	0	0	400,931	15,228,797		0
9	Inland marine	63,633,958	0	0	610	1,887,021	61,746,327	0.20	12,349,265
10	Financial guaranty	0	0	0	0	0	0		0
11.1	Medical malpractice - occurrence	0	0	0	0	0	0		0
11.2	Medical malpractice - claims-made	0	0	0	0	0	0		0
12	Earthquake	16,443,167	0	0	189,001	13,765,654	2,488,512	16.30	40,562,746
13	Group accident and health	0	0	0	0	0	0		0
14	Credit accident and health (group and individual)	0	0	0	0	0	0		0
15	Other accident and health	0	0	0	0	0	0		0
16	Workers' compensation	104,351	13,254	0	0	0	117,605		0
17.1	Other liability - occurrence	67,706,541	315,623	0	0	6,641,381	61,380,783		0
17.2	Other liability - claims-made	0	0	0	0	0	0		0
18.1	Products liability - occurrence	0	962,935	0	0	0	962,935		0
18.2	Products liability - claims-made	0	0	0	0	0	0		0
19.1	Private passenger auto liability	1,245,407,092	6,282,755	32,993,020	9,976,505	9,188,499	1,265,517,863		0
19.3	Commercial auto liability	31,083	9,240	151,955	71,297	0	120,981		0
21	Auto physical damage	1,109,886,048	4,332,464	11,219,223	2,532,723	4,266,129	1,118,638,883	0.01	11,186,389
22	Aircraft (all perils)	0	14,028,239	0	0	0	14,028,239		0
23	Fidelity	0	0	0	0	0	0		0
24	Surety	0	0	0	0	0	0		0
26	Burglary and theft	0	0	0	0	0	0		0
27	Boiler and machinery	0	0	0	0	0	0		0
28	Credit	0	0	0	0	0	0		0
29	International	0	0	0	0	0	0		0
30A	Reinsurance - nonproportional assumed property		1,200,184	0	0	0	1,200,184	0.45	540,083
30B	Reinsurance - nonproportional assumed liability		1,890,810	0	0	0	1,890,810	0.45	850,865
30C	Reinsurance - nonproportional assumed financial lines		0	0	0	0	0		0
31	Aggregate write-ins for other lines of business	0	0	0	0	0	0		0
32	Totals	3,443,888,563	29,049,295	46,296,666	15,634,462	88,404,190	3,415,195,872		583,769,761

References

[1] American Academy of Actuaries, "Actuarial Issues Related to Catastrophe Reserves," presented by Wayne Fisher, July 12,1999.

[2] American Academy of Actuaries, letter to Elise Liebers, July 2, 1999.

[3] National Association of Insurance Commissioners. NAIC Proceedings 1995 4th Quarter. Kansas City, MO. page 925.

[4] NAIC Voluntary Tax-Deferred Pre-Event Catastrophe Reserve Proposal, Appendix B: Proposal – Summary and Definitions.

[5] NAIC Voluntary Tax-Deferred Pre-Event Catastrophe Reserve Proposal, Appendix E: Statement of Statutory Accounting Principles.

[6] Representative Foley, 107th Congress, H.R. 785 "Policyholder Disaster Protection Act of 2001." February 28, 2001. House of Representatives, January 21, 2001.

Annotated Bibliography

American Academy of Actuaries, "Actuarial Issues Related to Catastrophe Reserves," presented by Wayne Fisher. Presentation to Subcommittee on Natural Disaster Insurance Legislation, National Conference of Insurance Legislators. July 12, 2001.

A brief background on catastrophe risk management is given, along with some comments on actuarial expertise relevant to such a reserve. The voluntary nature of the reserve, regional exposure to catastrophic events and return periods are also touched on.

American Academy of Actuaries. Actuarial Update. "Academy Report Card, Casualty Practice Council." December 2001.

The Newsmonthly of the American Academy of Actuaries can also be found at www.actuary.org/

American Academy of Actuaries, Catastrophe Management Work Group, "Catastrophe Exposures and Insurance Industry Catastrophe Management Practices," June 10, 2001

The paper addresses how property and casualty insurers manage catastrophe risks. A number of observations are made, including a 5-step description of how catastrophic risk can be managed. In this paper, a pre-event reserve is treated as "ring fenced" capital.

American Academy of Actuaries, letter to Bill Archer commenting on the Policyholder Disaster Protection Act of 1999. September 20, 2000.

The Academy offers comment on the determination of the proposed fund cap.

American Academy of Actuaries, letter to Elise Liebers commenting on the Probably Maximum Loss Cap Proposal. July 2, 1999.

The Academy offers comments on three aspects of the Proposal: 1. Can an individual insurer's Net Probably Maximum Loss Exposure be determined with reasonable accuracy? 2. Are actuaries professionally qualified to render an Opinion on the Net Probable Maximum Loss Exposure? 3. What issues or parameters do the NAIC need to specify to ensure consistency in determining PML Caps?

American Academy of Actuaries, letter to Kevin McCarty commenting on actuarial issues in the NAIC Proposal. February 5, 2001.

The Academy reiterates its comments on relevant aspects of the voluntary proposal.

American Academy of Actuaries, "Preparing for Catastrophe: A Better Way?" Actuarial Update, November, 2000.

The Academy points out the desirability of having a financial responsibility framework and of including workers' compensation in the reserve design.

Davidson, Jr., Ross J. "Tax-Deductible, Pre-Event Catastrophe Reserves." Journal of Insurance Regulation. Winter, 1996: 175-190.

Mr. Davidson covers the status of the NAIC proposal at the time of the article. He also provides background information on the desirability of such a mechanism.

Eley, David. "Creating Catastrophe Reserves: A Balancing Act." Journal of Insurance Regulation. Winter, 1996: 191-193.

Mr. Eley's paper is a companion to the one by Mr. Davidson. It provides another perspective on Mr. Davidson's report.

Musulin, Rade, "Would a Federal Role in Disaster Protection Be a Catastrophe?" Contingencies, November/December 2000.

Mr. Musulin gives his perspective on the weaknesses and strengths of bills before the U.S. Congress at that time. HR2749 is the precursor to HR785.

National Association of Insurance Commissioners. NAIC Proceedings, 1995 – 2001 inclusive. Kansas City, MO.

The NAIC Proceedings provide minutes from its meetings. The interested reader is directed to the minutes of the Property and Casualty (C) Committee during the times listed above. The Catastrophe Reserve Subgroup and the Catastrophe Insurance Working Group also have minutes that may give additional detail.

Representative Foley. 107th Congress. H.R. 785 "Policyholder Disaster Protection Act of 2001." 2/28/2001. House of Representatives. 1/21/2002. http://www.theorator.com/bills107/hr785.html/

The text of the bill as it was introduced to the House Ways and Means Committee can be found at the above website as well as in the Congressional Record.

Rep. Foley, Mark. HR785 "Bill Summary and Status for the 107th Congress." 1/21/2002. http://thomas.loc.gov/cgi~bin/bdquery/z?d107:h.r.00785:/

We have found this website to be a useful tool in checking the status of various bills.

United States Government. Internal Revenue Code of 1986. Title 26, Subtitle A, Chapter 1, Subchapter L, Part II, Sections 831 and 832.

Other sections of the Internal Revenue Code are referenced in these Sections; however, we did not analyze them. The interested reader may wish to do so.