Causes of Reserve Deficiency Among Property/Casualty Insurers: A Survey

by the American Academy of Actuaries Committee on Property-Liability Financial Reporting

Causes of Reserve Deficiency

Among Property-Casualty Insurers:

A Survey

Prepared by the

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ABSTRACT

In 1994, the Committee on Property and Liability Financial Reporting of the American Academy of Actuaries (COPLFR) surveyed actuaries representing 26 property-casualty insurance companies to determine what factors contributed to adverse reserve development in individual companies' total loss and loss adjustment expense reserves. The survey results indicated that the major causes of adverse reserve development during the period covered by the survey were: (1) environmental and asbestos liabilities; (2) loss development tail factors; (3) involuntary pool reserves; and (4) unwinding of discount.

COPLFR concluded that some recently adopted changes to the annual statement and other regulatory initiatives under consideration can help identify and/or reduce the impacts of some of these elements. However, COPLFR also concluded that the actuarial profession needs to engage in further work on the appropriate treatment of reserves for environmental and asbestos losses and possibly in the estimation of loss development tail factors.

The American Academy of Actuaries is the public policy voice of the actuarial profession, providing the actuarial profession's expertise to policy makers. This report was produced under the direction of Jean K. Rosales, Assistant Director of Public Policy.

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INTRODUCTION

It is the appointed actuary's job to evaluate a company's claims reserves. The Statement of Actuarial Opinion (SAO), signed by the appointed actuary, is the document that attests to the reasonableness of the company's reserves.

"Adverse reserve development" indicates that the company did not set aside sufficient reserves to meet its claims.

Adverse reserve development in any one year does not indicate that a company is in financial trouble. Nonetheless, repeated problems with adverse reserve development could signal the beginnings of financial distress. It is important, therefore, for the financial health of the company that the analysis and evaluation of reserves in the SAO be as accurate and dependable as possible.

SURVEY BACKGROUND

In the summer of 1994, the Committee on Property and Liability Financial Reporting of the American Academy of Actuaries (COPLFR) undertook a survey of 52 property-casualty insurance companies to better understand the causes of companies' adverse reserve development in the three-year period beginning year-end 1990 and ending year-end 1993. The thought was that a greater understanding of the causes of adverse reserve development would help determine where improvements could be made. Possible areas of improvement

might include enhancements to the SAO or more education of actuaries in the areas causing adverse reserve development.

The survey was initiated because COPLFR observed that some industry analysts concluded that industry reserves were deficient by 10%-15% (on an undiscounted basis) despite the fact that few companies received adverse SAOs. Beginning at year-end 1990, most companies bad SAOs signed by qualified actuaries (members of the American Academy of Actuaries and the Casualty Actuarial Society). Thus, concern developed that the overall reserve deficiency of the property-casualty insurance industry asserted by some industry analysts might indicate a credibility gap for actuaries signing SAOs.

It was not the intent of the COPLFR survey to test or validate studies of reserves by industry analysts, nor were those observers' conclusions accepted as fact by COPLFR. However, the initial premise was to accept those conclusions and determine whether the observations that industry reserves were deficient could be consistent with non-adverse SAOs for the vast majority of companies. It was considered possible that both could be right and that the adverse reserve development might be related to items outside the purview of the SAO. Should that be true, the.recommendation might be to expand the areas covered by the SAO.

Alternatively, if the adverse reserve development were determined to be related to items already within the purview of the opining actuary, the recommended solution might be to improve the training and education of the opining actuary. Courses of action might include recommending changes to the opinion instructions and developing an explanatory article for outside audiences.

DESCRIPTION OF COMPANIES SURVEYED

Attached as Appendix A is the survey form used by COPLFR, which was mailed to 52 selected companies. Of these, 40 were chosen because they had the greatest adverse reserve development in the industry during the three years, 1991 through 1993, measured as a percent of surplus, percent of reserves, or dollar amount. Twelve companies that did not demonstrate adverse reserve development were also included in the survey. Their size or other unique characteristics led COPLFR to believe that their responses to questions on reserve ranges and level of analysis, as well as their ideas on improving the SAO, would be of value to tbe study.

As shown in Table 1, of the 26 survey responses, 20 came from the 40 companies that had demonstrated adverse reserve development in the three-year period. Six of the twelve companies selected for the other reasons responded. As shown in Table 2, the 26 companies responding held 61% of the total reserves at year-end 1993 for the 52 surveyed companies. Those 52 companies, in turn, accounted for 69% of 1993 total industry reserves. Thus, 42% of total industry reserves were represented by respondents to the survey. Fifty-seven percent of the total 1993 year-end reserves held by survey respondents were attributable to

Table 1

Response Rates of Companies Surveyed

	Companies Responding	Companies Surveyed
Adverse Reserve Development	20	40
Other Companies	6	12
TOTAL	26	52

Tahle 2

1993 Reserves of Respondents Compared to
1993 Reserves of Companies Surveyed & Industry

Reserves of Companies Surveyed as a Percent of Total Industry Reserves	69%
Respondents' Reserves as a Percent of Reserves of Companies Surveyed	61%
Respondents' Reserves as a Percent of Total Industry Reserves	42%

the 20 companies with adverse reserve development; the six other companies represented 43%.

Of the 40 companies surveyed that had adverse reserve development, 19 had 1990 SAOs signed by consultants and 21 had SAOs signed by company employees. The ratio of responses from consultants to those from company employees parallels that of companies surveyed overall. The consultant/non-consultant split is shown in Table 3

Table 3

Use of Consultants & Non-Consultants by Companies

	Adverse Reserve Development		Other Companies	
	Respondents	Surveyed	Respondents	Surveyed
Consultants	9	19	1	4
Other Opiners	11	21	5	8

Survey results follow, grouped by topic in the same order as the survey itself. Causes of adverse reserve development are discussed first, followed by reserve ranges, cash flow testing, and general respondent comments.

CAUSES OF ADVERSE RESERVE DEVELOPMENT

Of particular interest to COPLFR was the identification of the causes of adverse reserve development. If causes could be identified, it might be possible to analyze the treatment of those factors in SAOs and to consider whether current reserving techniques are adequate or whether further research is needed in this area.

Section l/Sheet 2 of the survey listed 24 possible causes of adverse reserve development and asked respondents to allocate by percent (adding to 100%) the major causes of their firms' adverse reserve development. Nineteen of the 20 survey respondents with adverse reserve development responded to this part of the survey.

Table 4 summarizes the responses to Section l/Sheet 2; Appendix B provides a more detailed summary. Even though the total industry adverse reserve development from year-end 1990 to year-end 1993 was approximately $9 billion, the 40 surveyed companies that demonstrated adverse reserve development had over $14 billion of adverse reserve development in the three-year period studied. Favorable reserve development exists for many companies which caused the total adverse reserve development for the selected companies to be greater than the industry total. The 19 companies responding to this question had $7 billion of adverse reserve development in that period.

It should be noted that the survey focused on causes of adverse reserve development over a three-year period. Should year-end 1990 reserves evaluated as of December 1993

Table 4

Major Causes of Adverse Reserve Development

Cause	Number of Companies Identifying Cause	Percent of Development
Pollution, environmental, asbestos, toxic materials and other similar items	12	70%
Loss development tail factor underestimation	9	10%
Involuntary pool reserve strengthening	8	8%
Unwinding of disclosed discount	8	6%
All other listed causes	N/A	17%
Write-ins	9	14%
All beneficial development	8	-25%

still not represent ultimate costs, further adverse reserve development might ensue.

Table 4 shows the major causes of adverse reserve development as identified by survey respondents. Twelve of the 19 companies listed pollution, environmental, asbestos, toxic materials, and other similar items as a major cause of adverse reserve development. This category accounted for 70% of the total adverse reserve development for the 19 companies responding to this question.

The second greatest contributor to adverse reserve development was underestimation of loss development tail factors. This cause, identified by nine of the 19 companies,

represented 10% of total adverse reserve development.

The thud largest category, identified by eight companies, was reserve strengthening in involuntary pools and associations and represented 8% of total survey development. Unwinding of disclosed discount was the fourth largest category, noted by eight companies, representing 6% of total development.

Nine companies used the "write-in" line to identify other sources of adverse reserve development. Emergence of construction defect losses was identified by three companies. Other areas mentioned as causes by one or two companies were changes in economic conditions, poor stratification of data, and the impact of court or regulatory actions. Another cause noted was booking reserves at the low end of a reserve range.

Seventeen of the 19 companies experiencing adverse reserve development responded to this question with one or more lines of business identified as the source of adverse reserve development. The two lines of business most frequently identified with adverse reserve

Table 5

Companies' Lines of Business

Line of Business	Number of Companies Identifying
Workers' Compensation (apparently only 4 are WC only)	13
General Liability (including products and treaty casualty excess)	12
Medical Malpractice (specialty company)	1
No line of business identified	2

development were Workers' Compensation and General Liability. Thirteen companies listed Workers' Compensation as a major source of development, Twelve listed General Liability, Summary information on adverse reserve development by line of business is shown in Table 5.

Summary

Although COPLFR presented respondents with a list of 24 possible sources of adverse reserve development, the companies surveyed demonstrated substantial consistency in identifying what had led to this outcome. The causes most frequently mentioned were pollution, environmental, asbestos, toxic materials and other similar items; loss development tail factors; reserve strengthening in involuntary pools and associations; and unwinding of disclosed discount. A discussion of ways the actuarial profession can follow up on this information appears in the "Concluding Observations and Recommendations" section below.

LEVEL OF RESERVE ANALYSIS

Section 2/Sheet 1 of the survey asked respondents to identify the level of actuarial analysis performed for the reserves established in December 1993. Appendix C summarizes the responses from all 26 survey respondents on the level of analysis of company reserves. As shown in Table 6, 88% of reserves for all companies surveyed, and 82% of reserves for the 20 companies with adverse reserve development were analyzed using

Table 6

Percentage of Reserves Analyzed Using Standard Actuarial Techniques

All Respondents	88%
Adverse Reserve Development Respondents	82%

standard actuarial techniques. The only other major categories of levels of analysis mentioned were "involuntary pools" (7% of reserves) and "inestimable" (5% of reserves). Responses for "other" are shown in Appendix D.

The identification of "involuntary pools" as amounts not subjected to standard actuarial techniques is of interest, since eight companies identified this as a source of adverse reserve development. Similarly, the "inestimable" amounts may relate to other items — such as environmental and asbestos claims and the impact of court or regulatory actions — mentioned in the previous section as causes of adverse reserve development.

RESERVE RANGES

In performing their reserve analysis, actuaries may elect to develop a range of estimates for reserves. Section 2/Sheet 2 asked respondents to identify whether they used a range and to provide details on their use of ranges.

Appendix E summarizes the responses to the questions on range methodology and cash flow analysis. Table 7 shows that, of the 26 survey respondents, 15 estimated ranges as part of their

Table 7

Use of Ranges

	Adverse Development Companies	Other Companies
Number using ranges	12	3
Percentage of respondents:		
Straight average	60%	50%
weighted' average	77%	26%

Weighted based on held reserves by company.

Table 8

Range Methodology Used by Companies

	Range Size/ Reserves	Range Size/ Surplus	Held Reserve Percentile Within Range
Number of respondents	13	12	12
Straight average	14%	44%	49%
Weighted' average - adverse development companies	16%	64%	47%
Weighted' average - all companies	16%	61%	44%

'Weighted based on held reserves by company

reserve analysis. Most of the companies with larger adverse reserve development used ranges: 60% of these companies used ranges, representing 77% of the carried reserves

On average , the reserve width for the respondents was 16% of carried reserves, and 61% of surplus (Table 8). On average, carried reserves were between the 40th and 50th percentile of the reserve range. Table 9 shows the stratification of reserve range widths. Seven of the respondents had a range width representing 10% of carried reserves, two had a range width representing 11% of carried reserves, one was 15 % of carried reserves, one was 16%. one was 23%, and one was 30%. Many of the 13 companies appear to be using a probabilistic criterion in their analysis rather than developing ranges based on alternative methods.

Table 8 also includes a column representing the range as a percent of surplus for the 12 companies that responded to this question. For them, the reserve range as a percent of surplus went from a low of 7% to a high of 122%, with a straight average of 44% and a weighted average of 61%, indicating that larger companies have a larger range relative to surplus. Most company-carried reserves are near the middle of the range, perhaps because the range was established around a selected point estimate. One company indicated that its carried reserves were 32% above the top of the reserve range.

Table 9

Number of Companies by Range to Carried Reserves

Range/ Carried Reserve	Number of Companies
10%	7
11%	2
15%	1
16%	1
23%	1
30%	1

Section 2/Sheet 2 asked respondents whether actuaries should be required to include a range in the SAO. Most respondents felt that including a range in the reserve opinion would be more harmful than helpful, fearing misuse or lack of understanding on the part of the reader and concern that the range might be used as a warranty or guaranty that actual results won't develop outside the range. Further, respondents felt that there is at present a lack of standards on the use of reserve ranges. They also believe that more research needs to be done by the actuarial profession regarding the determination and understanding of a reserve range.

Respondents also identified benefits of including a range in the reserve opinion including: (1) publicizing the issue of the uncertainty in reserve estimates, (2) highlighting the relative strength of the carried reserves, and (3) possibly leading to more adequate

reserves.

CASH FLOW TESTING

In reviewing the written responses to the questions on cash flow testing, COPLFR members could not draw many conclusions. Only nine of the 26 respondents indicated that they do some form of cash flow testing. Some respondents felt it was only an issue if a company discounted reserves. A better definition of cash flow testing, or clearer phrasing in the survey questions, was needed. (Perhaps this can be addressed in any future surveys.)

COMMENTS BY SURVEY RESPONDENTS

Section 3 of the survey form requested suggestions for strengthening the SAO, for better educating actuaries, and other items. The responses to these questions provided useful information to COPLFR. Summarizing and analyzing these responses is beyond the scope of this report. Members of COPLFR have compiled the written responses and will be communicating them to the Board of Directors of the Casualty Actuarial Society for their use in furthering the education of casualty actuaries.

CONCLUDING OBSERVATIONS AND RECOMMENDATIONS

The treatment of discounting, involuntary pools, and environmental and asbestos liabilities within the SAO appear to be the major areas that account for the differences between industry analysts' perceptions of deficiencies in industry reserves and the generally favorable SAOs issued by actuaries. Some recently adopted changes in these areas to the annual statement and other regulatory initiatives under consideration can help identify and/or

reduce these differences.

After studying the responses to its survey of the causes of reserve deficiency, members of COPLFR identified the following observations and recommendations:

Pollution, Environmental, Asbestos, Toxic Materials, and other similar items. This item was cited most frequently as the cause of adverse reserve development. Estimating required reserves for environmental and asbestos exposures is a major challenge for the actuarial profession. Such exposures will likely continue as major contributors of adverse development unless there are significant changes in federal or state legislation. Members of COPLFR recommend that research efforts in estimating such reserves continue to be a priority for the Casualty Actuarial Society.

Loss Development Tail Factors. A second cause of adverse reserve development was underestimation of loss development tail factors. More focus on methods for estimating loss development tail factors estimation may be useful, as would surveys of historical data. This should be considered by the Casualty Actuarial Society Loss Reserve Committee and would be an appropriate topic at the Casualty Loss Reserve Seminar. Discussion paper programs could include tail factor estimation, and other industry studies and educational possibilities for this topic area should be encouraged. The American Academy of Actuaries may wish to consider developing a practice note on tail factor estimation methodology and testing.

Pools and Associations. The fact that strengthening of reserves of pools and associations was cited as a cause of adverse reserve development leads members of COPLFR to conclude that statements of actuarial opinion on reserves for pools and associations would be helpful. Some major pools have recently begun developing SAOs and providing them to members, but this is not required of most pools. However, COPLFR is working with the

Casualty Actuarial Task Force of the National Association of Insurance Commissioners on developing instructions for opinions for voluntary and involuntary pools and it is possible that such opinions will become more common in the future.

Unwinding of disclosed discount. Although the unwinding of disclosed discount was mentioned fairly frequently by survey respondents as a cause of adverse reserve development, its impact on one important data source will be eliminated by the recent change to record Schedule P - parts 2 and 4 gross of all discount, both tabular and non-tabular.

Use of ranges. Review of the wide variation in use of ranges among survey respondents and analysis of respondents' comments regarding the use of ranges leads members of COPLFR to conclude that development of definitions, procedures and practice standards regarding range methodologies may be needed.

COPLFR wishes to thank the staff of the American Academy of Actuaries for their help in putting the survey results together, and the respondents themselves for their time and effort in responding to the survey.

AMERICAN ACADEMY of ACTUARIES

August 18, 1994

TO: Survey Recipients

The American Academy of Actuaries Committee on Property and Liability Financial Reporting (COPLFR) has previously surveyed signers of statements of actuarial opinion for large insurers, seeking to determine the causes of runoff and suggestions for improvement to the statement of opinion. A summary of the findings appeared in the May 1991 issue of The Actuarial Review.

The Committee is again performing this survey and we are seeking your help. This survey has three goals: (1) determine the causes of runoff of the 1990 reserves; (2) determine the degree of analysis applied by actuaries in establishing reserves; and (3) obtain suggestions to improve the loss reserve opinion document and other general suggestions to aid in the establishment of reasonable reserves.

The Committee's motivation for this survey results from the potential impact of the following factors on actuarial credibility:

1. Industry analysts estimate that reserves were deficient by 10% - 15% as of 12/90 and 12/91.

2. Since 1990, in most cases, loss reserve opinions must be signed by qualified actuaries. Most of these opinions have been interpreted as unqualified.

The Committee is attempting to determine (Section 1) the causes of past runoff, believing this would help explain the perceived deficiency in recent reserves. Also, the Committee wants to identify areas where current procedures and requirements can be improved (Sections 2 and 3).

Companies were selected to participate in this survey in two ways.

Using the NAIC data base, the Committee identified forty company groups that had adverse runoff, after 12/90, which was a large dollar amount or large percent of carried reserves. Actuaries for these 40 company groups are being asked to complete all three sections of the survey. The Committee decided to send the survey to the signer of the 1993 Opinion believing this individual would best understand what has occurred since 1990 to cause the runoff. In completing Section 1, it could be helpful to discuss this with the signer of the 1990 Opinion, if different.

Additionally, twelve large national company groups, small companies and specialty companies, whose runoff did not fit the above criteria were selected. These companies are being asked to complete the latter two sections. These companies were selected to assure a broad sample of the industry was included.

Attached are the 1990 reserves and runoff for your pooled companies and the companies the NAIC data base includes in the group. Similarly, attached are the 1993 reserves. Please verify that the data is correct. If not, please explain in Attachment 2 the likely reasons for the difference.

We do want to hear from you so that we can further improve the statement of actuarial opinion, improve actuarial procedures and enhance the credibility of actuaries. Our findings will not identify a company or individual. Responses will be kept confidential and will be destroyed after the results are tabulated. Attachment 1 explains the procedure the Committee will use to collect information, respect confidentiality and provide for contact of respondents if needed.

If you wish to discuss any portion of the survey, please feel free to contact David Bryant (AAA staff) or me.

We are asking that the survey be completed by September 15, 1994.

Sincerely,

Patrick J. Grannan /BB

Patrick J. Grannan
COPLFR Chairperson

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Return *Survey* To:

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Survey Procedure

1. The survey will be returned to the American Academy of Actuaries office.

2. Each response will be assigned a code and entered onto a master list. The master list will be retained in the AAA office. The AAA office will also retain Attachment 2, the company group 12/90 Reserves, Runoff as of 12/93 and 12/93 Reserves.

3. Company names, logos, addresses, and other identification will be deleted from the response. The response will then be forwarded to the Committee on Property and Liability Financial Reporting (COPLFR) for review.

4. If the Committee has questions regarding a response, AAA staff will relay the questions to the respondent. Respondents can discuss these questions with AAA staff, or with the Committee chairperson, on a confidential basis.

5. Summarization of company responses (determining averages for all companies) will be done in the AAA office.

6. On December 15, 1994, approximately 3 months after receipt, the AAA will destroy all survey forms submitted to them.

APPENDIX A

Attachment 2

(From NAIC Data Base)

Company Group Name _____

Code (AAA use) _____

12/90 Reserves _____

Runoff as of 12/93 _____

12/93 Reserves _____

The amount of reserves and runoff have been determined from the NAIC data base. Explain if the NAIC numbers are incorrect and write in the correct amounts.

_____

_____

_____

_____

_____

_____

_____

APPENDIX A

Section 1
Sheet 1

Section 1: Contribution to Runoff Since 1990 (for Accident Years 1990 and prior).

Instructions: Identify the sources of the adverse runoff for accident years 1990 and prior which has occurred since 12/90. The amount of reserves carried at 12/90 and runoff have been determined from the NAIC data base and are shown on a separate sheet. It is likely that portions of runoff are caused by two or more factors (such as Involuntary Pool Strengthening and Unwinding of Discount within the Pool). Select the predominant cause. Include in the Comment section whether any portion of the runoff could have been identified at 12/90 if current types of data bases and procedures were available at 12/90. Please quantify the percent of total runoff to the extent possible and provide your best judgment where not quantifiable.

Section 2
Sheet 2

Company Code (AAA to complete) _____

1. Is a range of reasonable estimates determined for the total carried reserves? If no, go to question 6.

2. How wide is the range (from low point to high point) as a percent of carried reserves?

3. How wide is the range as a percent of surplus?

4. Where in the range are the carried reserves at 12/93?

5. Would it be helpful/harmful to require a range to be shown in the loss reserve opinion (and why)?

6. a. Do you perform cash flow testing? Yes ____ No ____

b. If yes, how are the results used in the actuarial opinion process, specifically in determining whether or not the opinion is qualified?

Section 2
Sheet 1

Company Code (AAA to complete) _____

Section 2: Identify the level of analysis performed for the reserves established at 12/93. In the following, the term standard techniques includes development of losses, lae, counts and average amounts, Bornhuetter-Ferguson or other methods you apply on a regular basis. Attachment 2 provides the 12/93 reserves shown in the NAIC data base.

Level of Analysis	% of Reserves
1. Reviewed by an actuary but ultimate liability deemed to be inestimable.	
2. Not analyzed by the actuarial area as too variable or liability is in litigation.	
3. Not analyzed with standard techniques as volume is too low.	
4. Not analyzed with standard techniques as line of business is new.	
5. Amounts assigned by Involuntary Pools and not analyzed.	
6. Amounts assigned by Voluntary Pools and not analyzed.	
7. Foreign exposure and not reviewed or limited review.	
8. Analyzed with standard actuarial techniques.	
9. Other (describe)	
Total (should add to 100%)	

Section 3

Company Code (AAA to complete)

Section 3: In completing section 3, please consider the causes of runoff you may have identified in Section 1.

Please provide suggestions to a) improve the statement of actuarial opinion, b) to aid in the establishment of reasonable reserves and c) to improve actuarial knowledge and procedures. (Please suggest areas in which you would like more guidance from the Actuarial Standards Board.)

a)

Company Code (AAA to complete) _____ Section 1
Sheet 2

Cause of Runoff	% of Total Runoff
1. Pollution, Environmental, Asbestos, toxic materials or other similar items.	
2. Other long tail, shock type situations such as landmark court decisions or new area of liability.	
3. Reinsurance (Commutation or Insolvency).	
4. Involuntary Pools strengthening.	
5. Timing of the release of Involuntary Pool information.	
6. Voluntary Pools strengthening.	
7. Timing of the release of Voluntary Pool information.	
8. Unwinding of disclosed discount (including tabular).	
9. Unwinding of undisclosed discount.	
10. Result of loss responsive programs where future premiums were netted against future losses.	
11. Management or Company Reorganization (other than Claims Department). (explain) _____	
12. Claims Department reorganization or changes in practice.	
13. Result of financial pressures.	
14. Change in reserve procedures.	
15. Data base detail deficient or incomplete.	
16. Data base error.	
17. Other system problems. (explain) _____	
18. New area, where insufficient historical information was available.	
19. Low volume line, where estimation was difficult.	
20. Catastrophic line (umbrella, excess) - too variable.	
21. Area was not reviewed.	
22. Tail factors were too low.	
23. Other (explain). _____	
_____	
24. All beneficial runoff.	
Total (should add to 100%)	

Which lines contributed the most to the adverse runoff? _____

Other Comments: _____

	COMPANY CODES																			
ITEM #	13	15	18	19	20	22	24	25	27	28	30	34	35	37	39	41	49	50	52	COUNT	AVG 90	AVG R/O	AVG 93
1			101%	45%	75%	72%	149%	10%		2%	17%	64%		250%	87%	40%				12	72%	70%	74%
2				10%						2%					34%			20%		4	2%	1%	2%
3																				0	0%	0%	0%
4			5%	13%	17%	5%				19%	9%				30%	15%				8	9%	8%	9%
5						10%				10%	7%					15%				4	4%	4%	4%
6		5%		16%						14%	15%									4	2%	2%	2%
7																				0	0%	0%	0%
8			12%	13%		13%			90%	8%	9%				14%	10%				8	7%	6%	8%
9													12%			10%				2	2%	2%	2%
10						2%				10%		6%								3	1%	1%	1%
11													50%							1	0%	0%	0%
12																15%	15%	20%	20%	4	3%	3%	3%
13																10%				1	2%	2%	2%
14																				0	0%	0%	0%
15																		25%	40%	2	0%	1%	0%
16																				0	0%	0%	0%
17																				0	0%	0%	0%
18								25%										15%	40%	3	0%	1%	0%
19						6%		25%												2	0%	0%	0%
20								15%		10%										2	0%	0%	0%
21						2%														1	0%	0%	0%
22	20%				40%	2%	10%		10%			7%		10%		5%		20%		9	11%	10%	10%
23	80%	95%		21%				25%		25%	50%	23%	38%				85%			9	11%	14%	12%
24			-18%	-18%	-32%		-59%				-7%			-160%	-65%	-20%				8	-27%	-25%	-29%
SUM	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	19	100%	100%	100%
LINES NOTED	WC	WC	GL	GL,WC	GL,WC	PROD, GL,WC SP LB	TRTY CAS XS		WC	COMM.	WC, GL, CMP		WC	WC, PROD	REIN, WC,GL	WC,GL	MED MAL	GL,WC, COMM AUTO	CMP, GL				

Percent Responding			
48%	52%	45%	48%

Number of Companies -LOB Analysis

LOB	Number	Notes
WC	13	Four apparently WC only, one company had (4)-invol pool strengthening and (8)-unwinding of discount w/o WC noted.
GL	12	Included products and treaty cas xs
Med Mal	1	Specialty company
None ID	2	

RESPONSES TO SURVEY SECTION 2 SHEET 1

APPENDIX C

LEVEL OF ANALYSIS

COMPANY NUMBER	CATEGORY NUMBER 1	2	3	4	5	6	7	8	9	SUM
1	1%							99%		100%
2								90%	10%	100%
3		2%	1%		2%			95%		100%
4								100%		100%
5								100%		100%
6	2%			2%	5.5%		0.5%	90%		100%
7								100%		100%
8						5%		95%		100%
9		7%			2%	2%		89%		100%
10			10%		5%	10%		75%		100%
11	4%				12%	1%		83%		100%
12	3%	2%		0.5%	9%	0.5%		85%		100%
13			5%					95%		100%
14	10%		10%					80%		100%
15						5%		95%		100%
16	3%			2%	10%	3%		79%	3%	100%
17				1%	9%	2%		88%		100%
18	8%				8%	1%		75%	7%	100%
19					2%			48%	50%	100%
20	23%				2%	2%		73%		100%
21								100%		100%
22	7%		1%		13%	2%		77%		100%
23			1%		6%	9%		84%		100%
24								100%		100%
25								100%		100%
26								100%		100%

	9	3	6	4	13	12	1	26	4	26
COUNT										
AVG 90	5%	1%	1%	0%	7%	2%	0%	83%	1%	100%
AVG R/O	5%	1%	1%	0%	7%	2%	0%	82%	2%	100%
AVG 93	3%	1%	1%	0%	5%	1%	0%	88%	1%	100%

% Responding

RUNOFF	ALL
50%	50%
53%	53%
41%	47%
50%	61%

APPENDIX D

RESPONSES TO SURVEY SECTION 2/SHEET 1

LEVEL OF ANALYSIS - CATEGORY 9 DETAIL

1. A loss ratio method technique was used, not considered to be a standard actuarial technique by the respondent;

2. The reserve for asbestos was set by reserving at policy limits with a reduction for the probability of not exhausting high layers and including a provision for expense outside limits;

3. A non-standard technique was used for some areas including a limits available method or a limits exposed method;

4. A method was used for ULAE other than standard techniques, known as the "Wendy Johnson technique";

5. Reserves were analyzed using other techniques due to substantial case reserve strengthening in the most recent two years.

RESPONSES TO SURVEY SECTION 2 SHEET 2

APPENDIX E

RANGE AND CASH FLOW ANALYSIS

(IN COLUMN 2 ORDER)

COMPANY LETTER	ITEM NUMBER 1	2	3	4	5	6	COMMENT ON 6
A	1	30%	122%	49%	-	1	Not in **opin.,in** dynamic **solvncy**
B	1	23%	84%	65%	+	0	
C	1	16%	22%	50%	+	1	Reserves undisc, no impact
D	1	15%	56%	47%	+/-	0	
E	1	11%	35%	2%	+/-	0	
F	1	11%	28%	30%	-/+	0	
G	1	10%	50%	50%	+?	0	
H	1	10%	40%	50%	-/+	1	WC discount
I	1	10%	35%			1	
J	1	10%	33%	50%	no?	0	
K	1	10%	16%	49%	+/-	0	
L	1	10%	7%	132%		0	
M	1	10%		I 20%		1	As a check
N	1				-	0	
0	1				-	0	
P	0					1	At beginning stage
Q	0					0	
R	0					0	
S	0				-	0	
T	0					0	
U	0				-	1	
V	0					1	**Disclosed** disc. in opinion
W	0					0	
X	0					0	
Y	0					0	
Z	0					1	Nlot used.

						PERCENTAGE RESPONDING	
						RUNOFF	ALL
STR. AVG	0.58	0.14	0.44	0.49	0 . 3 5	50%	50%
COUNT	15	13	12	12	9		
AVG 90	72%	17%	66%	45%	30%	53%	53%
AVG R/O	77%	16%	64%	47%	29%	47%	47%
AVG 93	52%	16%	61%	44%	22%	50%	61%