Reserving for Construction Defects

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ABSTRACT

Construction Defects: Property and Casualty insurers and actuaries cringe at the very mention of those two words. Insurers are troubled by the high frequency of construction defect claims while actuaries have encountered countless struggles with finding an appropriate and reasonable method for projecting the emergence of construction defect losses. As actuaries, it is our job to help our clients understand the issues at hand and to provide them with estimates with which they can feel comfortable given the great deal of uncertainty embedded in the market.

In this paper, we give the reader an overview of the issues surrounding an actuarial analysis of construction defects. We provide background information, including relevant legal decisions and defining characteristics of construction defects. We discuss items that should be considered when performing an actuarial analysis of construction defect data and present a few of the tailored methodologies that we have employed in recent years. Finally, we offer our thoughts on current trends as well as what we might expect to see in the future.

BACKGROUND

The issue of construction defects stems primarily from a building boom in California that began in the late 1970's. At the time, California real estate was the most sought after in all of the country. During the 1980's, the Golden State experienced a population growth rate more than double that of the nation as a whole. See Exhibit 1 for a comparison of growth rates between states. As a result, what ensued would eventually come to haunt insurance companies who wrote mono-line and package policies for both general contractors and subcontractors doing business in that state. [1]

The high demand for housing wreaked havoc on the construction industry. Contractors found themselves with too many projects and a limited amount of skilled labor. To keep up with the extraordinary demands for real estate, many contractors began cutting corners in the construction process by doing the following:

Hiring individuals who lacked the qualifications and experience necessary for producing quality workmanship

Foregoing proper supervision on location at many construction sites

Building cheaply and quickly with the focus of moving onto the next project

In addition to the changes in construction quality, there was also a significant shift in the types of residential structures being erected. The population growth, coupled with the price of real estate, caused the construction market to turn largely to town homes and condominiums (multi-unit dwellings).

These actions laid the groundwork for the construction defect lawsuits that emerged in California. Lawyers were very aggressive in getting homeowners associations to sue the contractors responsible for defects arising in multi-unit dwellings. Homeowners associations offered an excellent target for the law firms because they had more financial backing and the ability to take more risk in terms of filing a lawsuit than did most individual homeowners. Furthermore, if the association board was initially reluctant to sue the contractors, the board could have potentially been sued by one of the homeowners, thus forcing the board to move forward with the suit against the contractor. As an additional incentive, a successful verdict was likely to be a large, highly publicized event, thus encouraging other homeowner associations to file lawsuits in hopes of reaching a similar conclusion.

Due to the sudden onslaught of construction defect claims, insurance companies were forced to take action against future claims. To protect themselves, they did one of the following:

Raised their premiums for contractors

Became more selective about the contractors to which they would issue policies

Attempted to exclude coverage for losses already known to the insured at policy inception through specific Montrose exclusions

Many contractors who had been able to purchase insurance before found themselves either unable to obtain coverage at all or facing unaffordable premiums. Those who could purchase a policy were forced to pass along the severe premium increases to homebuyers, thus contributing to the rapid escalation of real estate prices. As a result, the number of new multi-unit dwellings decreased significantly during the late 1980's and early 1990's. See Exhibit 2. [2]

Many construction defect lawsuits presented questions regarding apportionment of financial responsibility among insurers and defendant insureds. Which policy should be triggered? For most insurance coverages, the date of the accident is used to determine which insurance policy to assign the claim. However, the nature of construction defects makes it difficult to determine when an "accident" has occurred. Prior to 1995, insurance companies tended to follow the manifestation trigger theory. The manifestation date is the date at which the defect makes itself known. It was typically identified as the filing date of the construction defect complaint. However, this date was not interpreted consistently between insurers. Therefore, when a coverage lawsuit was filed, an insurance company would often vigorously contest the insured contractor's claim for defense and indemnity by denying that the manifestation date was during their policy period.

THE MONTROSE DECISION

The ambiguity of responsibility was about to be changed in July 1995 by a precedent setting decision brought down in a chemical pollution case that would soon filter into construction defect litigation. Montrose Chemical Corporation of California v. Admiral Insurance Company (The Montrose case) was a pollution liability coverage case that determined that a continuous (coverage) trigger applied during the time that the pollution occurred, effectively triggering all policies in force during that time period. The California Supreme Court also rejected insurer defenses of "known loss" and "loss in progress" doctrines. Plaintiff attorneys have successfully applied the Montrose decision to construction defect cases.

More than a dozen occurrence trigger theories have also been advanced. At the time of the Montrose decision, the court considered the three other major trigger theories: exposure (injury occurs when claimant is exposed to injury causing event), injury-in-fact (injury occurs when claimant first suffers injury), and manifestation (injury occurs on the date the injury becomes manifest or discoverable).

Among the earliest applications of the continuous trigger concept to construction defect cases was the decision in the case of Stonewall Insurance Company v. City of Palos Verdes Estates (June 1996). In this case, homeowners in Palos Verdes Estates sued the city for the damage to their homes due to the sinking of the land. The court ruled in favor of the Montrose allocation of the damages to all years during the damage period. [3]

The Montrose Decision, while providing some clarity on the issue of coverage allocation, caused frequencies to increase dramatically because multiple insurers were named on virtually every lawsuit filed. At the same time, severities generally decreased because each insurer was deemed only partially involved.

In the Post-Montrose environment, the insured liability exposure is usually allocated among all insurance companies who have written coverage for the insured during the continuous trigger period. This "trigger spread" approach to allocation refers to the time period of an insured's exposure, and recognizes the extant tendency of courts to allocate losses "horizontally", meaning that carriers are required to respond to latent claims on a pro rata or shared basis.

The continuous coverage trigger may, or may not, be beneficial to the insured. By spreading the losses to all policies in force from the commencement of construction to manifestation, the insured's available coverage is maximized. However, insureds with large deductible policies are penalized. Each policy is triggered, and the attachment point on any one of the policies is unattainable until the insured paid each deductible. In this way, an insurer who writes large deductible policies is insulated. A similar case can be made for the insulation of reinsurers to construction defect claims. The continuous coverage trigger causes high frequency and low severity type claims, which are less likely to reach an excess of loss reinsurance attachment point.

In many jurisdictions, the coverage allocation process ascribes apportioned responsibility only to insurance companies. Accordingly, during those times that the insured did not have coverage, the gaps in coverage do not dilute allocations to the insurers. In most cases, the indemnity portion of the claim is prorated based on the time on the risk. Loss adjustment expense is prorated based on the number of carriers unless a carrier prefers to retain their own counsel, in which case they will not participate in the shared attorney cost.

In the mid 1990's, some insurance companies were forced out of the market because the abrupt infiltration of claims proved too overwhelming to continue writing policies with potential construction defect exposures. Many of those who continued to write policies implemented Montrose exclusions into the policy language to avoid being cited in a situation where damages were known to the insured prior to the beginning date of the policy.

WHAT IS A CONSTRUCTION DEFECT?

Posed to different sources, this question may produce different answers. It is difficult to find a clear, concise definition. Broadly speaking, when presented the question, courts have concluded that virtually any condition that reduces the value of a building, home, condominium or common area may be legally recognized as a defect in design or workmanship. Major defects may be related to landslides or subsidence, but the spectrum includes poor drainage, leaky roofs, defective plumbing, wiring and a host of other real and potential problems such as "sick buildings".

Insurance companies may have their own way of defining a construction defect for the purpose of coverage interpretation. Among the many coverage issues that may be relevant to an insurer's defense or indemnity obligations are:

> Does the claim involve "property damage" as defined in the commercial general liability (CGL) policy? Some components of construction defect claims are clearly "physical injury to tangible property". Others, such as diminution in value and costs of preventing future damage, present difficult coverage interpretation problems.
>
> Is the claim excluded under the work exclusion? CGL policies generally exclude coverage for "work performed" by the insured with the rationale that liability policies are not intended to guarantee adequate construction. The Broad Form Property Damage endorsement broadens coverage and narrows the effect of the exclusion by saying that the work exclusion does not apply if a contractor or subcontractor performed the damaged work or the work out of which the damage arises on behalf of the named insured.

Does the claim fall under any other non-standard policy provisions? The Subsidence Exclusion is one such provision which purports to eliminate coverage for property damage caused by the subsidence of land and arising out of, or attributable to, any operation of the insured.

Contractors and homeowners also have differing and self-serving opinions on what constitutes a defect. Ultimately, it is often up to the courts to decide the issue on individual lawsuits.

There are two types of defects: patent and latent. Patent defects are those that are detectable through reasonable inspection. In most jurisdictions, the Statute of Limitations for filing suit for patent defects is two to four years. On the other hand, latent defects are those that are not detectable through reasonable inspection and are manifested over a period of time. Most construction defect claims fall into this latent category. The time limit for presenting latent claims is often governed by a state's Statute of Repose, which begins running on the date that construction is completed. In California, aside from certain cross-complaint situations, which may enlarge the time for perfecting a claim, suits are barred ten years after the construction is completed.

Construction defects come from a variety of sources. Some defects are attributed to faulty workmanship. Most often, these defects are related to the following:

Plumbing / Drainage / Irrigation

Improper Materials

Structural Failure or Collapse

Electrical Wiring

Insulation

Other defects are a result of landslides and earth settlement conditions. Examples of these conditions include:

Expansive Soils

Underground Water

Vertical Settlement

Earthquakes

As an actuary, it is important to understand how your company or your client is defining construction defects. Knowing what types of claims are being included in your data will enhance the assumptions you make about development patterns and tail selection.

GATHERING DATA

It is important to understand what is included in the data you have gathered before beginning any construction defects analysis. Interviews with people from various departments in the company may be necessary to ensure that, to the extent possible, the correct data is retrieved and appropriately understood by those working with it. An attempt should be made to get answers to the following questions regarding any construction defects data set.

What is the definition of a construction defect claim?

How is the accident date determined?

What reinsurance agreements are in place?

Which states have construction defects exposures?

What is the mix of exposure for general contractors, designer/builders, and subcontractors?

Is the exposure residential or commercial construction?

Is exposure information available? (Earned premium, number of contractors insured, etc.)

Are there any policy provisions or enhancements, such as presence or absence of the broad form property damage endorsement?

It may also be appropriate to experiment with different segmentations of the data when performing an analysis. This may provide a deeper understanding of frequencies and severities for different types of business, as well as be able to offer added insight to your client. The following segmentations should be considered if the data is available.

California and Non-California (or other specific states)

The legal environment in California has proved to be unique. Separating California from the rest of the states may enhance the analysis.

General Contractors vs. Subcontractors

We recommend that the data be segmented between general and subcontractors, whenever possible. General contractors appear to have significantly higher severities than subcontractors. In some cases, the severities are as much as five times higher. We attribute this phenomenon to the fact that the general contractors are in control of the entire project, while the subcontractors are only performing a portion of the work on each project and therefore may not be subject to the total claim value. While producing higher severities, the claim count emergence is lower for general contractors than for subcontractors. Again, we believe that the larger number of projects that a subcontractor works on gives rise to the higher number of claims.

Report Year Data

In the next section, we discuss in more detail the difficulties of establishing an accident year for each claim. Because of these difficulties, we have found that it enhances our analysis to use report year data and methods. Report year data is beneficial for two reasons. The first is that the report date will be consistently applied to all claims. The second is that report year data allows the number of claims in each year to be set. Development on these claims is more readily determinable.

DIFFICULTIES WITH TRADITIONAL RESERVING METHODS

Due to the changing environment surrounding construction defects, problems arise with the application of traditional reserving methods to general liability or commercial multiple peril lines of business that contain construction defect claims. The most commonly used method to determine ultimate losses is the accident year loss development method. The following assumptions are inherent in the loss development method:

The accident date is clearly identifiable and consistently applied

Future emergence of an accident year can be determined from the emergence of historical accident years

Ultimate loss is a function of current loss to date

With the application of this method to construction defect claims, these key assumptions may be violated.

The first point of difficulty with any accident year development method is the determination of the appropriate accident date for a construction defect claim. As previously mentioned, the Montrose decision changed the theory underlying the date of loss from a manifestation trigger theory to a continuous trigger theory. The continuous trigger period can begin as early as the date the work contract is signed and continue until the repairs are made. The continuous trigger theory allowed multiple insurers to experience loss on a single occurrence. Under the Post-Montrose continuous trigger theory, the determination of the accident date varies by company and frequently varies within a single company. This is particularly noticeable when companies do not have a dedicated construction defect claims unit established.

There are two main philosophies when determining the accident date of a construction defect claim under the continuous trigger theory. The first method is to assign a claim to each accident year where there is believed to be potential exposure. The second method is to determine one appropriate accident year to which the claim would be coded. For example, a company may dictate that each construction defect claim should be coded to the accident year two years after the completion of the project in question. It is also possible that a company would decide to use some combination of these two methods when coding claims to an accident year. While neither method is preferable over the other, it is important that one method be applied consistently. It is also important for the actuary to have an understanding of the accident date determination used in a particular company. It may require interviews with claims handlers and other construction defect claims specialists within the company.

A second difficulty with applying the loss development method is the determination of the future development pattern. The loss emergence patterns appear to be lengthening due to the change in trigger theory and the Statute of Limitations. Under the Pre-Montrose environment, the plaintiff attorneys in California tended to file lawsuits within three years of the manifestation date, most likely because of the Statute of Limitations for patent defects. On the other hand, latent defects are subject to the Statute of Repose. In California, a plaintiff is allowed up to ten years from the building's date of completion to resolve a potential claim, or a lawsuit must be filed to prevent the Statute of Limitations from barring recovery. In the current environment, where the continuous trigger applies, insurers that may not have otherwise been affected by the manifestation trigger theory are experiencing late reported claims.

Another reason that it is difficult to determine the loss development pattern is that the effects of the litigation surrounding construction defects affect an accident year triangle on the diagonal. Due to the Montrose Decision, an influx of claims is normally observed in recent calendar years. The distortion of the calendar year diagonal in an accident year triangle leads to higher development factors along the diagonal from which to select. These factors may not be appropriate to be applied to losses at the current evaluation date. There is also simply a lack of historical data. As the Montrose Decision was in 1995, there have not been many years to observe how the change will impact the emergence of loss.

Determining the tail development factor is also difficult when applying the loss development method. Again, the future construction defect environment is so uncertain that it is extremely difficult to develop a deep enough understanding of the loss emergence to determine at what point any tail factor would become unreasonable. In California, it seems reasonable to assume that there will be no more claims reported after 13 years of development for any accident year.

This is because there is a ten-year Statute of Limitations for reporting the discovery of a defect with the potential for an additional 3 years to file the lawsuits for indemnity. However, there is not yet substantial data to support this theory.

NON-TRADITIONAL RESERVING METHODOLOGIES

This section describes three approaches that we have used to estimate the construction defect claim ultimate losses.

Montrose Adjustment Method

Transactional Count / Incremental Paid Loss Method

Report Year Analysis (pure IBNR estimated using a selected exposure distribution)

The Montrose Adjustment Method is a derivation of the traditional loss development approaches while the other two methods segment the losses into two components: frequency and severity, which are estimated separately.

Montrose Adjustment Method

With the application of the Montrose Decision on the construction defect claims, there has been a significant calendar year impact on the traditional accident period loss development methods. Prior to the decision in 1995, the historical loss and claim count triangles had considerably less volume. Subsequent to the decision, the volume has increased dramatically along each calendar year thus causing the link ratios in a traditional development method to rise initially. In almost every instance, these link ratios have remained above expected levels. An example of this can be seen in the link ratio method displayed in Exhibit 3. This calendar year occurrence affects the accident year triangle on the diagonal. The magnitude of this phenomenon will be different by company as there are three variables that can influence the pattern:

Volume of business written in each year

Type of business written

Claims handling procedures

This phenomenon makes the selection of a reasonable tail factor extremely difficult, if not impossible. This is because we traditionally depend on observed development just prior to the end of the triangle to aid in the selection of the tail factor. However, as you can see in Exhibit 3, the development usually seen with construction defects does not decrease even after many months of development. The development remains at a high level because the claim emergence prior to calendar year 1995 is significantly below that seen after 1995 and, thus, the new claims emerging are over leveraging the development pattern.

The Montrose Adjustment Method attempts to mitigate the effect that the calendar year emergence has on the development factors by recasting the volume of the pre-Montrose years to mimic the type of development those years would have experienced if Montrose had happened many years ago. This approach can be used for losses, allocated loss adjustment expense (ALAE), or claim counts. We have used this method with reported counts in our examples.

The objective of this method is to adjust the pre-Montrose incremental claim activity so that the link ratios in later months of development will appear more reasonable and a tail factor will be easier to estimate. This adjustment consists of building additional counts into the earlier months of development of the incremental triangle and re-cumulating the triangle. Ideally, we want to add enough claim counts to the early development of the accident years prior to 1995 so that the resulting development pattern will be comparable across all years.

We begin with the triangle of incremental reported counts as displayed on Exhibit 4-A. We have included a diagonal line in the incremental count triangle above which are the counts that will be restated. We have also displayed, on the same exhibit, a triangle of link ratios that show the ratio of incremental reported counts from one period to another. We have included a line after accident 1994 on this triangle because accident years 1995 and subsequent are Post-Montrose. Therefore, we are assuming that the development in these accident years is indicative of future development. Link ratios should be selected from the Post-Montrose ratios.

The Pre-Montrose incremental counts are restated as though they were Post-Montrose by dividing the Post-Montrose incremental counts at the earliest age of development by the appropriate link ratio. For example, in accident year 1990, 53 claims were reported between 60 and 72 months of development. This is shown as the earliest Post-Montrose development on Exhibit 4-A. Prior to that period, 20 claims were reported between 48 and 60 months. By dividing 53 by 1.2, we now have 45 claims in the development period between 48 and 60 months for accident year 1990. This process continues for all of the Pre-Montrose development periods. The restated incremental triangle is displayed in Exhibit 4-B.

The restated reported counts can be re-cumulated and used with the traditional link ratio method. See Exhibit 4-C. Notice that the Pre-Montrose development periods have identical development factors. These should not be considered when selecting your link ratios. They should be, however, comparable with the more recent ratios in the triangle. It is now more apparent that the ratios decrease in later development periods, allowing an easier selection of more mature link ratios and tail factor. When selecting the tail factor, one may also scenario test the selection to account for the statute of limitations.

Because our triangle now has more claim counts than it did previously, it is not possible to simply apply the cumulative development factor to the latest diagonal to produce ultimate counts. It is necessary to subtract one from the cumulative development factor before applying it to the adjusted counts and add this development to the original case reported counts. See Exhibit 4-D.

The Montrose Adjustment method assumes that the current level of claim activity is now a normal occurrence in this type of data and is not a spike up of activity associated with the Montrose Decision. The method can often produce volatile results, particularly in the initial stages of claim emergence, because the claims department will be making initial determinations as to the internal processes to be used in the coding of claims, as well as the philosophy of handling those claims. It may be beneficial to begin the recasting of information using a year more recent than 1995 to account for this initial volatility. For instance, if your company began to see construction defect claims in 1995 but waited until 1997 to set up a special claims unit to handle these claims, you may choose to use 1997 as your base year for this approach since it may be more representative future emergence.

Given the assumptions underlying this method, the results will likely lead to a conservative estimate of the liabilities, particularly without accounting for the statute of limitations in the selection of the tail factor. While conservative, this can be particularly useful in helping to bracket a range of reasonable liabilities and demonstrating to management what the high end of the liabilities might be.

Transactional Count / Incremental Paid Method

This method is similar to the incremental paid loss method developed by Adler/Kline. [4] The difference between our incremental method and the one that Adler/Kline developed is the way in which ultimate counts are determined and distributed to each development period. We have called this method of determining ultimate counts a "transactional" count method.

The goal of the transactional method is to create an incremental closed with payment claim triangle that has been "squared" to ultimate. This triangle can then be multiplied by the corresponding severities selected at each development period. To create this triangle, we begin with reported counts and attempt to estimate the portion of these claim counts that will close with payment and the portion that will close without payment at each development period. Therefore, we make two selections of disposal rates: closed with payment disposal rates and closed without payment disposal rates. These disposal rates are not based on ultimate counts, as they are in the Adler/Kline paper. They are based on the number of claims that were open at the end of the prior period plus those that were reported during the current period.

Exhibit 5-A displays a reported count triangle that has been "squared", which is the starting point for this method. Estimate the number of claim counts that will ultimately be reported is an important step in this method and may tend to drive the results. Ultimate reported counts could be determined by the approach described in the Montrose Adjustment Method. We used the results of the Montrose Adjustment Method in Exhibit 4 to create the reported count triangle displayed in Exhibit 5-A.

To determine ultimate reported counts, we have also employed a method that decays calendar year reported counts over time. When using a calendar year approach, the resulting counts must be distributed back to accident year for use in our transactional count method.

The lower half of Exhibit 5-B displays a triangle of claim counts labeled "Active Counts during Period". This triangle is created by adding the counts that were open at the end of the prior period (displayed on the upper portion of Exhibit 5-B) and the incremental counts that were reported during the period, shown on the lower half of Exhibit 5-A.

The triangle of active counts will be used to create disposal rates for the claims that will close with payment and the claims that will close without payment. A triangle of the historical closed with payment disposal rates can be created by dividing the incremental closed with payment by the active counts during the period, and a triangle of the historical closed without payment disposal rates can be created by dividing the incremental closed without payment claims by the active counts during the period. The cumulative triangle of closed with payment counts and closed without payment counts are displayed on Exhibit 5-C. The incremental triangles are displayed on Exhibit 5-D. The historical disposal rates and selections are displayed on Exhibit 5-E. We have made the selections of disposal rates based on observed historical patterns.

Once the disposal rates have been selected, it is possible to "square" the triangles of counts open at the end of the prior period, active counts during the period, closed with payment counts, and closed without payment counts. Each of these triangles builds off of the others. The number of claims that will close during the period can be determined by applying the disposal rates to the active counts during the period. After subtracting the number of claims that close during the period, you can determine the number of claims that will be open at the end of the period, and so on. The "squared" triangles are displayed on Exhibits 5-F and 5-G.

The final step in this approach is to multiply the incremental closed with payment claim count "triangle" by the incremental severities. We typically make selections from the historical incremental severities and trend them into future periods. Generally, we have found that the severities have been relatively stable, so it is the estimate of ultimate counts that ultimately tends to drive the variability of the results. Exhibit 5-H displays the incremental closed with payment counts and severities. Exhibit 5-I shows the multiplication of the two triangles in Exhibit 5-H. Outstanding loss is calculated by adding the incremental paid loss in future development periods, or below the diagonal line.

Report Year Analysis

This last method is the report period year approach. There are two major components necessary for this type of analysis: the first is the development of reported loss on known claims, and the second is the estimation of the pure IBNR loss.

The first component of this analysis is relatively straightforward. The traditional loss development methods can be applied to both paid and incurred losses on a report year basis to develop an estimate of ultimate losses. We also estimate ultimate claim counts on a report year basis. We have found that applying the development method to incurred counts, where incurred counts are defined as closed with payment plus open counts, produces a reasonable estimate of ultimate counts. See Exhibit 6.

To estimate the IBNR claim counts, we begin by attempting to estimate the company's remaining exposure to construction defect claim experience. We have used the general liability contractors written premium as an exposure base for construction defects. To determine the number of claims that will be reported in future calendar years, we must determine the portion of exposure that continues to exist from the year the policies were written. We have chosen to decay the exposure from each underwriting year to future years with a selected distribution. This distribution is based on observed patterns of reported counts. See Exhibit 7-A. The exposure to construction defect claims of future report years can be determined by adding together the appropriate amounts from each underwriting year. See Exhibit 7-B.

Once the report year exposure has been estimated, future reported counts are determined by selecting a frequency for future report years. These can be selected from observed historical frequencies. The historical frequencies are the comparison of our selected ultimate claim counts from our report year methods to the report year estimated exposure to construction defect claims for those years. Based on these observed frequencies, a future frequency can be selected and applied to the future report year exposure to obtain a pure IBNR claim count estimate. See Exhibit 7-C.

Finally, total estimated IBNR losses are estimated by multiplying these claim counts by a selected severity. The severity can be estimated by observing the severities implied by the results of the report year development methods for loss and claim counts. Total ultimate losses are then found by adding the results of the report year loss development methods and the pure IBNR loss estimate. See Exhibit 7-D.

As with any methodology, this one has its advantages and disadvantages. One advantage of this approach is that because claims are aggregated on a report year basis, the number of claims attaching to a particular year is known. The resulting development patterns for the emergence and settlement patterns are considerably shorter than on an accident year basis and, therefore, are easier to select. Conversely, the IBNR can be somewhat more difficult because the future claim emergence and associated costs must be estimated. In fact, determining IBNR is the essence of the difficulty with projecting ultimate losses for construction defects. Furthermore, report year results can be difficult to compare with accident year results unless the future liabilities can be converted back to an accident year basis. Nonetheless, we believe that this method or some adaptation of it has produced the most reasonable and consistent results for our clients.

ADDITIONAL CONSIDERATIONS AND CURRENT TRENDS

Current Trends in Frequencies

Between 1994 and 1999, there was a continual rise in claim activity in California related to construction defects. During the last several years, there has been an increasing belief that the claim frequency will begin to subside as the statute of limitations runs out on reportable claims. During 2000, many companies began to see a flattening of claim activity, which could be caused by the statute of limitations or just random fluctuation. As 2001 unfolds, the industry is anxiously awaiting whether companies will continue to see a stabilization of claim emergence or even begin to see a decrease in claim activity or whether it will begin to rise again.

Current Trends in Severities

Unlike the large increase in claim activity and the highly publicized large verdicts as the construction defects came to the forefront of the insurance industry, the average severity has remained relatively stable through 1999. During 2000, a few companies have seen a slight decrease in severity as they continue to refine their stance on the claim handling approach. Additionally, when analyzing historical paid severities by age of claim, the severities appear to be stable as well. This has substantiated the notion, that this is primarily a frequency issue. Up to this point, this notion appears to have been correct. However, companies should continue to closely monitor the severity trend, particularly given the continued uncertainty of the claim count emergence and each company's stance on handling claims. In addition, it is still unknown whether the claims in the tail will be larger than the claims paid to date.

ALAE to Loss Ratios

Unlike the stability of loss severities, the ratio of ALAE to loss has continued to increase over time. We recommend that ALAE be analyzed separately for the following reasons:

Claim departments continue to modify their stance on the handling of claims

Companies have attempted to control the costs by entering into either a specified charge per claim or a fixed fee arrangements with outside law firms

When multiple companies are involved in the litigation of the claim, they frequently share in the cost of one law firm

In addition, we recommend that ALAE for general contractors and sub-contractors be analyzed separately as well, because they have shown considerable differences in the ultimate ratio.

WHAT LIES AHEAD?

California Landscape

Currently, the situation in California is troubling. There remains a shortage of skilled construction workers and real estate prices are astronomically high with a shortage of affordable housing (condominiums and town homes) being built. In addition, with the size and impact of the construction defect problem on the insurance industry, the state faces an insurance availability crisis. Eventually, the increased pressure arising from the current situation will begin to force changes. Potential changes on the horizon could come from many different sources, legislative, judicial, or economic.

The California legislature has attempted to ease the situation by passing legislative items such as the Calderon Act that became effective January 1, 1996. This act applies only to multi-unit dwellings. It attempts to implement mandatory mediation sessions with the homeowners association and the builder to attempt to resolve lawsuits before they are filed. While it was highly touted as a significant step at the time of passage, to date, it appears to have had little impact on the number of lawsuits filed or the settlement process. [5]

In December 2000, the California Supreme Court ruled on a construction defected related case, Alan O. Aas v. Superior Court. The impact of this ruling is that the Supreme Court has supported a lower court decision that plaintiffs could not seek damages for construction defects that had not yet caused property damage. It is too soon to quantify the impact of this decision, however, it is speculated that this decision will significantly reduce the exposure developers, contractors and sub-contractors face in the construction industry. [6]

The past several decades have seen a substantial rise in the population growth in California. This has been driven by a number of items, not the least of which is the dot-com boom. As the current boom appears to be subsiding, the continued pressure for affordable housing may ease slightly.

Other States

There continues to be speculation that what has transpired in California will transfer to other areas of the country, specifically where the population has been increasing rapidly. Baby-boomers are retiring to the south and west regions of the country to states such as Nevada, Florida, Texas, Arizona, and Colorado. While there has been an increase in the number of construction defect suits in these and other areas, the legal landscape is different that California. In most states, the statute of limitations is much shorter that California, and other states have not adopted the same continuous trigger theory that California has on these claims.

The issues discussed above have helped keep the situation in other areas from rapidly running out of control. However, there continues to be increased pressure from lawyers and homeowners, and claim frequency is rising in these states. Other states should be monitored closely both from a claim environment and a legal environment to ensure that both the construction and the insurance industries are prepared, in the event the situation changes.

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Exhibit 1

Population Ten Year Growth Rates

	California	U.S
1970-1980	19%	11%
1980-1990	26%	10%
1990-2000	14%	13%

From Census 2000

Exhibit 2

Building Permits Issued in California

Calendar Year	Total New Housing Units	1 Unit Single Family	2 Units	3 & 4 Units	5+ Units	5+ Structures	Total Structures	Total Excluding Single Family	Proportion Multi-unit of Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9) = (8) / (1)
1984	224,689	112,920	6,496	13,434	91,839	8,214	128,220	15,300	6.8%
1985	271,396	113,647	6,390	13,765	137,594	11,255	132,030	18,383	6.8%
1986	314,641	145,692	6,366	14,498	148,085	11,811	164,828	19,136	6.1%
1987	251,824	134,691	4,924	11,822	100,387	8,152	148,683	13,992	5.6%
1988	253,369	160,735	4,366	8,955	79,313	6,154	171,631	10,896	4.3%
1989	237,694	162,981	4,148	7,838	62,727	5,462	172,756	9,775	4.1%
1990	163,175	104,843	3,926	5,746	48,660	3,991	112,439	7,596	4.7%
1991	105,956	73,885	2,342	4,554	25,175	2,036	78,393	4,508	4.3%
1992	97,781	76,332	1,886	3,934	15,629	1,382	79,781	3,449	3.5%
1993	84,341	69,568	1,406	2,390	10,977	953	71,907	2,339	2.8%
1994	96,982	77,795	1,382	3,100	14,705	1,178	80,550	2,755	2.8%
1995	83,864	68,148	1,170	2,880	11,666	1,002	70,558	2,410	2.9%
1996	92,060	73,532	1,138	2,457	14,933	1,042	75,845	2,313	2.5%
1997	109,589	84,149	1,180	2,298	21,962	1,401	86,797	2,648	2.4%
1998	123,653	92,933	1,366	2,689	26,665	1,677	96,061	3,128	2.5%
1999	138,039	102,750	1,134	2,460	31,695	1,820	105,840	3,090	2.2%
2000	143,216	103,991	1,196	2,780	35,249	1,871	107,254	3,263	2.3%
Total	2,792,269	1,758,592	50,816	105,600	877,261	69,401	1,883,572	124,980	

Link Ratio Method

Exhibit 3

Reported Counts

Accident Year	12	24	36	48	60	72	84	96	108	120	132	Case Reported Counts	CDF	Ultimate Reported Counts
	Months of Development													
1990	52	61	72	83	103	156	306	567	927	1,345	1,671	1,671	1.36	2,272
1991	73	84	97	132	350	647	998	1,460	2,029	2,584		2,584	1.69	4,365
1992	68	76	99	339	610	965	1,386	1,861	2,337			2,337	2.20	5,134
1993	94	144	373	714	1,076	1,483	1,889	2,398				2,398	3.13	7,515
1994	103	412	864	1,211	1,552	1,925	2,465					2,465	4.64	11,447
1995	93	484	921	1,255	1,648	2,142						2,142	6.42	13,756
1996	135	668	1,033	1,382	1,894							1,894	8.83	16,732
1997	90	349	605	888								888	12.08	10,734
1998	31	83	140									140	16.83	2,359
1999	18	34										34	28.90	989
2000	20											20	96.93	1,939
												16,573		77,243

Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-Ult
	Age-to-Age										
1990	1.17	1.18	1.15	1.24	1.52	1.96	1.85	1.64	1.45	1.24	
1991	1.15	1.15	1.36	2.65	1.85	1.54	1.46	1.39	1.27		
1992	1.12	1.30	3.42	1.80	1.58	1.44	1.34	1.26			
1993	1.53	2.59	1.91	1.51	1.38	1.27	1.27				
1994	4.00	2.09	1.40	1.28	1.24	1.28					
1995	5.21	1.90	1.36	1.31	1.30						
1996	4.94	1.55	1.34	1.37							
1997	3.89	1.73	1.47								
1998	2.68	1.69									
1999	1.90										
Average	3.35	1.72	1.39	1.37	1.38	1.38	1.48	1.43	1.30	1.24	
Factor to Ultimate	96.93	28.90	16.83	12.08	8.83	6.42	4.64	3.13	2.20	1.69	1.36

Montrose Adjustment Method

Exhibit 4-A

Incremental Reported Counts

Accident Year	Months of Development 0-12	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132
1990	52	9	11	11	20	53	150	261	360	417	326
1991	73	11	13	35	218	297	350	463	569	554	
1992	68	8	23	240	271	355	421	476	476		
1993	94	50	229	341	362	408	406	509			
1994	103	309	452	347	341	373	540				
1995	93	391	437	334	393	494					
1996	135	533	365	349	512						
1997	90	259	256	284							
1998	31	52	57								
1999	18	16									
2000	20										

Accident Year	Age-to-Age 12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-Ult
1990	0.17	1.22	1.00	1.82	2.67	2.80	1.74	1.38	1.16	0.78	
1991	0.15	1.18	2.69	6.24	1.36	1.18	1.32	1.23	0.97		
1992	0.12	2.88	10.44	1.13	1.31	1.18	1.13	1.00			
1993	0.53	4.59	1.49	1.06	1.13	1.00	1.25				
1994	3.00	1.46	0.77	0.98	1.10	1.45					
1995	4.21	1.12	0.76	1.18	1.26						
1996	3.94	0.69	0.96	1.47							
1997	2.89	0.99	1.11								
1998	1.68	1.09									
1999	0.90										
Avg Below Line	2.73	0.97	0.94	1.32	1.26						
Selected	2.73	0.97	0.94	1.20	1.20						

Montrose Adjustment Method

Exhibit 4-B

Adjusted Incremental Counts

Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-Ult
	Age-to-Age										
1990	15	41	39	37	45	53	150	261	360	417	326
1991	73	199	193	182	218	297	350	463	569	554	
1992	96	262	255	240	271	355	421	476	476		
1993	87	236	229	341	362	408	406	509			
1994	114	309	452	347	341	373	540				
1995	93	391	437	334	393	494					
1996	135	533	365	349	512						
1997	90	259	256	284							
1998	31	52	57								
1999	18	16									
2000	20										

Montrose Adjustment Method Exhibit 4-C

Restated Cummulative Triangle

Accident Year	Months of Development 12	24	36	48	60	72	84	96	108	120	132
1990	15	55	95	132	177	230	380	641	1,001	1,418	1,744
1991	73	272	465	647	865	1,162	1,513	1,975	2,544	3,099	
1992	96	359	613	853	1,124	1,479	1,900	2,376	2,852		
1993	87	323	552	893	1,255	1,662	2,068	2,577			
1994	114	423	874	1,222	1,562	1,936	2,475				
1995	93	484	921	1,255	1,648	2,142					
1996	135	668	1,033	1,382	1,894						
1997	90	349	605	888							
1998	31	83	140								
1999	18	34									
2000	20										

Accident Year	Age-to-Age 12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-Ult
1990	3.73	1.71	1.39	1.34	1.30	1.65	1.69	1.56	1.42	1.23	
1991	3.73	1.71	1.39	1.34	1.34	1.30	1.31	1.29	1.22		
1992	3.73	1.71	1.39	1.32	1.32	1.28	1.25	1.20			
1993	3.73	1.71	1.62	1.41	1.32	1.24	1.25				
1994	3.73	2.07	1.40	1.28	1.24	1.28					
1995	5.21	1.90	1.36	1.31	1.30						
1996	4.94	1.55	1.34	1.37							
1997	3.89	1.73	1.47								
1998	2.68	1.69									
1999	1.90										
Average	3.35	1.72	1.39	1.34	1.29	1.28	1.37	1.35	1.25	1.23	
Factor to Ultimate	65.86	19.64	11.44	8.22	6.12	4.73	3.70	2.70	2.00	1.60	1.30

Montrose Adjustment Method

Exhibit 4-D

Calculation of Ultimate Reported Counts

Accident Year	Case Reported Counts	Restated Reported Counts	Cumulative Development Factor	Additional Counts	Ultimate Counts
	(1)	(2)	(3)	(4)	(5)
1990	1,671	1,744	1.30	523	2,194
1991	2,584	3,099	1.60	1,855	4,439
1992	2,337	2,852	2.00	2,847	5,185
1993	2,398	2,577	2.70	4,376	6,774
1994	2,465	2,475	3.70	6,689	9,154
1995	2,142	2,142	4.73	7,987	10,129
1996	1,894	1,894	6.12	9,705	11,599
1997	888	888	8.22	6,411	7,300
1998	140	140	11.44	1,463	1,603
1999	34	34	19.64	638	672
2000	20	20	65.86	1,297	1,317
Total	16,573	17,865		43,792	60,364

Transactional Count Method

Exhibit 5-A

Reported Counts

Accident Year	12	24	36	48	60	72	84	96	108	120	132	Ultimate
	Months of Development											
1990	52	61	72	83	103	156	306	567	927	1,345	1,671	2,194
1991	73	84	97	132	350	647	998	1,460	2,029	2,584	3,296	4,439
1992	68	76	99	339	610	965	1,386	1,861	2,337	3,050	3,870	5,185
1993	94	144	373	714	1,076	1,483	1,889	2,398	3,300	4,170	5,169	6,774
1994	103	412	864	1,211	1,552	1,925	2,465	3,386	4,575	5,721	7,039	9,154
1995	93	484	921	1,255	1,648	2,142	2,736	3,754	5,068	6,335	7,791	10,129
1996	135	668	1,033	1,382	1,894	2,453	3,133	4,298	5,804	7,255	8,922	11,599
1997	90	349	605	888	1,192	1,544	1,971	2,705	3,653	4,566	5,615	7,300
1998	31	83	140	195	262	339	433	594	802	1,003	1,233	1,603
1999	18	34	59	82	110	142	182	249	336	420	517	672
2000	20	67	115	160	215	279	356	488	659	824	1,013	1,317

Incremental Reported Counts

Accident Year	0-12	12-24	24-36	36-48	48-60	60-72	72-84	84-92	92-108	108-120	120-132	132-Ult
	Months of Development											
1990	52	9	11	11	20	53	150	261	360	417	326	523
1991	73	11	13	35	218	297	350	463	569	554	712	1,143
1992	68	8	23	240	271	355	421	476	476	713	819	1,315
1993	94	50	229	341	362	408	406	509	902	870	1,000	1,604
1994	103	309	452	347	341	373	540	921	1,189	1,146	1,317	2,115
1995	93	391	437	334	393	494	594	1,018	1,314	1,267	1,456	2,337
1996	135	533	365	349	512	559	680	1,166	1,505	1,451	1,667	2,677
1997	90	259	256	284	304	352	428	734	947	913	1,049	1,685
1998	31	52	57	55	67	77	94	161	208	201	230	370
1999	18	16	25	23	28	32	39	68	87	84	97	155
2000	20	47	48	45	55	63	77	132	171	165	189	304

Transactional Count Method | Exhibit 5-B

Open Counts at End of Period

Accident Year	Months of Development 12	24	36	48	60	72	84	96	108	120	132	Tail
1990					95	121	189	282	378	411	377	
1991				110	280	306	365	461	551	608		
1992			71	227	308	399	461	513	564			
1993		127	262	342	391	437	445	592				
1994	85	261	438	421	408	411	590					
1995	73	316	399	321	393	572						
1996	106	409	362	383	549							
1997	68	183	254	326								
1998	21	44	54									
1999	18	18										
2000	18											

Active Counts During Period

Accident Year	Months of Development 12	24	36	48	60	72	84	96	108	120	132	Tail
1990					103	148	271	450	642	795	737	
1991				132	328	577	657	828	1,030	1,105		
1992			99	311	497	663	820	937	989			
1993		144	357	603	704	799	843	954				
1994	103	394	712	786	761	781	950					
1995	93	465	753	734	714	887						
1996	135	639	774	711	895							
1997	90	328	438	538								
1998	31	73	101									
1999	18	34										
2000	20											

Transactional Count Method

Exhibit 5-C

Cumulative Closed with Payment Counts

Accident Year	12	24	36	48	60	72	84	96	108	120	132	Ultimate
	Months of Development											
1990					8	11	59	161	313	499	691	
1991				19	23	158	347	572	808	1,082		
1992			23	31	135	282	484	717	965			
1993		15	28	181	368	584	812	1,040				
1994	6	42	166	399	582	817	1,019					
1995	7	57	238	429	595	768						
1996	11	121	298	486	688							
1997	3	51	129	245								
1998	5	15	37									
1999	-	7										
2000	-											

Cumulative Closed without Payment

Accident Year	12	24	36	48	60	72	84	96	108	120	132	Ultimate
	Months of Development											
1990					-	24	59	124	236	435	603	
1991				3	47	183	285	427	670	893		
1992			5	82	166	284	440	631	808			
1993		2	83	191	316	463	632	766				
1994	12	109	259	391	562	698	856					
1995	13	111	284	505	660	802						
1996	18	139	373	513	657							
1997	18	116	222	318								
1998	5	24	49									
1999	-	10										
2000	2											

Transactional Count Method

Incremental Closed with Payment Counts

Accident Year	12	24	36	48	60	72	84	96	108	120	132	Tail
					Months of Development							
1990					8	3	47	103	152	186	192	
1991				19	4	135	189	225	236	274		
1992			23	8	104	147	202	233	248			
1993		15	13	153	187	215	228	228				
1994	6	36	124	233	183	235	202					
1995	7	51	181	191	166	173						
1996	11	109	178	187	202							
1997	3	47	78	116								
1998	5	10	23									
1999	-	7										
2000	-											

Incremental Closed without Payment

Accident Year	12	24	36	48	60	72	84	96	108	120	132	Tail
					Months of Development							
1990					-	24	34	65	112	199	168	
1991				3	44	135	103	142	243	223		
1992			5	77	85	117	156	191	178			
1993		2	82	108	126	147	170	134				
1994	12	97	150	132	171	135	158					
1995	13	98	173	222	155	142						
1996	18	121	235	140	143							
1997	18	98	106	96								
1998	5	20	24									
1999	-	10										
2000	2											

Transactional Count Method

Exhibit 5-E

Closed with Payment Disposal Rate

Accident Year	12	24	36	48	60	72	84	96	108	120	132	Ultimate
						Months of Development						
1990					8%	2%	17%	23%	24%	23%	26%	
1991				14%	1%	23%	29%	27%	23%	25%		
1992			23%	3%	21%	22%	25%	25%	25%			
1993		10%	4%	25%	27%	27%	27%	24%				
1994	6%	9%	17%	30%	24%	30%	21%					
1995	7%	11%	24%	26%	23%	19%						
1996	8%	17%	23%	26%	23%							
1997	4%	14%	18%	22%								
1998	16%	13%	23%									
1999	0%	19%										
2000	0%											
Selected Disposal Rate	15%	21%	26%	23%	24%	24%	25%	24%	25%	25%	25%	

Closed without Payment Disposal Rate

Accident Year	12	24	36	48	60	72	84	96	108	120	132	Ultimate
						Months of Development						
1990					0%	16%	13%	14%	18%	25%	23%	
1991				2%	13%	23%	16%	17%	24%	20%		
1992			5%	25%	17%	18%	19%	20%	18%			
1993		1%	23%	18%	18%	18%	20%	14%				
1994	12%	25%	21%	17%	22%	17%	17%					
1995	14%	21%	23%	30%	22%	16%						
1996	13%	19%	30%	20%	16%							
1997	20%	30%	24%	18%								
1998	16%	27%	24%									
1999	0%	29%										
2000	8%											
Selected Disposal Rate	25%	24%	18%	19%	18%	17%	16%	20%	20%	20%	20%	

Transactional Count Method Exhibit 5-F

Open Counts at End of Period

Accident Year	Months of Development 12	24	36	48	60	72	84	96	108	120	132	Tail
1990					95	121	189	282	378	411	377	495
1991				110	280	306	365	461	551	608	726	1,028
1992			71	227	308	399	461	513	564	702	837	1,184
1993		127	262	342	391	437	445	592	843	942	1,068	1,470
1994	85	261	438	421	408	411	590	889	1,173	1,276	1,426	1,948
1995	73	316	399	321	393	572	683	1,000	1,307	1,416	1,579	2,154
1996	106	409	362	383	549	643	775	1,141	1,494	1,620	1,808	2,466
1997	68	183	254	326	364	415	494	722	942	1,021	1,138	1,553
1998	21	44	54	60	74	87	106	157	206	224	250	341
1999	18	18	23	26	31	37	45	66	86	94	105	143
2000	18	39	48	52	62	73	88	129	170	184	205	280

Active Counts During Period

Accident Year	Months of Development 12	24	36	48	60	72	84	96	108	120	132	Tail
1990					103	148	271	450	642	795	737	900
1991				132	328	577	657	828	1,030	1,105	1,320	1,869
1992			99	311	497	663	820	937	989	1,277	1,522	2,152
1993		144	357	603	704	799	843	954	1,494	1,713	1,942	2,672
1994	103	394	712	786	761	781	950	1,511	2,078	2,320	2,593	3,541
1995	93	465	753	734	714	887	1,166	1,701	2,315	2,574	2,872	3,917
1996	135	639	774	711	895	1,108	1,323	1,940	2,646	2,945	3,287	4,485
1997	90	328	438	538	630	716	843	1,228	1,669	1,855	2,070	2,823
1998	31	73	101	109	127	151	181	267	365	407	454	620
1999	18	34	42	46	54	63	76	112	153	171	190	260
2000	20	65	87	93	107	125	150	220	300	334	373	509

Transactional Count Method

Exhibit 5-G

Cummulative Closed with Payment Counts

Accident Year	Months of Development 12	24	36	48	60	72	84	96	108	120	132	Ultimate
1990					8	11	59	161	313	499	691	916
1991				19	23	158	347	572	808	1,082	1,412	1,880
1992			23	31	135	282	484	717	965	1,284	1,665	2,203
1993		15	28	181	368	584	812	1,040	1,396	1,825	2,310	2,978
1994	6	42	166	399	582	817	1,019	1,392	1,888	2,468	3,116	4,001
1995	7	57	238	429	595	768	1,051	1,471	2,024	2,667	3,385	4,364
1996	11	121	298	486	688	956	1,277	1,757	2,388	3,124	3,946	5,067
1997	3	51	129	245	391	564	769	1,073	1,471	1,935	2,452	3,158
1998	5	15	37	66	95	132	176	242	329	431	544	699
1999	-	7	15	28	40	55	74	102	138	181	228	293
2000	-	10	28	52	77	107	144	198	270	353	447	574
Selected Disposal Rate		15%	21%	26%	23%	24%	24%	25%	24%	25%	25%	25%

Cummulative Closed without Payment

Accident Year	Months of Development 12	24	36	48	60	72	84	96	108	120	132	Ultimate
1990						24	59	124	236	435	603	783
1991				3	47	183	285	427	670	893	1,157	1,531
1992			5	82	166	284	440	631	808	1,064	1,368	1,799
1993		2	83	191	316	463	632	766	1,060	1,403	1,791	2,326
1994	12	109	259	391	562	698	856	1,105	1,514	1,978	2,497	3,205
1995	13	111	284	505	660	802	1,002	1,282	1,738	2,252	2,827	3,610
1996	18	139	373	513	657	854	1,081	1,401	1,921	2,510	3,168	4,065
1997	18	116	222	318	437	564	708	911	1,239	1,610	2,024	2,589
1998	5	24	49	69	93	120	151	195	267	348	439	563
1999	-	10	20	28	39	50	63	81	112	146	184	236
2000	2	18	39	56	76	99	124	161	220	287	361	463
Selected Disposal Rate		25%	24%	18%	19%	18%	17%	16%	20%	20%	20%	20%

Incremental Method Exhibit 5-H

Incremental Closed With Payment Counts

Accident Year	12	24	36	48	60	72	84	96	108	120	132	Tail
1990					8	3	47	103	152	186	192	225
1991				19	4	135	189	225	236	274	330	467
1992			23	8	104	147	202	233	248	319	380	538
1993		15	13	153	187	215	228	228	356	428	485	668
1994	6	36	124	233	183	235	202	373	496	580	648	885
1995	7	51	181	191	166	173	284	420	552	643	718	979
1996	11	109	178	187	202	268	322	479	631	736	822	1,121
1997	3	47	78	116	147	173	205	303	398	464	517	706
1998	5	10	23	28	30	36	44	66	87	102	114	155
1999	-	7	9	12	13	15	19	28	37	43	48	65
2000	-	10	18	24	25	30	36	54	72	84	93	127

Incremental Paid Severity Trend Factor 1.05

Accident Year	12	24	36	48	60	72	84	96	108	120	132	Tail
1990					-	11,880	12,847	20,332	21,046	17,285	19,295	25,000
1991				-	125,288	10,290	19,374	17,622	21,800	16,809	25,000	26,250
1992			-	22,224	19,508	13,264	19,024	24,444	27,226	25,000	26,250	27,563
1993		-	16,261	9,395	14,434	21,794	23,238	22,291	25,000	26,250	27,563	28,941
1994	-	8,245	8,367	16,084	15,802	23,139	13,833	25,000	26,250	27,563	28,941	30,388
1995	10,144	9,621	18,062	12,996	14,270	11,997	20,000	26,250	27,563	28,941	30,388	31,907
1996	7,489	4,750	13,446	16,546	11,917	20,000	21,000	27,563	28,941	30,388	31,907	33,502
1997	2,127	9,188	6,801	30,437	15,000	21,000	22,050	28,941	30,388	31,907	33,502	35,178
1998	4,365	3,781	16,179	15,000	15,750	22,050	23,153	30,388	31,907	33,502	35,178	36,936
1999		15,135	15,000	15,750	16,538	23,153	24,310	31,907	33,502	35,178	36,936	38,783
2000		10,000	15,750	16,538	17,364	24,310	25,526	33,502	35,178	36,936	38,783	40,722
Selected Severity		10,000	15,000	15,000	15,000	20,000	20,000	25,000	25,000	25,000	25,000	25,000

Incremental Method

Exhibit 5-1

Incremental Paid Loss (000's)

Accident Year	Months of Development: 12	24	36	48	60	72	84	96	108	120	132	Tail	Outstanding Loss
1990					-	41	607	2,088	3,190	3,212	3,711	5,624	5,624
1991				-	479	1,392	3,663	3,964	5,152	4,603	8,251	12,267	20,519
1992			-	177	2,035	1,946	3,845	5,698	6,745	7,980	9,985	14,828	32,794
1993		-	207	1,440	2,706	4,689	5,303	5,087	8,912	11,242	13,380	19,335	52,869
1994	-	300	1,037	3,749	2,885	5,431	2,796	9,332	13,017	15,983	18,763	26,902	83,995
1995	66	486	3,268	2,478	2,372	2,073	5,674	11,027	15,223	18,621	21,816	31,244	103,605
1996	85	519	2,389	3,102	2,409	5,355	6,760	13,210	18,275	22,372	26,221	37,561	129,753
1997	7	434	532	3,523	2,199	3,633	4,525	8,775	12,104	14,801	17,337	24,827	88,201
1998	21	37	369	423	466	803	1,022	2,007	2,781	3,407	3,994	5,722	20,625
1999		99	135	190	207	355	451	884	1,225	1,500	1,759	2,519	9,225
2000		98	290	399	431	735	931	1,821	2,522	3,087	3,619	5,185	19,118
													391,805

Link Ratio Method Exhibit 6

Incurred Counts

Report Year	12	24	36	48	60	72	84	96	108	120	132	Case Incurred Counts	CDF	Ultimate Incurred Counts
1990	-	-	-	-	293	282	266	243	228	207	186	186	1.00	186
1991	-	-	-	325	307	284	254	232	204	176		176	0.85	149
1992	-	-	534	502	464	424	392	356	323			323	0.75	243
1993	-	790	839	772	706	658	609	561				561	0.68	384
1994	790	1,090	989	890	826	759	700					700	0.62	437
1995	1,271	1,135	1,003	923	836	761						761	0.58	438
1996	1,451	1,315	1,236	1,152	1,081							1,081	0.53	577
1997	1,323	1,244	1,169	1,107								1,107	0.49	548
1998	1,238	1,163	1,109									1,109	0.46	508
1999	1,516	1,461										1,461	0.43	629
2000	1,352											1,352	0.41	552
												8,817		4,651

Report Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-Ult
1990					0.96	0.94	0.91	0.94	0.91	0.90	
1991				0.94	0.93	0.90	0.91	0.88	0.86		
1992			0.94	0.93	0.91	0.93	0.91	0.91			
1993		1.06	0.92	0.92	0.93	0.93	0.92				
1994	1.38	0.91	0.90	0.93	0.92	0.92					
1995	0.89	0.88	0.92	0.91	0.91						
1996	0.91	0.94	0.93	0.94							
1997	0.94	0.94	0.95								
1998	0.94	0.95									
1999	0.96										
Average	0.95	0.94	0.93	0.93	0.93	0.92	0.91	0.91	0.89	0.85	
Factor to Ulti	0.41	0.43	0.46	0.49	0.53	0.58	0.62	0.68	0.75	0.85	1.00

Exposure Count Method

Exhibit 7-A

Distribution of Exposures

Months of Development	Selected Distribution of Exposures	Underwriting Year 1992	1993	1994	1995	1996	1997	1998	1999	2000
12	15%	750	750	750	750	600	600	450	-	-
12-24	25%	1,250	1,250	1,250	1,250	1,000	1,000	750	-	-
24-36	20%	1,000	1,000	1,000	1,000	800	800	600	-	-
36-48	10%	500	500	500	500	400	400	300	-	-
48-60	8%	400	400	400	400	320	320	240	-	-
60-72	6%	300	300	300	300	240	240	180	-	-
72-84	5%	250	250	250	250	200	200	150	-	-
84-96	4%	200	200	200	200	160	160	120	-	-
96-108	3%	150	150	150	150	120	120	90	-	-
108-120	2%	100	100	100	100	80	80	60	-	-
120-132	1%	50	50	50	50	40	40	30	-	-
132-144	1%	50	50	50	50	40	40	30	-	-
144-156	0%	3	3	3	3	2	2	2	-	-
Total Written Premium	100%	5,003	5,003	5,003	5,003	4,002	4,002	3,002	-	-

Exhibit 7-B

Exposure Count Method

Allocation of Exposure to Report Year

Report Year	Underwriting Year 1992	1993	1994	1995	1996	1997	1998	1999	2000	Total RY Exposure
1992	750									750
1993	1,250	750								2,000
1994	1,000	1,250	750							3,000
1995	500	1,000	1,250	750						3,500
1996	400	500	1,000	1,250	600					3,750
1997	300	400	500	1,000	1,000	600				3,800
1998	250	300	400	500	800	1,000	450			3,700
1999	200	250	300	400	400	800	750	-		3,100
2000	150	200	250	300	320	400	600	-	-	2,220
2001	100	150	200	250	240	320	300	-	-	1,560
2002	50	100	150	200	200	240	240	-	-	1,180
2003	50	50	100	150	160	200	180	-	-	890
2004	3	50	50	100	120	160	150	-	-	633
2005		3	50	50	80	120	120	-	-	423
2006			3	50	40	80	90	-	-	263
2007				3	40	40	60	-	-	143
2008					2	40	30	-	-	72
2009						2	30	-	-	32
2010							2	-	-	2
2011								-	-	-
2012									-	-

Exposure Count Method

Exhibit 7-C

Selection of Ultimate Counts

Report Year	RY Exposure	Ultimate Incurred Claims	Indicated Frequency	Selected Frequency	Ultimate Claims
1992	750	243	3.24	3.24	243
1993	2,000	384	1.92	1.92	384
1994	3,000	437	1.46	1.46	437
1995	3,500	438	1.25	1.25	438
1996	3,750	577	1.54	1.54	577
1997	3,800	548	1.44	1.44	548
1998	3,700	508	1.37	1.37	508
1999	3,100	629	2.03	2.03	629
2000	2,220	552	2.49	2.49	552
2001	1,560			2.75	429
2002	1,180			2.75	325
2003	890			2.75	245
2004	633			2.75	174
2005	423			2.75	116
2006	263			2.75	72
2007	143			2.75	39
2008	72			2.75	20
2009	32			2.75	9
2010	2			2.75	0
2011	-			2.75	-
2012	-			2.75	-
Total					5,745

Exposure Method

Determination of IBNR Loss

Report Year	Pure IBNR Claims	Selected Severity	Pure IBNR Loss
2001	429	30,000	12,870
2002	325	31,500	10,222
2003	245	33,075	8,095
2004	174	34,729	6,041
2005	116	36,465	4,237
2006	72	38,288	2,764
2007	39	40,203	1,575
2008	20	42,213	836
2009	9	44,324	390
2010	0	46,540	19
2011	-	48,867	-
2012	-	51,310	-
Total	1,429		47,049