Reserving in a Changing Environment: Responding to the Impact of Layoffs, Plant Closures and Downsizing in Reserving for Workers Compensation Liabilities

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Casualty Actuarial Society

Committee on Reserves — 2004 Call Paper Program

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ABSTRACT

In some instances, the impacts of layoffs and plant closures on workers compensation costs have resulted in a doubling of the pure premiums whereas, in other instances there were no appreciable effects on workers compensation pure premiums. This paper discusses some of the issues surrounding estimating workers compensation losses during periods of layoffs and plant closures. We have also developed a simplistic and practical approach for incorporating the estimated impacts into traditional reserving methodologies.

The authors are grateful to Aaron M. Halpert, David F. Mohrman, Emmanuel T. Bardis and Doug McCoy for their comments and suggestions.

INTRODUCTION

As companies change their workforce due to economic conditions, companies may experience changes in its workers compensation costs per employee. As actuaries, we sometimes find it difficult to interpret trends and changes in benefit levels (and resulting utilization changes) on loss development and pure premiums. Combining these normal challenges with company-specific issues, such as staff reductions, can lead to additional challenges. The staff reductions may include such actions as plant closures, layoffs, and geographical relocation of production capacity. Other staff actions such as strikes may have similar impacts.

In researching the potential impacts of staff downsizing, we started by looking at prior "downsizing" impacts on workers compensation costs for the company we were analyzing. The diagnostics used will be discussed latter. Then, we did a literary search on articles correlating to staffing actions and workers compensation costs. The following paragraphs refer to some of the associated costings.

In 1996, Cigna Group, in association with the American Management Association[1] conducted a survey of approximately 300 large and midsized employers that underwent organizational staff changes between 1990 and 1995. The survey results showed that staff reductions may have reduced the payroll, but increased the workers compensation costs (as a function of payroll). The survey showed that staff reductions contributed to a rise in claims for occupational and non-occupational disabilities, particularly stress-related claims. The survey concluded that claims not only rose among employees that lost their jobs, but also among the surviving employees. The results of the survey showed that 33% of the entities going through staff reductions saw an increase in occupational disability claims, whereas 24% of the entities saw an increase in non-occupational claims.

Studies of Recessions and Workers Compensation Costs

Some of the literature we reviewed included studies of impact of recessions on workers compensation costs. Rather than focusing on individual company impacts, these studies reflected the impacts on a state's entire workers compensation system. We believe that the impacts noted in these studies would be significantly magnified for a specific company undergoing staff actions.

A study by the Workers Compensation Research Institute (WCRI) in 1994[2] - conducted on the cost drivers of the New Jersey workers compensation system during the 1989 - 1991 recession - concluded that the recession was estimated to have reduced costs by 3.8% and to have increased costs by 5.6% through other effects. The reductions were due to reduced employment and the changed mix of employment. The researchers noted that increased wages drove up costs by 1.7%, and increased costs of medical services drove

up costs by 1.9%. In addition to the effects on unemployment, the recession had the following impact on workers compensation costs in the state:

- increased average duration of temporary total disability cases, contributing 1.8% to the total costs; average duration in the construction and manufacturing industry rose from 8.8 weeks to 23.0 weeks

- increased medical costs, contributing 1.6% to the total costs due to increased utilization of medical services; this increase was in addition to the increase resulting from the price of medical services

- higher permanent partial disability ratings, contributing 0.9% to the total costs; the research found evidence that the higher ratings in the industries most affected by the recession were not related to the severity of injuries but rather more sympathetic adjudicators

- increased claims for occupational disease or cumulative injury, contributing 0.7% to the total costs; according to the study, the onset of recession substantially increased occupational disease and cumulative injury cases; the researchers believed that the cases are ones that would not have been filed otherwise; unlike most other such cases, many of these did not name a specific problem

- other indemnity benefits, contributing 0.6% to the total costs.

A similar WCRI study[3] on the Massachusetts workers compensation system concluded that the recovery from the 1991 recession led to a reduction in costs of 4.0% per year in the Massachusetts workers compensation system. The reductions were a result of reduced indemnity benefits. The largest cost savings came from industries where employment was steady or grew steadily.

Another WCRI study[4] conducted on workers compensation costs in the states of Florida, Georgia, Illinois, Massachusetts, Michigan and Pennsylvania from 1984 - 1988 concluded that the recessions have an impact on claims severity because of the increased use of the workers compensation system, longer duration of claims, and more frequent and larger lump sum settlements.

A similar study conducted by WCRI[5], examined the effects of recessions on medical costs, and it concluded that medical costs grow fast during recessions. Researchers concluded that the increase is likely due to the increase in utilization of medical benefits and a change in the mix of claims. According to the study the increase in medical costs may be to establish and maintain entitlement to workers compensation benefits or may be due to the shift in costs from employer-provided medical insurance to the workers compensation system (as medical insurance might be eliminated).

PURPOSE

This paper discusses issues that should be considered when reserving for workers compensation liabilities of large entities undergoing staff reductions. Additionally, we present diagnostic techniques to detect the impact of the changed conditions and a practical approach to incorporating these changes into the reserving model.

During transition periods such as staff reductions, entities may experience abrupt changes in claim frequency and severity, and in the rate at which workers compensation claims/losses are reported and settled. These abrupt changes in claim frequency and severity may be caused by the population of laid-off employees, as well as ongoing employees. As a result, the use of historical data patterns and traditional actuarial reserving methods without modifications may result in erroneous estimates. The underlying assumptions for the traditional reserving methodologies only allow for random variations in parameters such as type of exposure, mix of claims and so on. Any non random variation of these parameters will result in the traditional reserving methodologies yielding results that are systematically distorted.

This paper develops an analytical approach that may help the actuary cope with the challenges of the changing environment, such as those experienced during a staff reduction. We use diagnostics such as emerging frequency and severity at different evaluation points by accident year to discern shifts in data patterns. The mix of claims by type of claim should also be investigated. The results of the diagnostic analysis are used to develop an approach that allows the reserving actuary to adjust estimates of indicated liabilities based on historical data for the estimated impact of changes as a result of staff reductions.

The concepts presented in this paper pertain to reserving for large employers. However, some of the ideas presented and issues discussed are equally pertinent to insurance company reserving for workers compensation in a recessionary environment. For smaller employers it may be difficult to separate the impacts of staff reductions from random variations that typically occur in the data.

APPROACH

This paper is organized in two parts:

Section I will discuss the potential considerations and impacts of staff reductions on workers compensation losses.

Section II will discuss the modifications that the actuary can incorporate in the reserving model to account for the impacts or changes as a result of staff reductions.

SECTION I: DISCUSSION OF THE POTENTIAL IMPACTS OF STAFF ACTIONS ON WORKERS COMPENSATION LOSSES

The following is a broad overview of the type of contributing factors and changes the entity might experience after undergoing a staff action.

Contributing Factors

The impacts of staff actions can vary significantly from company to company or even within a company. The impacts of staff reductions on workers compensation costs can vary from 0% to 100%. The impact can be influenced by a number of factors including:

- level of severance benefits
- "downsizing" announcement tactics
- employee loyalty (from downsized employees and ongoing employees)
- psychology of ongoing employees
- union relations
- economic environment
- local unemployment rates
- skill level of downsized staff and their ability to learn new skills
- socioeconomic issues that can vary by geographic areas

Below is a discussion of the effects of the contributing factors and other factors during staff reductions on workers compensation cost components.

Frequency of Claims

Some sources[6] estimate that as many as 40% to 50% of the laid-off employees may file a workers compensation claim. General Electric[6], during a gradual shutdown of a Southern California plant that employed 250 workers, received 70 workers compensation claim filings from just 125 workers who were laid off in the initial phase of the plant closure in the first six months alone.

Claim frequency from ongoing employees can also be affected. The primary incentives for the increased claim filings by the laid-off employees are as follows:

- Workers compensation benefits (which are nontaxable) can partially substitute loss of income.

- The differential penalty between full pay and workers compensation indemnity benefits is absent as the worker is laid off.

- Laying off employees who have open workers compensation claims is much more difficult.

- Workers compensation benefits are usually larger, and paid over a longer period of time than unemployment benefits[9].

- Additional surgeries/treatment may be scheduled to improve positioning for next job (e.g., surgery to correct carpal tunnel syndrome).

- Usually plant closures are accompanied by deterioration of relations between the management and employees, which further leads to an increase in claims.

- When workers fear they might lose their jobs[7], they:
  - exhibit a lower level of knowledge about appropriate safety behaviors
  - demonstrate less motivation to comply with organizational safety policies.

In some instances, claim frequency can decrease as "downsized" employees have less work to do or payroll is continued temporarily due to severance package or due to change in the nature of the work that is performed after the staff reduction.

A WCRI study on New Jersey[2] suggested that during the 1989 -1991 recession, workers compensation claim frequency declined because of reduced employment. Some individual company data that we have reviewed show a similar picture. In a staff reduction setting, while the frequency of claims in the laid-off population rises, there is an offsetting decline in the claim frequency of the surviving population in the year of the staff reduction, which may lead to an overall decline in frequency.

Severity of Claims

Severity of claims increases significantly during a plant closure. The reasons for this increase in severity may be the following:

- Workers who are getting laid off may try to shift medical costs for chronic injuries or ailments from the employer-sponsored group health care plans to the first-dollar workers compensation system.

- Workers getting laid off may have an incentive to hire attorneys to get larger settlements in the court system than mandated by the workers compensation laws[6].

- The distribution by type of claim may shift (short term versus long term versus medical only) as a higher proportion of claims are for longer-duration injuries such as psychological, stress, lower-back injury claims and cumulative injury claims.

- Absence of return to work and rehabilitation programs may prolong the duration of injuries.

- The distribution of surviving employees may influence costs. Some hypothesize that younger, less experienced workers tend to be injured more often but less severely than older, more experienced workers (who usually survive layoffs), who are injured less often but more severely.

- The loss of loyalty to an employer may result in a higher incidence of fraud and other moral hazard issues.

- Staff reductions may lead to increases in workers compensation benefits by increasing the time it takes for a worker to find a job.

- Severity may be higher due to type of injury; some chronic injuries may have been concealed for an extended period of time, only to be revealed upon layoff[9].

- Laid-off employees objective is to achieve a workers compensation benefit that exceeds the expected unemployment benefit[9].

A plethora of the studies cited above note that one of the primary drivers of workers compensation costs during recessionary periods is increased claims severity due to increased duration, increased medical utilization, claims mix shift due to increased claim filings for occupational disease and cumulative injuries and more frequent and larger lump sum settlements.

Allocated Loss Adjustment Expenses (ALAE)

Increase in ALAE severities during a plant closure can be associated with the increased litigation rate of claims and a mix shift towards a higher proportion of indemnity claims. Increased litigation rate is one of the primary factors driving the increased duration of claims in addition to the change in the mix of claims in a staff reduction environment.

In a staff reduction employees getting laid off are more apt to get an attorney involved to ensure a higher settlement of their workers compensation claim. The increased litigation rate and duration of claims may result in a different ratio of ALAE to loss (on both a paid and reported basis during the life of the claim).

Settlement and Reporting Rate of Claims

Claims settlement rate in a plant closure layoff scenario could change for the following reasons:

1. The entity undergoing the staff reduction may decide to close claims faster by offering lump sum settlements to claimants. This strategy could be adopted to get rid of the liability associated with the plant closure quickly and also limit the impact of attorney involvement from the claimant side.

2. One of the inadvertent results of a staff reduction scenario is that claims adjuster loads may increase. This could be the result of either faster reporting of claims or higher volume of claims in a staff reduction scenario. This in turn usually results in a change (slowdown) in the claims settlement rate as more claims are reported.

3. Another factor that may be affecting claims closure rate may be the change in the mix of claims. The shift in the mix of claims is usually toward the higher duration claims. For example, a claim that before a plant closure would have been filed as a medical-only claim may in a staff-reduction scenario be filed as an indemnity claim.

4. The rate at which claims are reported during the year of the plant closure and prior may change in a staff-reduction scenario. It is common to experience a wave of reporting activity soon after staff reductions are announced or unemployment benefits expire. Another suggested trigger for claims filings is the expiration of the supplemental disability benefits[6].

We would also like to note that an entity undergoing staff reductions can have extensive exposure to employment practices liability claims such as age-based or gender based employment discrimination during the layoff process. Such claims are usually filed as class action suits and have large attorney involvement. These suits could represent a huge exposure that an actuary should consider while reserving for an entity undergoing plant closure or downsizing. However, the impact of employment practices liability losses is beyond the scope of this paper.

Another consideration that the actuary reserving for an entity undergoing staff reductions should be aware of is the issue of re-opening of closed claims for older accident years. In some of the data we reviewed, we found several instances of a substantial number of claim re-openings for older accident years. It was difficult to ascertain whether this effect was a result of improper closing of claims or whether this was purely due to staff reductions.

The factors noted above, combined with the fact that claims and loss emergence has a random component to them, makes it extremely difficult to accurately measure the contribution of each of the above components in the actual experience. For example, at the end of the year if the reported number of claims and/ or claim severity is higher than the historical average, it is difficult to ascertain whether it is purely due to the staff reduction, the general deterioration in the entity's experience or just random worse experience.

SECTION II: SUGGESTED METHODOLOGIES THAT THE ACTUARY CAN INCORPORATE IN TRADITIONAL RESERVING METHODOLOGIES TO REFLECT THE IMPACTS OF STAFF REDUCTIONS

We discussed the impact of staff reductions on the workers compensation cost components in Section I. As a result of these changes the overall propensity to loss in terms of claims frequency and claims severity changes going forward for the entity undergoing staff reductions. As a result during this transition period the entity will have a propensity to loss that is different from that of its historical propensity to loss. For example, more injury claims may be reported during these transition periods as employee awareness to safety in the workplace declines during stressful periods of staff reduction and employees being laid off try to substitute employment income with workers compensation benefits. Similarly the frequency of claims during this period might be significantly higher or lower than what the historical data might suggest.

Essentially, the entity undergoing staff reductions has two different exposures to loss. One component contributing to the exposure is the surviving population of employees, which may exhibit loss characteristics closer to the entity's historical propensity to loss. The other component is the population of laid-off employees that shows a much higher propensity to loss. If possible, the actuary may want to separate certain facilities into those that are fully affected ("closed"), partially affected, and not-affected.

Our approach to working around the distortions in the latest diagonal and the change in propensity to loss for the recent accident years affected by staff reduction has some

components similar to those outlined in the paper "Loss Reserving Without Loss Development Patterns – Beyond Berquist-Sherman" by Thomas L. Ghezzi and Berquist-Sherman. However, complete application of the approaches outlined in these papers is not possible as we still need to account for the changed exposure/propensity to loss in the most recent accident years as a result of the staff reduction. We considered selecting loss and claim development patterns by excluding the latest few diagonals to avoid the distortions due to staff reductions, but this approach ignores the shift in the exposure and the changed rate at which losses are being reported or paid for the entity undergoing staff reductions.

The approach we adopt in this paper will be to make adjustments to the fundamental components of the loss process, the claim frequency and severity. Essentially, we develop an adjusted estimate of the pure premium. The adjustments to the claims frequency will be made by segregating the exposure of the entity into those employees who are laid off and the surviving employees. The adjustments to severity are carried out by calculating on level claim severities by type of injury (claim). Using this approach we forego the use of loss and claim development history of the entity and thus avoid the systemic distortions present in the history during this transition phase.

If the actuary is also faced with a situation in which the staff reduction has affected the rate at which claims are being closed or changes in case reserving philosophy and/ or the rate at which losses are being paid out, as is often the case in such situations, then by adopting an approach which does away with the use of loss and claim development will also mitigate the problem.

We also developed a B-F based approach. To estimate workers compensation ultimate losses for the most recent years, actuaries usually rely on Bayesian methodologies such as the Bornhuetter-Ferguson (B-F) method as the loss development methods are extremely leveraged and unstable for a slow developing line of business such as workers compensation.

One of the inputs to the B-F method is the initial expectation of ultimate loss. Indeed for a long tailed line such as workers compensation, the method produces ultimate loss estimates for the relatively new accident years that are quite sensitive to the initial expectation of loss. In a regular environment the initial expectation of loss for the most recent years is estimated as a function of the historical loss experience of the entity per unit of exposure (pure premium) and the estimated exposure for the recent accident years. The assumption behind this technique is that the type and extent of hazard or propensity to workers compensation losses for the most recent years is similar to that of the entity's historical exposure. However, for an entity undergoing staff reductions this symmetry is destroyed. In such a situation, one of the issues facing the actuary is how to arrive at a meaningful estimate of initial expectation of ultimate loss as an input to the B-F method. We used the estimates of ultimate loss — arrived at by making adjustments to the frequency and severity of loss— as our initial expectation of loss in the B-F method. The other input required for the B-F method is the loss emergence patterns. We develop modified loss emergence patterns for this purpose. These modified loss emergence patterns are also used to develop estimates of ultimate loss.

We also considered modifying the loss development factors or to speed up or lag the historical loss and claim development patterns based on the observed effects of the staff reduction scenario. However, the drawback of this approach is that it is very difficult to come up with appropriate speed-up or lags to modify the loss and claim development patterns.

A related adjustment may also be needed for the accident year of staff reduction. After the plant closure the average accident date for the plant closure year will be earlier than the usual middle of the accident year. To factor this earlier average accident date we may need to speed up the loss development patterns.

We will consider the following hypothetical example to discuss the adjustments proposed above and to measure the results of these adjustments:

Example:

- An entity, XYZ, announces staff reductions on January 1, and the staff reduction will be completed by the end of the year.

- The entity's management has decided not to make any changes to its case reserving strategy.

- The number of employees has remained constant over the last two years at 20,000.

- Out of a total of 20,000 employees, the entity is downsizing 6,000 employees.

- The entity's on level annual claims frequency per employee is 5.7% in the accident year of staff reductions.

- There are no benefit level changes in the most recent five accident years.

- Claim frequency is calculated as number of claims per employee.

Loss Information

Exhibits 8 through 17 show the historical loss experience of the hypothetical entity under consideration, in the form of triangles. Losses and claims are aggregated by accident year. We created loss and claim information for 15 accident years at 15 annual evaluations. The data for the first year are based on hypothetical ultimate claims and succeeding years is derived by assuming 1% per year trend in ultimate claim counts and a 4% per year trend in ultimate severity (i.e., total ultimate loss trend of 5% per year, assuming constant exposure level). We adopted this approach as we wanted to focus on just the impacts of the staff reductions and did not want to deal with the noise involved in the history of losses. Accident years are numbered 1 through 15.

We assume that the staff reduction is announced on January 1 of calendar-year 15 and completed by the end of year 15. As shown by the loss and claim count development

triangles, the older years are not affected by the staff reductions. However, accident years 15 through 13 show development factors which are different from historical averages.

We assume that the impact of the staff reductions on the most recent three accident years claims is as follows:

Accident Year	Frequency Impact	Severity Impact
15	Yes	Yes
14	Yes	Yes
13	No	Yes
12	No	No

These assumptions makes sense as usually most of the workers compensation claims for a given accident year are reported by the end of 24 months. In the example considered in this paper, historically approximately 89% of the claims are reported by the end of 24 months for any given accident year. Claim severity however, is still emerging for the recent accident years and, as a result, will be affected for more accident years as claim durations increase on new and already open claims and changes in the mix of claims take place during the transition phase.

As we show later in this section, a diagnostic technique to discern the accident years that are affected by staff reductions is to chart reported claims severity (average reported loss per reported claim) at different evaluations and compare the results with those of older accident years. This chart is shown later in this section. In our example we assume that claims severity for the most recent three accident years is impacted.

The exhibits in this paper discuss estimates for accident years 15 through 13, the accident years that are assumed will be affected by the staff reduction.

The entity's historical claim distribution by type of claim is as follows:

Entity XYZ Historical Distribution of Workers Compensation Claims by Type of Claim	
Claim Type	% Of Total
Permanent	8.0%
Temporary	30.0%
Medical Only	62.0%

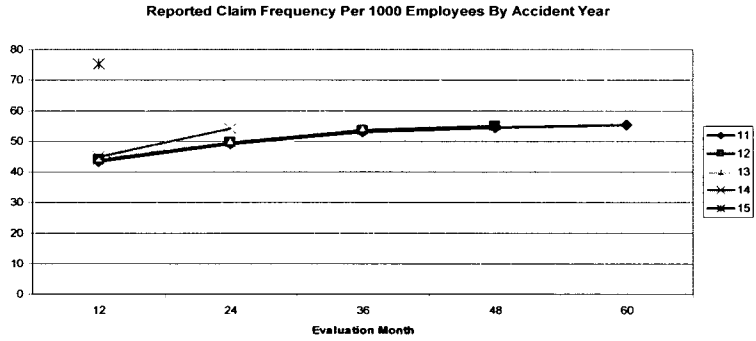
Discussion of Adjustments

In this paper we will approach the adjustment process by making adjustments to the individual loss components of the loss process — the frequency and severity of claims.

Claim Frequency

The adjustment to claim frequency is done by constructing an exposure-based model. The adjustment to frequency is shown in Exhibit 7 of the appendix. The process begins by comparing the reported claims frequency for the accident year of staff reduction and the accident year prior with the emerged claims data at the 12- and 24-month evaluation points, respectively.

The following diagnostic chart shows the explosion in emerged claims frequency for accident years 14 through 15 in the latest calendar year (calendar year of staff reduction).



We segregate the population of employees into those who have survived the staff reduction and those who are laid off. As discussed above, for an entity undergoing staff reduction, there are two different types of exposures. The surviving workers may have a different claims frequency compared with those workers who are being laid off. It is probable that the claim frequency for the surviving employees will be similar to the historical frequency of the entity (this may not hold true if the surviving population has a different exposure mix, e.g., a company shuts down the entire manufacturing facility but keeps the office staff). The claims frequency for the laid-off employees may be much higher. Additionally, the claims emergence patterns for the surviving and laid-off employees may be very different. Furthermore, the claims emergence pattern for the laid off employees will be much faster than that of the surviving employees.

In a scenario in which an entire plant is shut down, we can go a step further and segregate the overall historical exposure into two separate components: 1) the exposure of the plant that was shut down 2) ongoing facilities. We can then select claim frequency for the ongoing operations according to historical averages and select estimates of claim frequency for the plant that was shut down using the approach described below.

Initial estimates of the claim frequency of the laid-off workers can be arrived at by talking to the claims management personnel, the entity's management and the Risk Manager. Additionally, the list of contributing factors mentioned in Section I (p. 4) of this paper should be considered when arriving at the a priori estimate of frequency of claims as a result of the laid-off employees. Other exposure-based methods could also be used. Some estimates in literature put the estimate of claim frequency at roughly 40% to 50% of the laid-off employees.

Once the initial estimates of claim frequency for the laid-off population are selected, we can then use a Bayesian approach to update these frequencies after the end of the year when reserves are being estimated, and when the staff reduction has already taken place and actual claims information is available.

We assumed that the a priori estimate of the claim frequency of the surviving population is the same as the historical claim frequency of the entity (5.7%). We assumed the a priori estimate of claim frequency for the laid-off population of employees to be 10.0% for our study.

The next issue that we have to deal with is the reporting pattern of claims from the laid-off employees. It is to be expected that the reporting pattern for these claims will be much faster than those for the surviving employees. Our review of the literature on this subject and data on reporting patterns for plant closures indicates that most of the claims after the staff reduction are filed within the first year of the staff reduction. The reporting of claims may coincide with the ceasing of the unemployment benefits and social security disability benefits. Input from claims management personnel should also be considered when arriving at the estimate. For our analysis we assumed the following:

— 95% of the total claims filed by the laid-off employees will be reported by the end of the year of the staff reduction; the balance 5% will be reported in the following year.

— 90% of the total claims resulting from downsizing will be due to occurrences in the current accident year; the remaining 10% will be due to occurrences in the accident year prior to the staff reduction year.

The above pattern of the claims filed by the laid-off employees was selected on the basis of a review of accident year by report year claims reporting patterns of the downsized employees at the end of the staff reduction year and the diagnostic reported claim count chart below. Consideration was also given to the fact that claims filed by laid-off employees (after the layoff) may be denied by employers using the legal doctrine of post-termination defense. Under the post-termination defense the employer can argue that the employee is filing a workers compensation claim because they are downsized and that the injury may not be work related. Only in instances where the laid off employee has a medical history of injury prior to layoff, can the laid-off employee successfully file a

workers compensation claim. As a result, the longer the time elapsed between layoff and the filing of the claim, the more difficult it becomes for the laid off employees claim to be accepted by the employer. Additionally, some of the literature that we reviewed suggested the following two[6] likely triggers for workers compensation claims in a staff reduction scenario:

a) expiration of unemployment benefits by the end of six months and

b) expiration of supplemental disability income benefits by the end of twelve months.

Based on all of the above considerations we assumed most of the workers compensation claims by the laid-off employees will be reported by the end of the staff reduction calendar year.

We note that the reporting pattern of claims due to a staff reduction will vary depending on the particular situation at hand. The actuary should consult the employer's risk manager and claims personnel before arriving at the claims occurrence and the reporting pattern assumptions for the analysis.

We assume that the surviving population of employees will have a claims reporting pattern similar to the self-insured entity's historical reporting pattern for the purpose of this analysis.

Armed with the above information above we can compare the actual claim frequency at year-end of the plant closure for both the surviving and the laid-off populations with their respective a priori estimates and calculate estimates posterior to the observation using a Bayesian approach. The calculations are shown in Exhibit 7. We used a B-F approach to come up with our estimates of ultimate claims.

Claim Severity

Since the underlying mix of claims by type of claim has changed we cannot develop new estimates of ultimate severity by just completing the claim severity triangle of all claim types combined.

Adjustments to the claims severity can be made by calculating historical severities by the usual type of disability classifications used in workers compensation analysis (i.e., temporary partial disability, temporary total disability, permanent partial disability permanent total disability, and medical only). If the claims data are not available in sufficient detail then the actuary can request data broken down in much lesser refinement such as short-term and long-term claims and medical-only claims or temporary, permanent disability and medical-only claims. Estimates of ultimate claim severity by claim type can be arrived at by reviewing a historical sample of closed claim severities by claim type. This information is usually available in the claims database of the entity. The selected severities by claim type can then be brought to current levels using trend and benefit-level factors.

We note that during the course of development some temporary claim injuries usually convert from temporary disability to permanent partial disability. When reviewing the claims mix an actuary should be cognizant of this fact and make appropriate adjustments to the claims mix, to arrive at the overall severity as described above.

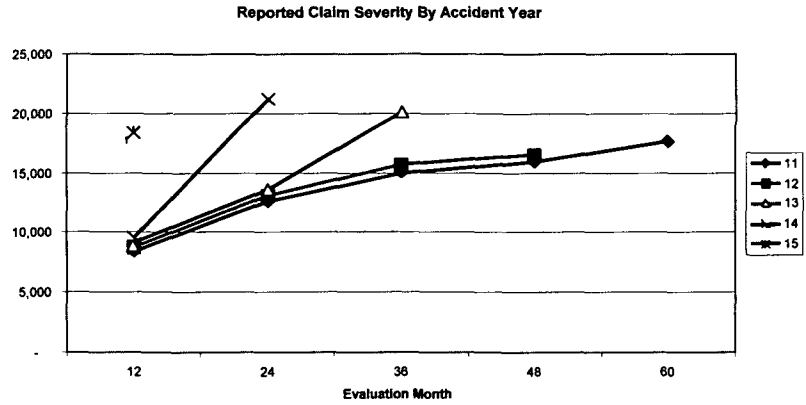
Another way to work around the problem of claim loss data being unavailable by type of claim is to segregate claims loss data by size of loss and then calculating average historical claim severities for the different buckets/intervals of size of loss. We can use this approach to create estimates of ultimate claim severity by type of claim. This approach is similar to one of the approaches outlined in Loss Reserve Adequacy Testing: A Comprehensive Systematic Approach: Berquist, James R.; Sherman, Richard E.

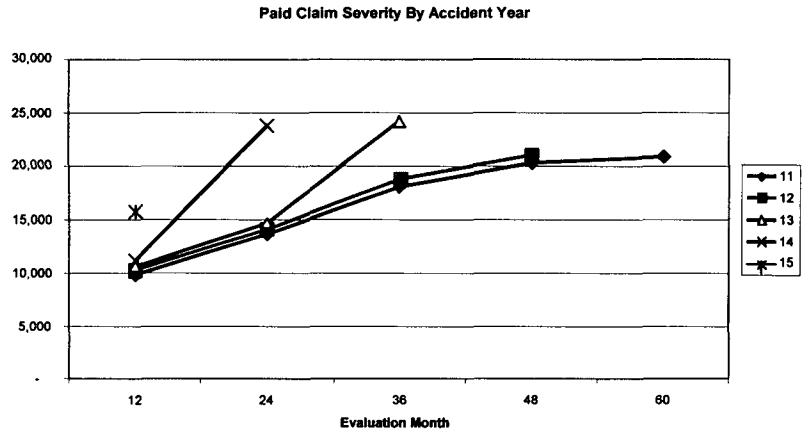
The adjustment to severity is shown in Exhibit 6 of the appendix. The process of adjustment begins by comparing the average reported severity for the accident year of

staff reduction and the most recent two accident years prior to the plant closure year at the different evaluations with similar historical data as shown in the chart below. The following diagnostic chart shows the explosion in claim severity for accident years 13 through 15 in the calendar year of staff reduction. To test whether the explosion in reported severity is not due to case reserve strengthening the actuary should also review paid claim severity (paid loss to paid claims) shown in the following chart, and/ or paid loss to reported loss ratios at different evaluation points. As shown both the paid and reported severity have exploded in the calendar year of staff reduction for the most recent three accident years that are affected.

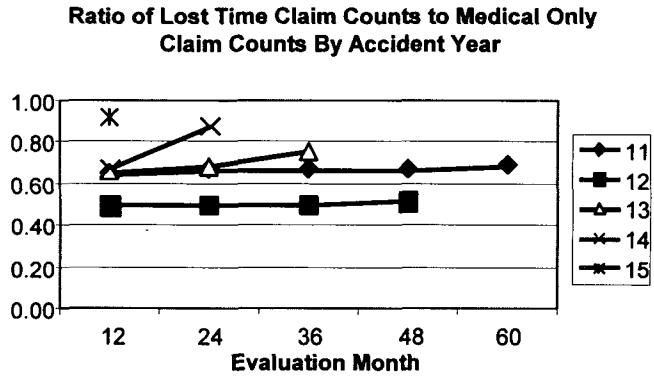
The next step is to review the mix of claims by type of claim for each accident year. Using the current reported mix of claims by accident year and the historical on level ultimate severities we calculate the posterior estimate of overall severity.

We wish to note that this calculation will yield imprecise results if there are strong calendar-year effects influencing the severities. This has often been the case for medical severity in states such as California.





The following chart below shows the change in the ratio of lost time claim counts to medical-only claims counts for a typical entity that has undergone staff reduction in calendar-year 15.



We note that if historical loss development information segregated by claim type is available, then we can develop the ultimate loss by each claim type and the above

calculations are not necessary. However, frequently self-insured entities do not track loss development information by claim type.

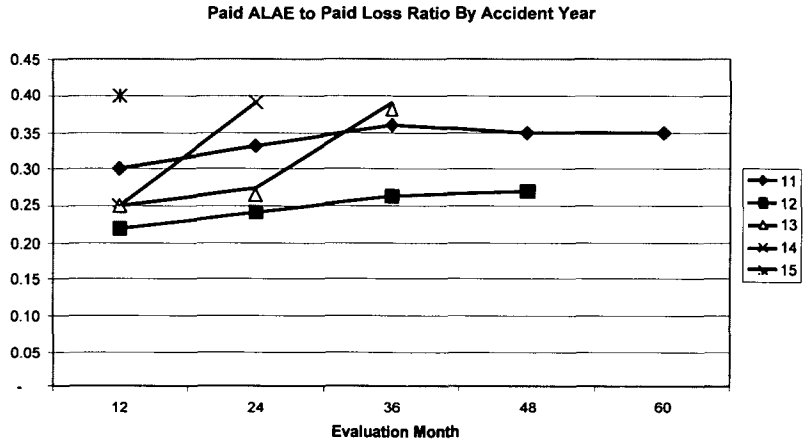
Allocated Loss Adjustment Expenses

As discussed earlier, one of the impacts of a staff reduction is an increase in ALAE severities and the paid ALAE to paid loss ratio for the accident years affected by staff reduction. As a result the B-F methodology on paid ALAE to loss ratio to calculate ultimate ALAE for the most recent accident years may underestimate the ultimate ALAE, if we use the historical paid ALAE to paid loss ratio as the initial estimate in the B-F methodology.

The diagnostic chart below shows the explosion of paid ALAE to paid loss ratio for accident years 15 and 14.

To make adjustments to the calculations of ultimate ALAE, we start by reviewing the litigation rate (number of reported cases in litigation to total number of reported cases) of the claims reported to date for the most recent five accident years at similar evaluation points. Exhibit 5 shows a log-linear model[10] which predicts ALAE to loss ratio based on the independent variables such as litigation rate and the ratio of indemnity to medical only claims. We used historical data on litigation rate and indemnity claims to med only claims ratio on accident years 13 and prior to develop this log-linear model to project paid ALAE to paid loss ratio for accident years 14 and 15. We used a simplistic log-linear model for this paper. However, the reader should endeavor to build a more robust model to estimate ALAE costs.

Exhibit 4 shows the calculation of ultimate ALAE given the B-F methodology applied to the projected ALAE to loss ratio both on an adjusted and unadjusted basis.



Ultimate Loss & ALAE Calculations and Calculation of the Impact of Staff Reduction

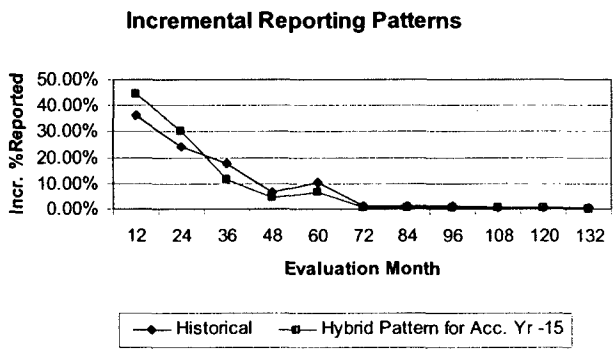
The adjusted claim frequency and severity, along with estimates of ALAE to loss ratio calculated above, can then be used to calculate an estimate of the ultimate loss and ALAE for accident years 13 through 15. This approach foregoes the use of historical loss development factors, thus avoiding the distortions in the loss development history due to the changed circumstances. A similar approach was used to calculate estimates of ultimate loss for accident years 13 through 15 based on unadjusted estimates of claim frequency and claim severity. The difference between the two estimates of ultimate loss for each accident year gave us the impact of staff reduction by accident year. The calculations for the staff reduction impact by accident year are shown in Exhibit 2.

We show a reporting pattern for the additional losses as a result of staff reduction in Exhibit 2. We assumed that these additional losses will be reported in the calendar year of staff reduction and the subsequent calendar year, much faster than the historical loss reporting pattern. We then overlaid the reported development of the additional staff reduction impact over the expected reported amounts (assuming there was no staff

reduction) to derive a hybrid reporting pattern. Exhibit 2 shows the derivation of a hybrid loss reporting pattern for accident years 13 through 15. The following chart shows the relationship between the incremental historical loss reporting pattern and the incremental hybrid reporting pattern. As shown the hybrid reporting pattern is faster at the initial evaluations but slower at the later evaluations compared with the historical reporting pattern.

We used the hybrid reporting pattern developed above to calculate estimates of ultimate loss using the B-F method. We refer to these estimates as the adjusted B-F method estimates. The initial expected loss for the adjusted B-F method was based on the adjusted frequency severity method ultimate loss estimates developed above. We also developed estimates of ultimate loss using the B-F method but using an initial expected loss developed based on historical loss data without any adjustments (unadjusted B-F method). The loss development pattern used to develop the unadjusted B-F estimates is the historical loss development pattern of the entity.

We note that in this study that we have relied on reported loss development patterns to come up with estimates of our ultimate loss. As a result we did not endeavor to develop a hybrid paid loss development pattern for the purpose of this study. However, similar principles can be applied to arrive at a hybrid paid loss pattern. For example we can assume that for each of the accident years affected, the additional staff-reduction impact will be paid out in a manner similar to the entity's historical payment pattern for a new accident year. This additional paid amount can then be overlaid on the expected paid amount, assuming no staff reduction impact, to arrive at a hybrid payment pattern.



The estimates based on the B-F method are developed in Exhibit 3. The hybrid incremental loss reporting pattern shown above is faster than the historical loss reporting pattern for the first 24 months and slower than the historical loss reporting pattern subsequently.

We also calculated estimates of ultimate losses based on the traditional loss development technique using the hybrid loss reporting pattern and the unadjusted loss development pattern. These estimates are also shown in Exhibit 3.

The ultimate ALAE estimates are developed in Exhibit 4. We developed estimates for ultimate ALAE using the paid ALAE development method. Additionally, a B-F approach is used on the adjusted and unadjusted paid ALAE to paid loss ratio.

DISCUSSION OF RESULTS

Exhibit 1 shows estimates of ultimate loss and ALAE produced by the various methods. As shown the estimates produced by the adjusted and unadjusted methods are markedly different for the affected accident years. The adjusted frequency-severity and the adjusted B-F approach produce estimates of ultimate loss for the most recent three accident years that are lower than the unadjusted loss development approach but higher than the unadjusted B-F method estimates. The unadjusted B-F method is slow in responding to

the changing conditions, whereas the unadjusted reported loss development method is over responsive to the changing conditions.

The estimates of ultimate ALAE based on adjusted paid ALAE to paid loss ratio method and the adjusted B-F method estimates (based on adjusted paid ALAE to paid loss ratio) are higher compared to estimates of ALAE based on the unadjusted paid ALAE development and the B-F method applied to unadjusted paid ALAE to paid loss ratio. The estimates of ultimate ALAE based on the adjusted methods are almost similar.

We note that the results of the various methods could be higher or lower depending on the impact of staff reduction.

CONCLUSION

In this paper we have discussed various issues related to reserving for a self-insured entity which has recently undergone staff reductions. We discussed why the traditional loss reserving techniques may not produce accurate estimates of ultimate loss and ALAE and reserves. During such a transition phase reserve estimates can be calculated by employing an alternate frequency severity type approach, as appropriate changes can be made to this approach to account for the changing circumstances. We showed how the results of the adjusted frequency severity approach can be incorporated into the B-F approach. We also developed an exposure-based approach to calculate ultimate ALAE.

The advantage of the frequency severity approach adopted in this paper is that it avoids the distortions that may exist in the loss development history for the most recent accident years as a result of the staff reductions in addition to providing additional information about loss drivers. So even if losses and claims are being reported or settled faster or slower than what the historical development data would suggest, our projections are not affected by these distortions. This approach allows explicit consideration of factors such as the shift in mix of claims and propensity to loss. Considering this approach also provides the actuary with a range of estimates of ultimate loss.

One drawback of the approach used in this paper is that it does not help us completely delineate the effect of staff reduction from the other trends affecting the loss process. Despite incorporating the frequency severity approach and building hybrid loss development patterns into the B-F methods, we still have some distortion in the adjusted B-F estimates in that the B-F methods still rely on the historical reporting or paid loss pattern to some extent to come up with estimates of ultimate loss. A related shortcoming of the approach adopted in this paper is that our estimates of ultimate losses and reserves are contingent on the accuracy of the assumption of how the additional impact of staff reductions both in terms of claims and losses, will emerge.

An improvement to this methodology would be to perform sensitivity testing to ascertain the impact of changes in various assumptions that are built into the model. This can be accomplished by building and testing different scenarios according to different assumptions of the staff reduction impact on losses. This will help the actuary devise a range of estimates for ultimate losses and reserves and provide the actuary with a better idea of uncertainty associated with the reserves resulting from staff reduction impact.

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Ultimate Loss ('000)

Accident Year	Adjusted Frequency-Severity Method	Unadjusted Reported Loss Development Method	Adjusted Reported Loss Development Method	Adjusted Reported Loss B-F Method	Unadjusted Reported Loss B-F Method
13	26,479	27,980	28,957	28,350	26,810
14	33,058	38,041	38,127	36,117	32,402
15	38,961	53,794	43,457	40,970	35,373
Total	98,499	119,816	110,541	105,437	94,586

Ultimate ALAE ('000)

Accident Year	Adjusted Paid ALAE to Loss Ratio Method	Paid ALAE Development Method	Adjusted B-F Method	Unadjusted B-F Method
13	10,040	10,609	10,347	8,533
14	19,726	15,735	18,665	9,625
15	37,499	25,104	36,126	9,703
Total	67,266	51,448	65,138	27,862

Estimation of Impact of Staff Reduction

Accident Year	Freq.-Sev. Adjusted Ultimate Loss	Freq.-Sev. Unadjusted Ultimate Loss	Staff Reduction Impact	% Impact
13	26,479	22,631	3,849	17.0%
14	33,058	23,771	9,287	39.1%
15	38,961	24,970	13,992	56.0%
Total	98,499	71,372	27,127	38.0%

Development of Unadjusted Frequency-Severity Ultimate Loss

Accident Year	Selected Historical Ultimate Claim Severity	Trend Factor	Projected On Level Ultimate Claim Severity	Selected Historical Claim Frequency	Trend Factor	No. of Employees	Unadjusted Ultimate Claims	Freq.-Sev. Unadjusted Ultimate Loss
11	18,569	1.000	18,569	5.5%	1.000	20,000	1,105	20,511
12	18,569	1.040	19,311	5.5%	1.010	20,000	1,116	21,545
13	18,569	1.082	20,084	5.5%	1.020	20,000	1,127	22,631
14	18,569	1.125	20,887	5.5%	1.030	20,000	1,138	23,771
15	18,569	1.170	21,723	5.5%	1.041	20,000	1,149	24,970

Development of Hybrid Reported Loss Development Pattern

Accident Year 15												Total
Development Pattern	12	24	36	48	60	72	84	96	108	120	132	
Regular loss reporing	36.09%	60.49%	78.13%	84.90%	95.41%	96.70%	97.73%	98.71%	99.20%	99.70%	100.00%	
Incremental loss reporting	36.09%	24.39%	17.64%	6.77%	10.51%	1.29%	1.04%	0.98%	0.49%	0.50%	0.30%	100.0%
Staff Red. impact loss reporting	60.00%	40.00%										100.0%
Loss Payout												
Regular	9,012	6,091	4,405	1,692	2,624	321	259	244	123	124	75	
Staff Reduction Impact	8,395	5,597										
Cumulative Loss Payout	17,407	11,688	4,405	1,692	2,624	321	259	244	123	124	75	38,961
Hybrid Reporting Pattern	44.7%	74.7%	86.0%	90.3%	97.1%	97.9%	98.5%	99.2%	99.5%	99.8%	100.0%	
Incr. Hybrid Reporting Pattern	44.7%	30.0%	11.3%	4.3%	6.7%	0.8%	0.7%	0.6%	0.3%	0.3%	0.2%	100.0%

Accident Year 14												Total
Development Pattern	12	24	36	48	60	72	84	96	108	120	132	
Regular loss reporing	36.09%	60.49%	78.13%	84.90%	95.41%	96.70%	97.73%	98.71%	99.20%	99.70%	100.00%	
Incremental loss reporting	36.09%	24.39%	17.64%	6.77%	10.51%	1.29%	1.04%	0.98%	0.49%	0.50%	0.30%	100.0%
Staff Red. impact loss reporting	0.00%	60.00%	40.00%									100.0%
Loss Payout												
Regular	8,580	5,799	4,194	1,610	2,498	305	247	232	117	118	71	
Staff Reduction Impact		5,572	3,715									
Cumulative Loss Payout	8,580	11,371	7,908	1,610	2,498	305	247	232	117	118	71	33,058
Hybrid Reporting Pattern	26.0%	60.3%	84.3%	89.1%	96.7%	97.6%	98.4%	99.1%	99.4%	99.8%	100.0%	
Incr. Hybrid Reporting Pattern	26.0%	34.4%	23.9%	4.9%	7.6%	0.9%	0.7%	0.7%	0.4%	0.4%	0.2%	100.0%

Accident Year 13												Total
Development Pattern	12	24	36	48	60	72	84	96	108	120	132	
Regular loss reporing	36.09%	60.49%	78.13%	84.90%	95.41%	96.70%	97.73%	98.71%	99.20%	99.70%	100.00%	
Incremental loss reporting	36.09%	24.39%	17.64%	6.77%	10.51%	1.29%	1.04%	0.98%	0.49%	0.50%	0.30%	100.0%
Staff Red. impact loss reporting	0.00%	0.00%	60.00%	40.00%								100.0%
Loss Payout												
Regular	8,168	5,520	3,992	1,533	2,378	291	235	221	112	112	68	
Staff Reduction Impact			2,309	1,539								
Cumulative Loss Payout	8,168	5,520	6,302	3,073	2,378	291	235	221	112	112	68	26,479
Hybrid Reporting Pattern	30.8%	51.7%	75.5%	87.1%	96.1%	97.2%	98.1%	98.9%	99.3%	99.7%	100.0%	
Incr. Hybrid Reporting Pattern	30.8%	20.8%	23.8%	11.6%	9.0%	1.1%	0.9%	0.8%	0.4%	0.4%	0.3%	100.0%

Development of Ultimate Loss Estimates ('000)

Adjusted Frequency-Severity Method

Accident Year		Adjusted Ultimate Claim Count	Adjusted Ultimate Claim Severity	Ultimate Loss
	13	1,127	23,499	26,479
	14	1,215	27,198	33,058
	15	1,251	31,155	38,961
Total				98,499

Loss Development Method

Accident Year		Actual Reported	Unadjusted % Reported	Adjusted % Reported	Unadj. Est. Reported Ult. Loss	Adjusted Reported Ult. Loss
	13	21,861	78.1%	75.5%	27,980	28,957
	14	23,010	60.5%	60.3%	38,041	38,127
	15	19,416	36.1%	44.7%	53,794	43,457
Total		64,286			119,816	110,541

Adjusted BF Method

Accident Year		Initial Ultimate Loss	Adjusted % Reported	Expected Reported	Actual Reported	Estimated Reported Ult. Loss
	13	26,479	75.5%	19,990	21,861	28,350
	14	33,058	60.3%	19,950	23,010	36,117
	15	38,961	44.7%	17,407	19,416	40,970
Total		98,499				105,437

Unadjusted BF Method

Freq. Exp. Model		Incurred Ultimate Loss	Paid Ultimate Loss	Loss Trend to Acc. Yr 15 Level	On Level Ultimate Loss
	7	16,849	16,849	1.482	24,970
	8	17,698	17,698	1.411	24,970
	9	18,590	18,590	1.343	24,970
	10	19,527	19,527	1.279	24,970
	11	20,511	20,511	1.217	24,970
	12	21,545	21,545	1.159	24,970
			Selected Initial Ultimate Loss		24,970

		Initial Ult. Loss
	13	22,631
	14	23,771
	15	24,970

Accident Year		Initial Ultimate Loss	Unadjusted % Reported	Expected Reported	Actual Reported	Estimated Reported Ult. Loss
	13	22,631	78.1%	17,681	21,861	26,810
	14	23,771	60.5%	14,379	23,010	32,402
	15	24,970	36.1%	9,012	19,416	35,373
Total		71,372				94,586

Development of Ultimate ALAE Estimates ('000)

Ultimate ALAE Development (Adjusted Paid ALAE to Loss Ratio)

Accident Year	Projected ALAE to Ultimate Loss Ratio	Ultimate Loss	Ultimate ALAE
13	0.38	26,479	10,040
14	0.60	33,058	19,726
15	0.96	38,961	37,499
Total		98,499	67,266

Ultimate ALAE Development (B-F Adjusted)

Accident Year	Projected ALAE to Ultimate Loss Ratio	Initial Ultimate Loss	Initial Ultimate ALAE	% Paid ALAE	Expected Paid ALAE	Actual Paid ALAE	Estimated Paid Ult. ALAE
13	0.38	26,479	10,040	53.9%	5,407	5,714	10,347
14	0.60	33,058	19,726	26.6%	5,247	4,186	18,665
15	0.96	38,961	37,499	11.1%	4,154	2,781	36,126
Total		98,499	67,266				65,138

Ultimate ALAE Development (B-F Unadjusted)

Accident Year	Projected ALAE to Ultimate Loss Ratio	Initial Ultimate Loss	Initial Ultimate ALAE	% Paid ALAE	Expected Paid ALAE	Actual Paid ALAE	Estimated Paid Ult. ALAE
13	0.27	22,631	6,110	53.9%	3,291	5,714	8,533
14	0.31	23,771	7,411	26.6%	1,971	4,186	9,625
15	0.31	24,970	7,785	11.1%	862	2,781	9,703
Total		71,372	21,306				27,862

Paid ALAE Development Method

Accident Year	Actual Paid ALAE	% Paid ALAE	Estimated Paid Ult. ALAE
13	5,714	53.9%	10,609
14	4,186	26.6%	15,735
15	2,781	11.1%	25,104
Total	12,680		51,448

Exposure Based ALAE Model

Accident Year	Reported Claims	Litigation Rate	Indemnity to Medical Ratio	Litigated Claims	Ultimate Paid ALAE	Paid Ultimate Loss	Ultimate Paid ALAE To Ultimate Loss	Projected Paid ALAE To Paid Loss
7	1,062	23.0%	61.3%	244	4,549	16,849	0.27	0.27
8	1,072	26.0%	61.3%	279	5,309	17,698	0.30	0.30
9	1,083	27.0%	61.3%	292	5,949	18,590	0.32	0.32
10	1,094	22.0%	61.3%	241	5,077	19,527	0.26	0.25
11	1,105	29.0%	61.3%	320	7,179	20,511	0.35	0.34
12	1,102	24.9%	61.3%	274	5,817	21,545	0.27	0.29
13	1,085	24.7%	78.6%	268	10,609	27,980	0.38	0.38
14	1,085	30.0%	92.3%	326				***0.60***
15	1,053	35.0%	108.3%	369				***0.96***
Overall	9,740	26.8%		2,613	44,490	142,701	0.31	
Overall		25.2%					0.31	
Average (14 to 15)		32.5%						

Regression Statistics		Coefficent Indem. to Med Rattio	Coeffient Litigation Rate
	Slope	5.15	74.25
	Constant	0.04	
	R-Squared	0.96	

Exposure Based Loss Severity Model

Assumption:
Change in Severity being caused by change in the duration of claims.
The change in duration of claims is being caused by the mix shift in claims

Accident Year	Selected Historical Ultimate Claim Severity	Claim Severity Trend Factor	Projected On Level Ultimate Claim Severity	Actual Reported Claims	A Priori Temporary % of Total	A Priori Permanent % of Total	A Priori Medical Only % of Total	Severity Temporary	Severity Permanent	Severity Medical Only
11	18,569	1.000	18,569	1,105	30%	8%	62%	36,267	88,355	1,000
12	18,569	1.040	19,311	1,102	30%	8%	62%	37,718	91,889	1,040
13	18,569	1.082	20,084	1,085	30%	8%	62%	39,226	95,565	1,082
14	18,569	1.125	20,887	1,085	30%	8%	62%	40,795	99,387	1,125
15	18,569	1.170	21,723	1,053	30%	8%	62%	42,427	103,363	1,170

Staff Reduction Accident Year-15

Claim Type	A Priori Distribution	Actual Reported Distribution	Actual Reported Claims	Posterior Distribution	A Priori On Level Ultimate Severity	Posterior Ultimate Severity
Permanent	8.0%	14.0%	147	14.0%	103,363	103,363
Temporary	30.0%	38.0%	400	38.0%	42,427	42,427
Medical Only	62.0%	48.0%	505	48.0%	1,170	1,170
	100.0%	100.0%	1,053	100.0%	21,723	31,155

Accident Year - 14

Claim Type	A Priori Distribution	Actual Reported Distribution	Actual Reported Claims	Posterior Distribution	A Priori On Level Ultimate Severity	Posterior Ultimate Severity
Permanent	8.0%	12.0%	130	12.0%	99,387	99,387
Temporary	30.0%	36.0%	391	36.0%	40,795	40,795
Medical Only	62.0%	52.0%	564	52.0%	1,125	1,125
	100.0%	100.0%	1,085	100.0%	20,887	27,198

Accident Year-13

Claim Type	A Priori Distribution	Actual Reported Distribution	Actual Reported Claims	Posterior Distribution	A Priori On Level Ultimate Severity	Posterior Ultimate Severity
Permanent	8.0%	10.0%	109	10.0%	95,565	95,565
Temporary	30.0%	34.0%	369	34.0%	39,226	39,226
Medical Only	62.0%	56.0%	608	56.0%	1,082	1,082
	100.0%	100.0%	1,085	100.0%	20,084	23,499

Accident Year-12

Claim Type	A Priori Distribution	Actual Reported Distribution	Actual Reported Claims	Posterior Distribution	A Priori On Level Ultimate Severity	Posterior Ultimate Severity
Permanent	8.0%	8.0%	88	8.0%	91,889	91,889
Temporary	30.0%	30.0%	331	30.0%	37,718	37,718
Medical Only	62.0%	62.0%	683	62.0%	1,040	1,040
	100.0%	100.0%	1,102	100.0%	19,311	19,311

Exposure Based Frequency Model

Scenario 1 - No Speed up & No Change in Reserve Adequacy

Assumptions:

Accident Year of Staff Reduction	15
Announcement of Staff Reduction	1/1/15
Years Affected by the Staff Reduction	15, 14, 13
Historical On Level & Trended Claim Frequency	5.7%

Claims as a result of the downsizing will be reported in the first two years after the plant closure year

A Priori Frequency of the Laid-Off employees 10%

Claims Reporting Pattern for the Laid Off Employees

		Plant Closure Report Year	Subsequent Report Year	
	Emergence Pattern	95%	5%	
Accident Year	% of Total Claims due to staff red. alloc. to Accident Year	A Priori Frequency Staff Reduction Year	A Priori Frequency Subsequent Report Year	Total
14	10%	1.0%	0.1%	1.0%
15	90%	8.6%	0.5%	9.0%
	Total	9.5%	0.5%	

Calculation of the Ultimate Claims-Exposure Based Bayesian Approach

Staff Reduction Accident Year -15

Employee Type	Number of Employees	A Priori Ultimate Claim Frequency	A Priori Est. Ultimate Claims	Expected % Reported	Expected A Priori Reported Frequency	Expected Reported Claims	Actual Claim Count	Actual Reported Claim Frequency	Posterior Ultimate Claim Frequency	Posterior Ultimate Claim Count
Surviving	14,000	5.7%	805	78.80%	4.5%	634	663	4.7%	6.0%	834
Laid-Off	6,000	9.0%	540	95.00%	8.6%	513	390	6.5%	7.0%	417
Overall	20,000	6.7%	1,345	83.66%	5.7%	1,147	1,053	5.3%	6.3%	1,251

Accident Year Immediately Prior to Staff reduction Year -14

Surviving*	14,000	5.7%	797	88.80%	5.1%	707	975	7.0%	7.6%	1,064
Laid-Off	6,000	6.7%	401	89.73%	6.0%	360	110	1.8%	2.5%	151
Overall	20,000	6.0%	1,198	89.08%	5.3%	1,068	1,085	5.4%	6.1%	1,215

Estimated Loss Development Pattern
Reported Claims Severity ($000)

Accident Year	Evaluation Age in Months														
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	5,746	8,545	10,177	10,780	11,969	12,130	12,260	12,383	12,445	12,507	12,544	12,544	12,544	12,544	12,544
2	5,976	8,886	10,584	11,211	12,447	12,615	12,750	12,878	12,942	13,007	13,046	13,046	13,046	13,046	
3	6,215	9,242	11,008	11,659	12,945	13,120	13,260	13,393	13,460	13,527	13,568	13,568	13,568		
4	6,463	9,612	11,448	12,126	13,463	13,644	13,791	13,929	13,998	14,068	14,111	14,111			
5	6,722	9,996	11,906	12,611	14,002	14,190	14,342	14,486	14,558	14,631	14,675				
6	6,991	10,396	12,382	13,115	14,562	14,758	14,916	15,065	15,141	15,216					
7	7,270	10,812	12,877	13,640	15,144	15,348	15,513	15,668	15,746						
8	7,561	11,244	13,392	14,185	15,750	15,962	16,133	16,295							
9	7,863	11,694	13,928	14,753	16,380	16,600	16,779								
10	8,178	12,162	14,485	15,343	17,035	17,264									
11	8,505	12,648	15,065	15,957	17,716										
12	8,845	13,154	15,667	16,595											
13	9,199	13,680	20,146												
14	9,567	21,207													
15	18,439														

Accident Year	Age Interval in Months														
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-
1	1.487	1.191	1.059	1.110	1.013	1.011	1.010	1.005	1.005	1.003	1.000	1.000	1.000	1.000	
2	1.487	1.191	1.059	1.110	1.013	1.011	1.010	1.005	1.005	1.003	1.000	1.000	1.000		
3	1.487	1.191	1.059	1.110	1.013	1.011	1.010	1.005	1.005	1.003	1.000	1.000			
4	1.487	1.191	1.059	1.110	1.013	1.011	1.010	1.005	1.005	1.003	1.000				
5	1.487	1.191	1.059	1.110	1.013	1.011	1.010	1.005	1.005	1.003					
6	1.487	1.191	1.059	1.110	1.013	1.011	1.010	1.005	1.005						
7	1.487	1.191	1.059	1.110	1.013	1.011	1.010	1.005							
8	1.487	1.191	1.059	1.110	1.013	1.011	1.010								
9	1.487	1.191	1.059	1.110	1.013	1.011									
10	1.487	1.191	1.059	1.110	1.013										
11	1.487	1.191	1.059	1.110											
12	1.487	1.191	1.059												
13	1.487	1.473													
14	2.217														
15															
Selected Factors	1.487	1.191	1.059	1.110	1.013	1.011	1.010	1.005	1.005	1.003	1.000	1.000	1.000	1.000	1.000
Factors to Ultimat	2.183	1.468	1.233	1.164	1.048	1.034	1.023	1.013	1.008	1.003	1.000	1.000	1.000	1.000	1.000
Est. Ultimate Clai	40,256	31,134	24,831	19,311	18,569	17,854	17,168	16,507	15,872	15,262	14,675	14,111	13,568	13,046	12,544

Estimated Loss Development Pattern
Average Paid Claim-Cumulative

Paid Losses ('000)

Accident Year	Evaluation Age in Months														
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	1,621	3,539	6,568	9,060	9,740	10,421	11,368	12,209	12,392	12,454	12,492	12,517	12,542	12,544	12,544
2	1,703	3,717	6,899	9,517	10,231	10,947	11,941	12,825	13,017	13,082	13,121	13,147	13,174	13,176	
3	1,789	3,905	7,247	9,996	10,746	11,498	12,543	13,471	13,673	13,741	13,783	13,810	13,838		
4	1,879	4,102	7,612	10,500	11,288	12,078	13,175	14,150	14,362	14,434	14,477	14,506			
5	1,973	4,308	7,996	11,030	11,857	12,687	13,839	14,863	15,086	15,161	15,207				
6	2,073	4,525	8,399	11,585	12,454	13,326	14,536	15,612	15,846	15,925					
7	2,177	4,753	8,822	12,169	13,082	13,998	15,269	16,399	16,645						
8	2,287	4,993	9,267	12,783	13,741	14,703	16,039	17,225							
9	2,402	5,245	9,734	13,427	14,434	15,444	16,847								
10	2,523	5,509	10,224	14,104	15,161	16,223									
11	2,651	5,787	10,740	14,814	15,926										
12	2,784	6,078	11,281	15,561											
13	2,924	6,385	14,651												
14	3,072	10,732													
15	6,951														

No. of Paid Claims

Accident Year	Evaluation Age in Months														
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	243	385	538	664	691	717	736	750	750	750	750	750	750	750	750
2	245	389	543	671	698	724	743	758	758	758	758	758	758	758	
3	248	393	549	677	705	731	751	765	765	765	765	765	765		
4	250	397	554	684	712	739	758	773	773	773	773	773			
5	253	401	560	691	719	746	766	780	780	780	780				
6	255	405	565	698	726	754	774	788	788	788					
7	258	409	571	705	734	761	781	796	796						
8	261	413	577	712	741	769	789	804							
9	263	417	583	719	748	776	797								
10	266	421	588	726	756	784									
11	268	425	594	733	763										
12	271	430	600	741											
13	274	434	606												
14	277	450													
15	440														

Average Paid Claim

Accident Year	Evaluation Age in Months														
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	6,671	9,192	12,209	13,645	14,095	14,535	15,446	16,279	16,523	16,606	16,656	16,689	16,722	16,726	16,726
2	6,938	9,560	12,697	14,191	14,659	15,116	16,063	16,930	17,184	17,270	17,322	17,356	17,391	17,395	
3	7,215	9,942	13,205	14,758	15,245	15,721	16,706	17,607	17,871	17,961	18,015	18,051	18,087		
4	7,504	10,340	13,733	15,349	15,855	16,350	17,374	18,312	18,586	18,679	18,735	18,773			
5	7,804	10,754	14,282	15,963	16,489	17,004	18,069	19,044	19,330	19,426	19,485				
6	8,116	11,184	14,854	16,601	17,149	17,684	18,792	19,806	20,103	20,203					
7	8,441	11,631	15,448	17,265	17,835	18,391	19,544	20,598	20,907						
8	8,778	12,096	16,066	17,956	18,548	19,127	20,325	21,422							
9	9,129	12,580	16,708	18,674	19,290	19,892	21,138								
10	9,495	13,083	17,377	19,421	20,062	20,688									
11	9,874	13,607	18,072	20,198	20,864										
12	10,269	14,151	18,795	21,006											
13	10,680	14,717	24,167												
14	11,107	23,849													
15	15,799														

Annual % Change

Accident Year	Evaluation Age in Months														
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	
3	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%		
4	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%			
5	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%				
6	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%					
7	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%						
8	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%							
9	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%								
10	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%									
11	4.0%	4.0%	4.0%	4.0%	4.0%										
12	4.0%	4.0%	4.0%	4.0%											
13	4.0%	4.0%	28.6%												
14	4.0%	62.1%													
15	42.2%														

Exhibit 10

Estimated Loss Development Pattern
Average Outstanding

Outstanding Losses ($000)

Accident Year	Evaluation Age in Months 12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	2,907	4,049	3,232	1,590	2,229	1,708	892	173	52	52	53	28	3	-	-
2	3,053	4,253	3,395	1,670	2,341	1,794	937	182	55	55	55	29	3	-	
3	3,207	4,467	3,566	1,755	2,459	1,885	984	191	58	58	58	30	3		
4	3,369	4,692	3,746	1,843	2,583	1,980	1,034	201	60	61	61	32			
5	3,538	4,929	3,935	1,936	2,713	2,080	1,086	211	64	64	64				
6	3,717	5,177	4,133	2,033	2,850	2,184	1,141	222	67	67					
7	3,904	5,438	4,342	2,136	2,994	2,295	1,198	233	70						
8	4,101	5,712	4,560	2,244	3,145	2,410	1,258	245							
9	4,307	6,000	4,790	2,357	3,303	2,532	1,322								
10	4,525	6,302	5,032	2,475	3,470	2,659									
11	4,753	6,620	5,285	2,600	3,644										
12	4,992	6,954	5,552	2,731											
13	5,244	7,304	7,210												
14	5,508	12,277													
15	12,465														

No. of Open Claims

Accident Year	Evaluation Age in Months 12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	420	290	200	94	59	40	20	15	10	7	5	3	1		
2	424	293	202	95	60	40	20	15	10	7	5	3	1		
3	428	296	204	96	60	41	20	15	10	7	5	3	1		
4	433	299	206	97	61	41	21	15	10	7	5	3			
5	437	302	208	98	61	42	21	16	10	7	5				
6	441	305	210	99	62	42	21	16	11	7					
7	446	308	212	100	63	42	21	16	11						
8	450	311	214	101	63	43	21	16							
9	455	314	217	102	64	43	22								
10	459	317	219	103	65	44									
11	464	320	221	104	65										
12	469	324	223	105											
13	473	327	225												
14	478	416													
15	608														

Average Outstanding

Accident Year	Evaluation Age in Months 12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	6,920	13,961	16,162	16,917	37,778	42,708	44,600	11,560	5,217	7,491	10,519	9,203	2,577		
2	7,197	14,519	16,808	17,594	39,289	44,416	46,384	12,022	5,426	7,790	10,939	9,571	2,680		
3	7,485	15,100	17,481	18,297	40,860	46,193	48,239	12,503	5,643	8,102	11,377	9,954	2,787		
4	7,785	15,704	18,180	19,029	42,495	48,040	50,169	13,003	5,869	8,426	11,832	10,352			
5	8,096	16,332	18,907	19,791	44,195	49,962	52,176	13,524	6,104	8,763	12,305				
6	8,420	16,985	19,664	20,582	45,962	51,960	54,265	14,065	6,348	9,114					
7	8,757	17,665	20,450	21,405	47,801	54,039	56,433	14,627	6,602						
8	9,107	18,371	21,268	22,262	49,713	56,200	58,691	15,212							
9	9,471	19,106	22,119	23,152	51,701	58,448	61,038								
10	9,850	19,870	23,004	24,078	53,769	60,786									
11	10,244	20,665	23,924	25,041	55,920										
12	10,654	21,492	24,881	26,043											
13	11,080	22,352	31,992												
14	11,523	29,513													
15	20,501														

Annual % Change

Accident Year	Evaluation Age in Months 12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	N/A	
3	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%		
4	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%			
5	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%				
6	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%					
7	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%						
8	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%							
9	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%								
10	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%									
11	4.0%	4.0%	4.0%	4.0%	4.0%										
12	4.0%	4.0%	4.0%	4.0%											
13	4.0%	4.0%	28.6%												
14	4.0%	32.0%													
15	77.9%														

Estimated Claims Development Pattern
Paid Claims(i.e., Claims Closed With Payment)

Accident Year	Evaluation Age in Months														
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	243	385	538	664	691	717	736	750	750	750	750	750	750	750	750
2	245	389	543	671	698	724	743	758	758	758	758	758	758	758	
3	248	393	549	677	705	731	751	765	765	765	765	765	765		
4	250	397	554	684	712	739	758	773	773	773	773	773			
5	253	401	560	691	719	746	766	780	780	780	780				
6	255	405	565	698	726	754	774	788	788	788					
7	258	409	571	705	734	761	781	796	796						
8	261	413	577	712	741	769	789	804							
9	263	417	583	719	748	776	797								
10	266	421	588	726	756	784									
11	268	425	594	733	763										
12	271	430	600	741											
13	274	434	606												
14	277	450													
15	440														

Accident Year	Age Interval in Months													
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-
1	1.584	1.397	1.234	1.041	1.038	1.026	1.019	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2	1.584	1.397	1.234	1.041	1.038	1.026	1.019	1.000	1.000	1.000	1.000	1.000	1.000		
3	1.584	1.397	1.234	1.041	1.038	1.026	1.019	1.000	1.000	1.000	1.000	1.000			
4	1.584	1.397	1.234	1.041	1.038	1.026	1.019	1.000	1.000	1.000	1.000				
5	1.584	1.397	1.234	1.041	1.038	1.026	1.019	1.000	1.000	1.000					
6	1.584	1.397	1.234	1.041	1.038	1.026	1.019	1.000	1.000						
7	1.584	1.397	1.234	1.041	1.038	1.026	1.019	1.000							
8	1.584	1.397	1.234	1.041	1.038	1.026	1.019								
9	1.584	1.397	1.234	1.041	1.038	1.026									
10	1.584	1.397	1.234	1.041	1.038										
11	1.584	1.397	1.234	1.041											
12	1.584	1.397	1.234												
13	1.584	1.397													
14	1.627														
15															

Estimated Claims Development Pattern
Closed Claims

Accident Year	Evaluation Age in Months														
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	368	598	763	894	941	960	980	985	990	993	995	997	999	1,000	1,000
2	372	604	771	903	950	970	990	995	1,000	1,003	1,005	1,007	1,009	1,010	
3	375	610	778	912	960	979	1,000	1,005	1,010	1,013	1,015	1,017	1,019		
4	379	616	786	921	970	989	1,010	1,015	1,020	1,023	1,025	1,027			
5	383	622	794	930	979	999	1,020	1,025	1,030	1,033	1,035				
6	387	629	802	940	989	1,009	1,030	1,035	1,040	1,044					
7	391	635	810	949	999	1,019	1,040	1,046	1,051						
8	395	641	818	958	1,009	1,029	1,051	1,056							
9	398	648	826	968	1,019	1,040	1,061								
10	402	654	834	978	1,029	1,050									
11	407	661	843	988	1,039										
12	411	667	851	997											
13	415	674	860												
14	419	669													
15	445														

Accident Year	Age Interval in Months													
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-
1	1.625	1.276	1.172	1.053	1.020	1.021	1.005	1.005	1.003	1.002	1.002	1.002	1.001	1.000	
2	1.625	1.276	1.172	1.053	1.020	1.021	1.005	1.005	1.003	1.002	1.002	1.002	1.001		
3	1.625	1.276	1.172	1.053	1.020	1.021	1.005	1.005	1.003	1.002	1.002	1.002			
4	1.625	1.276	1.172	1.053	1.020	1.021	1.005	1.005	1.003	1.002	1.002				
5	1.625	1.276	1.172	1.053	1.020	1.021	1.005	1.005	1.003	1.002					
6	1.625	1.276	1.172	1.053	1.020	1.021	1.005	1.005	1.003						
7	1.625	1.276	1.172	1.053	1.020	1.021	1.005	1.005							
8	1.625	1.276	1.172	1.053	1.020	1.021	1.005								
9	1.625	1.276	1.172	1.053	1.020	1.021									
10	1.625	1.276	1.172	1.053	1.020										
11	1.625	1.276	1.172	1.053											
12	1.625	1.276	1.172												
13	1.625	1.276													
14	1.597														
15															

Estimated Claims Development Pattern
Reported Claims

Accident Year	Evaluation Age in Months														
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	788	888	963	988	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
2	796	897	973	998	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010	
3	804	906	982	1,008	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020		
4	812	915	992	1,018	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030			
5	820	924	1,002	1,028	1,041	1,041	1,041	1,041	1,041	1,041	1,041				
6	828	933	1,012	1,038	1,051	1,051	1,051	1,051	1,051	1,051					
7	836	943	1,022	1,049	1,062	1,062	1,062	1,062	1,062						
8	845	952	1,032	1,059	1,072	1,072	1,072	1,072							
9	853	962	1,043	1,070	1,083	1,083	1,083								
10	862	971	1,053	1,081	1,094	1,094									
11	870	981	1,064	1,091	1,105										
12	879	991	1,074	1,102											
13	888	1,001	1,085												
14	897	1,085													
15	1,053														

Accident Year	Age Interval in Months														
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-
1	1.127	1.084	1.026	1.012	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2	1.127	1.084	1.026	1.012	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
3	1.127	1.084	1.026	1.012	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
4	1.127	1.084	1.026	1.012	1.000	1.000	1.000	1.000	1.000	1.000	1.000				
5	1.127	1.084	1.026	1.012	1.000	1.000	1.000	1.000	1.000	1.000					
6	1.127	1.084	1.026	1.012	1.000	1.000	1.000	1.000	1.000						
7	1.127	1.084	1.026	1.012	1.000	1.000	1.000	1.000							
8	1.127	1.084	1.026	1.012	1.000	1.000	1.000								
9	1.127	1.084	1.026	1.012	1.000	1.000									
10	1.127	1.084	1.026	1.012	1.000										
11	1.127	1.084	1.026	1.012											
12	1.127	1.084	1.026												
13	1.127	1.084													
14	1.210														
15															
Selected Factors	1.127	1.084	1.026	1.012	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Factors to Ultimat	1.269	1.126	1.038	1.012	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Est. Ultimate Clai	1,336	1,222	1,127	1,116	1,105	1,094	1,083	1,072	1,062	1,051	1,041	1,030	1,020	1,010	1,000

% Reported @	
12 Months	78.8%
24 Months	88.8%
36 Months	96.3%
48 Months	98.8%

Estimated Loss Development Pattern
Paid ALAE to Paid Loss Ratio

Accident Year	Evaluation Age in Months														
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	0.20	0.22	0.24	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
2	0.20	0.22	0.24	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
3	0.20	0.22	0.24	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25		
4	0.20	0.22	0.24	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25			
5	0.20	0.22	0.24	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35				
6	0.20	0.22	0.24	0.25	0.25	0.25	0.25	0.25	0.25	0.25					
7	0.22	0.24	0.26	0.27	0.27	0.27	0.27	0.27	0.27						
8	0.25	0.28	0.30	0.30	0.30	0.30	0.30	0.30							
9	0.27	0.30	0.32	0.32	0.32	0.32	0.32								
10	0.21	0.23	0.25	0.26	0.26	0.26									
11	0.30	0.33	0.36	0.35	0.35										
12	0.22	0.24	0.26	0.27											
13	0.25	0.28	0.39												
14	0.25	0.39													
15	0.40														

Estimated Loss Development Pattern
Paid ALAE ($000)

Accident Year	Evaluation Age in Months														
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	324	779	1,576	2,265	2,435	2,605	2,842	3,052	3,098	3,114	3,123	3,129	3,135	3,136	3,136
2	341	818	1,656	2,379	2,558	2,737	2,985	3,206	3,254	3,270	3,280	3,287	3,293	3,294	
3	358	859	1,739	2,499	2,687	2,875	3,136	3,368	3,418	3,435	3,446	3,453	3,459		
4	376	902	1,827	2,625	2,822	3,019	3,294	3,537	3,591	3,608	3,619	3,627			
5	395	948	1,919	3,860	4,150	4,440	4,844	5,202	5,280	5,306	5,322				
6	415	996	2,016	2,896	3,114	3,332	3,634	3,903	3,962	3,981					
7	479	1,150	2,329	3,286	3,532	3,779	4,123	4,428	4,494						
8	572	1,373	2,780	3,835	4,122	4,411	4,812	5,168							
9	649	1,558	3,154	4,297	4,619	4,942	5,391								
10	530	1,273	2,577	3,667	3,942	4,218									
11	795	1,910	3,866	5,185	5,574										
12	613	1,471	2,978	4,201											
13	731	1,756	5,714												
14	768	4,186													
15	2,781														

Accident Year	Age Interval in Months													
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-
1	2.402	2.025	1.437	1.075	1.070	1.091	1.074	1.015	1.005	1.003	1.002	1.002	1.000	1.000	
2	2.402	2.025	1.437	1.075	1.070	1.091	1.074	1.015	1.005	1.003	1.002	1.002	1.000		
3	2.402	2.025	1.437	1.075	1.070	1.091	1.074	1.015	1.005	1.003	1.002	1.002			
4	2.402	2.025	1.437	1.075	1.070	1.091	1.074	1.015	1.005	1.003	1.002				
5	2.402	2.025	2.012	1.075	1.070	1.091	1.074	1.015	1.005	1.003					
6	2.402	2.025	1.437	1.075	1.070	1.091	1.074	1.015	1.005						
7	2.402	2.025	1.411	1.075	1.070	1.091	1.074	1.015							
8	2.402	2.025	1.379	1.075	1.070	1.091	1.074								
9	2.402	2.025	1.362	1.075	1.070	1.091									
10	2.402	2.025	1.423	1.075	1.070										
11	2.402	2.025	1.341	1.075											
12	2.402	2.025	1.411												
13	2.402	3.254													
14	5.450														
15															
Selected Factors	2.402	2.025	1.341	1.075	1.070	1.091	1.074	1.015	1.005	1.003	1.002	1.002	1.000	1.000	1.000
Factors to Ultimate	9.028	3.759	1.857	1.385	1.288	1.204	1.103	1.027	1.012	1.007	1.004	1.002	1.000	1.000	1.000
Est. Ultimate ALAE	25,104	15,735	10,609	5,817	7,179	5,077	5,949	5,309	4,549	4,010	5,345	3,635	3,460	3,294	3,136

% Paid ALAE @		Acc. Yr.	Ultimate ALAE
12 Months	11.1%	7	4,549
24 Months	26.6%	8	5,309
36 Months	53.9%	9	5,949
48 Months	72.2%	10	5,077
		11	7,179
		12	5,817

Estimated Loss Development Pattern
Paid Losses ($000)

Accident Year	Evaluation Age in Months														
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	1,621	3,539	6,568	9,060	9,740	10,421	11,368	12,209	12,392	12,454	12,492	12,517	12,542	12,544	12,544
2	1,703	3,717	6,899	9,517	10,231	10,947	11,941	12,825	13,017	13,082	13,121	13,147	13,174	13,176	
3	1,789	3,905	7,247	9,996	10,746	11,498	12,543	13,471	13,673	13,741	13,783	13,810	13,838		
4	1,879	4,102	7,612	10,500	11,288	12,078	13,175	14,150	14,362	14,434	14,477	14,506			
5	1,973	4,308	7,996	11,030	11,857	12,687	13,839	14,863	15,086	15,161	15,207				
6	2,073	4,525	8,399	11,585	12,454	13,326	14,536	15,612	15,846	15,925					
7	2,177	4,753	8,822	12,169	13,082	13,998	15,269	16,399	16,645						
8	2,287	4,993	9,267	12,783	13,741	14,703	16,039	17,225							
9	2,402	5,245	9,734	13,427	14,434	15,444	16,847								
10	2,523	5,509	10,224	14,104	15,161	16,223									
11	2,651	5,787	10,740	14,814	15,926										
12	2,784	6,078	11,281	15,561											
13	2,924	6,385	14,651												
14	3,072	10,732													
15	6,951														

Accident Year	Age Interval in Months													
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-
1	2.183	1.856	1.379	1.075	1.070	1.091	1.074	1.015	1.005	1.003	1.002	1.002	1.000	1.000	
2	2.183	1.856	1.379	1.075	1.070	1.091	1.074	1.015	1.005	1.003	1.002	1.002	1.000		
3	2.183	1.856	1.379	1.075	1.070	1.091	1.074	1.015	1.005	1.003	1.002	1.002			
4	2.183	1.856	1.379	1.075	1.070	1.091	1.074	1.015	1.005	1.003	1.002				
5	2.183	1.856	1.379	1.075	1.070	1.091	1.074	1.015	1.005	1.003					
6	2.183	1.856	1.379	1.075	1.070	1.091	1.074	1.015	1.005						
7	2.183	1.856	1.379	1.075	1.070	1.091	1.074	1.015							
8	2.183	1.856	1.379	1.075	1.070	1.091	1.074								
9	2.183	1.856	1.379	1.075	1.070	1.091									
10	2.183	1.856	1.379	1.075	1.070										
11	2.183	1.856	1.379	1.075											
12	2.183	1.856	1.379												
13	2.183	2.295													
14	3.494														
15															
Selected Factors	2.183	1.856	1.379	1.075	1.070	1.091	1.074	1.015	1.005	1.003	1.002	1.002	1.000	1.000	1.000
Factors to Ultimate	7.739	3.545	1.910	1.385	1.288	1.204	1.103	1.027	1.012	1.007	1.004	1.002	1.000	1.000	1.000
Est. Ultimate Loss	53,794	38,041	27,980	21,545	20,511	19,527	18,590	17,698	16,849	16,041	15,271	14,538	13,841	13,176	12,544

% Paid @		Acc. Yr.	Ultimate Paid Loss
12 Months	12.9%	7	16,849
24 Months	28.2%	8	17,698
36 Months	52.4%	9	18,590
48 Months	72.2%	10	19,527
		11	20,511
		12	21,545

Estimated Loss Development Pattern
Incurred Losses ($000)

Accident Year	Evaluation Age in Months														
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
1	4,528	7,588	9,801	10,650	11,969	12,130	12,260	12,383	12,445	12,507	12,544	12,544	12,544	12,544	12,544
2	4,756	7,970	10,295	11,187	12,572	12,741	12,878	13,007	13,072	13,137	13,176	13,176	13,176	13,176	
3	4,995	8,372	10,813	11,751	13,205	13,383	13,527	13,662	13,731	13,799	13,841	13,841	13,841		
4	5,247	8,794	11,358	12,343	13,871	14,058	14,209	14,351	14,423	14,495	14,538	14,538			
5	5,512	9,237	11,931	12,965	14,570	14,766	14,925	15,074	15,149	15,225	15,271				
6	5,790	9,702	12,532	13,619	15,304	15,511	15,677	15,834	15,913	15,993					
7	6,081	10,191	13,164	14,305	16,076	16,292	16,467	16,632	16,715						
8	6,388	10,705	13,827	15,026	16,886	17,113	17,297	17,470							
9	6,710	11,245	14,524	15,784	17,737	17,976	18,169								
10	7,048	11,811	15,256	16,579	18,631	18,882									
11	7,403	12,407	16,025	17,415	19,570										
12	7,776	13,032	16,833	18,292											
13	8,168	13,689	21,861												
14	8,580	23,010													
15	19,416														

Accident Year	Age Interval in Months													
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-
1	1.676	1.292	1.087	1.124	1.013	1.011	1.010	1.005	1.005	1.003	1.000	1.000	1.000	1.000	
2	1.676	1.292	1.087	1.124	1.013	1.011	1.010	1.005	1.005	1.003	1.000	1.000	1.000		
3	1.676	1.292	1.087	1.124	1.013	1.011	1.010	1.005	1.005	1.003	1.000	1.000			
4	1.676	1.292	1.087	1.124	1.013	1.011	1.010	1.005	1.005	1.003	1.000				
5	1.676	1.292	1.087	1.124	1.013	1.011	1.010	1.005	1.005	1.003					
6	1.676	1.292	1.087	1.124	1.013	1.011	1.010	1.005	1.005						
7	1.676	1.292	1.087	1.124	1.013	1.011	1.010	1.005							
8	1.676	1.292	1.087	1.124	1.013	1.011	1.010								
9	1.676	1.292	1.087	1.124	1.013	1.011									
10	1.676	1.292	1.087	1.124	1.013										
11	1.676	1.292	1.087	1.124											
12	1.676	1.292	1.087												
13	1.676	1.597													
14	2.682														
15															
Selected Factors	1.676	1.292	1.087	1.124	1.013	1.011	1.010	1.005	1.005	1.003	1.000	1.000	1.000	1.000	1.000
Factors to Ultimat	2.771	1.653	1.280	1.178	1.048	1.034	1.023	1.013	1.008	1.003	1.000	1.000	1.000	1.000	1.000
Proj. Ultimate Los	53,794	38,041	27,980	21,545	20,511	19,527	18,590	17,698	16,849	16,041	15,271	14,538	13,841	13,176	12,544

% Reported @		Acc. Yr.	Ultimate Incurred Loss
12 Months	36.1%	7	16,849
24 Months	60.5%	8	17,698
36 Months	78.1%	9	18,590
48 Months	84.9%	10	19,527
		11	20,511
		12	21,545