

The Impact of Nature: The Aftermath of Hurricanes Katrina and Rita

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With a contribution from the Economist Intelligence Unit

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The hurricanes cut a wide swath, with losses spread out over a geographic area the size of England.

Executive Summary

In late August and early September 2005, the Gulf Coast was pummeled first by Hurricane Katrina and then by Hurricane Rita. The hurricanes cut a wide swath, with losses spread out over a geographic area the size of England. The first round of damage came primarily from windstorm and storm surge. Initial damage was compounded by a range of perils, including the failure of the levees in New Orleans, looting, contamination, and the inability to access damaged property.

But the fallout from these back-to-back storms was by no means limited to those businesses physically located in the Gulf region. Many companies suffered what might be described as secondary losses. While they, themselves, sustained no damage, their supply chains were disrupted. They lost their sources of fuel, raw materials, transportation, and other goods and services because the suppliers of these business necessities were damaged.

The losses and the long-range implications of Katrina and Rita are becoming clearer, although we may be years from seeing the full story. Nonetheless, certain things have become apparent:

- The damage to the Gulf Coast may have less of an impact on the economy than at first feared. The Gulf Coast region is not a major contributor to national growth beyond its pivotal role in the oil and gas industry. While the economy is expected to slow in 2006, the factors driving the slow-down predate Katrina and Rita.
- The impact on the insurance industry will be unevenly distributed. Reinsurers will be particularly hard-hit. That, in turn, may ripple through all coverage lines and cause the recently softening insurance market to make an about face.
- Both hurricanes, but Katrina in particular, revealed vulnerabilities and failures in the catastrophe models that insurers and reinsurers use to analyze their exposures to loss. Insurers are now trying to price risks with what have proven to be questionable models, and buyers are uncertain about what to expect for pricing and capacity from the insurance market.
- One of the hardest-hit coverage lines, in terms of losses, has been property insurance. The number of businesses damaged is staggering, with nearly 70,000 in the 10 Louisiana parishes alone. The losses are complex, and there will likely be numerous disputes over the cause of loss and, thus, whether there is coverage for loss. There are strong indications that insurers will be more discriminating in their choice of policyholders and that they will be increasing rates.
- The marine and energy insurance markets may have been hit even harder than the property insurance market. At one point, more than 80 percent of energy production was shut in. A number of oil rigs and refineries were damaged or lost. Rate reductions have virtually disappeared, and increased pricing seems to be the likely trend.

- The environmental picture is equally grim—picture 1,000 football fields stacked 50 feet deep in debris. The Environmental Protection Agency is still assessing the impact of Katrina and Rita on 54 Superfund sites on its National Priorities List. Again, upward pressure on pricing seems inevitable.
- Workers compensation will be affected not so much by the storms themselves, but by the aftermath, particularly with businesses that have employees involved in recovery efforts, which increases the potential for both injuries and illnesses. In addition, some businesses have provided their employees displaced by the storm damage with such benefits as food and shelter. Those businesses will find themselves paying workers compensation premiums for the value of those benefits.
- Other coverage lines are less likely to be affected directly by Hurricanes Katrina and Rita, both in terms of losses and impact on pricing. However, there are indications that reinsurers may be increasing prices across the board. This, in turn, would push rates up even for coverage lines that saw few or no claims arising out of the hurricanes.
- The impact of Hurricane Wilma will only exacerbate the influences of Katrina and Rita on the insurance marketplace. At this point, damage estimates range as high as \$10 billion from Wilma alone.
- As regards many lines of insurance, we may be moving from a buyers' market back to a sellers' market. Businesses would be well-served by starting the renewal process as early as possible, meeting face to face with insurers, and being prepared to "sell" their exposures to insurers.
- There are also steps that businesses can take to make themselves less vulnerable to future storms and other catastrophes, such as having a loss-management plan in place, performing a natural-hazards risk assessment, and establishing plans for emergency response and business continuity. And these steps will also help businesses be more attractive to insurers.

Overall Economic Consequences and Emerging Issues



The most active Atlantic hurricane season since 1933 has had a significant impact on the world economy. Hurricanes Katrina and Rita, which disrupted oil production and refining in the Gulf of Mexico in August and September 2005, were especially significant because they drove up the global price of oil. This marked a change: The rise in energy prices over the past three years was primarily the result of demand factors. But in September, prices rose because of supply constraints. At a time when there is little spare capacity globally for either crude oil or refined products, the hurricanes took a heavy toll on oil production in the Gulf of Mexico, which accounts for one-quarter of total U.S. output. And it is taking a long time for the industry to recover. A month after Hurricane Rita hit Texas and Louisiana, 65 percent of crude oil production in the Gulf and 54 percent of natural gas output in the area remain shut in, according to the U.S. Energy Information Administration, a federal agency.

That said, even at the height of production outages, there was no global shortage of crude oil, as OPEC—the Organization of Petroleum Exporting Countries—was able to make up entirely for lost output in the Gulf of Mexico. Releases of crude oil stocks by the U.S. federal government and the International Energy Agency were also more than enough to meet demand and have actually caused prices for oil to fall from the highs recorded in September. In terms of the broad global balance of oil demand and supply, therefore, Hurricanes Katrina and Rita were only episodes in a much bigger story of strains in the global oil market. By contrast, the market for refined products was more heavily affected by the hurricanes, which rendered several refineries inoperable. There is even less spare global capacity for refining than for oil, and around one-tenth of U.S. refinery capacity in the Gulf remained off stream as of the end of October.

Although oil prices have fallen since their peak in September, the increase in energy prices at the retail level in the United States and Europe has renewed concern among investors about rising inflation. The U.S. economy may be strong enough to withstand a further tightening of monetary policy, but other leading developed economies are still struggling to achieve even modest growth. If interest rates have to rise to curb inflation, this could result in a sharper-than-expected slowdown in the United States and lead to further stagnation in Europe. An increase in interest rates would certainly hit emerging economic markets—particularly those that depend on exports to the United States and Europe or that must roll over substantial amounts of debt.

First-Order Effects of the Hurricanes on the U.S. Economy

With the United States serving as one of the main engines of global growth in recent years, any catastrophe that could derail the U.S. economy is a major concern for the world. Yet the first-order effects of Hurricanes

Hurricane Katrina caused far more monetary damage than any single natural disaster in U.S. history....

Katrina and Rita on U.S. economic growth will be much less than some analysts had expected immediately after the storms' landfall. Admittedly, the human cost of the hurricanes is considerable. Yet from an economic perspective, natural disasters historically have had remarkably little impact on economic performance in the United States. Normally, there is an immediate short-term drop in activity followed by a rebound as reconstruction gets under way.

Hurricane Katrina caused far more monetary damage than any single natural disaster in U.S. history; yet the storm struck one of the poorest regions of the country, one that is not a major contributor to national growth beyond its pivotal role in the oil and gas industry. Some of the larger estimates for job losses ignore the fact that a substantial amount of economic activity is largely relocating to other regions of the United States. Indeed, nearby urban centers that escaped the storm damage have been booming. Although of small comfort for those whose livelihoods have been destroyed in the Gulf area, the catastrophe will boost economic activity elsewhere.

The effect of the rebuilding efforts on national growth will also be minor. The increase in federal government spending to help with relief efforts and reconstruction could reach US\$100 billion in fiscal year 2006 (October 2005 through September 2006). This is equal to less than 1 percent of gross domestic product (GDP), however, and will be spread out over the year. It will also be spent almost entirely within the Gulf Coast region, primarily in Louisiana and Mississippi. While output in these areas will eventually rebound, it will have little effect nationally, especially given the resultant rise in government borrowing and the likely impact on interest rates.

Second-Order Effects of the Hurricanes on the U.S. Economy

The U.S. economy is expected to slow in 2006, a result primarily of factors that predate Hurricanes Katrina and Rita. The continued monetary tightening is likely to have a greater effect on the financial health of the personal and corporate sectors than the rise in energy prices. In general, personal debt relative to income is high, making consumers vulnerable to rising interest rates. A greater share of personal income will need to be directed toward debt service, which will increasingly squeeze consumer spending, particularly in 2006.

This does not mean that Hurricanes Katrina and Rita are not having an economic impact. By causing a spike in oil prices, which quickly fed through to increases in gasoline prices at the pump, the storms have accelerated a decline in consumer confidence. The increase this year in energy prices is clearly having an effect on consumers, and this was the case even before the storms hit. Retail sales in August declined on an annualized basis by more than any previous month since the 2001 recession, and sales of gas-guzzling sport utility vehicles and light trucks slumped badly in that month.

The Federal Reserve Board has been raising short-term rates over the past year and a half, but 275 basis points (bps) of tightening have failed to feed through to long-term interest rates. There are many reasons for the flattening of the yield curve, but one factor holding down long-term rates has been bullishness by bond investors' betting on two events. They have been expecting, in the short run, that the Fed would ease back on the tightening process and, in the long run, that the low-inflation environment in the United States in recent years would continue. But with 12-month inflation rising to 4.7 percent in September and showing no signs of letting up, the Fed is quite anxious to move rates to a more neutral setting—where monetary policy neither stimulates nor curbs growth. This implies another 125 bps of tightening, according to the Economist Intelligence Unit.

It appears that the yield curve is finally beginning to steepen, now that financial markets have been spooked by accelerating inflation in the wake of Katrina and Rita and recent "hawkish" statements by Fed officials. Higher rates will feed into the mortgage market, which has been sustaining another inflated-asset market: housing. With real wages actually falling for most of the year, the housing market has underpinned strong consumer demand, as Americans rely on equity withdrawal from their houses to finance their appetite for consumer goods. There are initial signs that the housing market may be leveling off, and U.S. consumers are increasingly being squeezed by rising energy and debt-service costs. Thus, it appears inevitable that there will be a slowdown in growth to below 3 percent in 2006 from the 3.5 percent projected for 2005.

There are also risks to the Fed's stance. A tighter monetary policy could trigger a sharp correction in asset prices, particularly in the housing market and in the bond market where prices are exceptionally high (and yields low). In 1994, monetary tightening caused a bond market shakeout so severe that long-term interest rates rose by over 200 bps, the economy slowed markedly, and the Federal Reserve was forced to reverse course and cut interest rates. The risks, if anything, are greater this time. The private debt burden is higher, personal-sector balance sheets are reliant on house prices remaining high, and the bond market looks even more overbought. Even though it would be unduly pessimistic to assume that monetary policy tightening will cause serious economic problems later in 2006, it would also be rash to rule out such a possibility.

Supply Chains

While the main macroeconomic impact of the hurricanes will be seen in slowing output growth and higher interest rates, few businesses will have been unaffected by the disruption caused to supply chains in the United States and across the globe. But until Katrina ravaged the Gulf Coast, few may have understood the importance of the region's ports to the nation's supply chain. How many knew that a quarter of the country's stocks of green coffee beans are held at the Port of New Orleans—one of the world's

With the worst of the disruptions seemingly behind them, U.S. businesses are having to rethink how they do business, adjusting supply chains to take into account future risks.

busiest—or that half of the London Metal Exchange's reserves of zinc were warehoused there? Rita further revealed the importance of such ports as Lake Charles, Louisiana, and Beaumont, Texas.

With the worst of the disruptions seemingly behind them, U.S. businesses are having to rethink how they do business, adjusting supply chains to take into account future risks. The problem is not simply to keep lines of communication open with suppliers and customers. A leading sporting goods and apparel company found this out the hard way. The company's production and retail distribution operations emerged virtually unscathed from direct damage wrought by Katrina. But the firm relied heavily on the port at Gulfport, Mississippi, for importing fabric used in production at facilities in Mexico, Central America, and the Caribbean and then bringing finished product to U.S. markets. The company lost more than 40 containers of product at Gulfport.

It is beneficial for the economy that U.S. companies are again focused on managing risks to their supply chains. But firms will have to be careful not to become complacent if 2005 is followed by a year or two of relatively few disruptions. This was the case in 2001, when the September 11 terrorist attacks brought supply-chain concerns to the fore, only for contingency planning to lessen in importance in subsequent years. But as the 2005 hurricane season has shown, contingency planning has become a key element of corporate strategy. No one knows what the next major disruption to the supply chain might be—perhaps an earthquake or bird flu—and it might just emanate from the other side of the globe.

Gulf Coast

U.S. businesses and consumers generally may be looking ahead, but it will be difficult for the communities of southern Louisiana, Mississippi, and Alabama to forget the summer of 2005. With estimates of the total repair bill from Katrina alone approaching \$200 billion—more than the gross annual output of the region—it is clear that the devastation is immense.

Local governments throughout the region are struggling, and some have had to lay off most of their workers. Many residents are waiting for the restoration of basic services before returning, while municipalities cannot afford to run schools and public works departments for a lack of tax revenue. The state government in Louisiana estimates that Katrina and Rita cost local authorities \$3.5 billion in lost revenues, with state coffers taking a hit of \$1.5 billion; and the local economies continue to suffer. By law, the Federal Emergency Management Agency will pay up to 75 percent of the costs of cleanup and rebuilding incurred by local authorities, but even the remaining 25 percent is too much for many cash-strapped city governments.

But President George W. Bush has promised that the federal government will do “whatever it takes” to rebuild New Orleans and the surrounding

region. Yet even with these resources at its disposal, the region will never be quite the same. New Orleans, a city of fewer than 500,000 inhabitants and a metropolitan area population of 1.3 million, faces the likelihood that many of its residents will choose not to return. City officials have already announced that up to 50,000 out of 180,000 homes in the city may have to be bulldozed. Although some in Washington are beginning to wonder if the price tag for the cleanup and rebuilding is too high, the funds will begin to flood in; and slowly, the region will recover.

Industrial Sectors—Winners and Losers

Just as some regions have actually benefited in the short run from the Gulf Coast's misery, some industries are set to benefit from the hurricanes, while others will be hurt. But even within some high-profile sectors, there will be "winners" and "losers." In the oil industry, some firms will not be able to take full advantage of higher prices for crude, given the many offshore oil rigs that were lost. Furthermore, of the 20 refineries shut down by Katrina and Rita, only 9 are currently operating at full capacity. But firms that service the industry—for instance, by repairing rigs—are doing a booming business. And even those companies that suffered direct losses from storm damage are experiencing strong earnings growth. But record profits are likely to come to an end as energy prices begin to recede in 2006 and 2007.

Retailers would seem to be under threat from the effects of the storms and the impending slowdown in the economy. But in the short run, sales are actually holding up, even in the South, when compared with a year ago. Again, winners and losers will depend on individual firms and their ability to manage disruptions to their businesses. And here, a general trend is emerging: In many industries, the winners will be those companies that have appropriate risk-adjusted supply chains and strategies in place to deal with the looming economic slowdown.

Impact on the Insurance Sector

The direct impact of the 2005 hurricane season on the insurance industry will still take some time to sort out. According to estimates from Risk Management Solutions, Katrina will eventually account for \$40 billion to \$60 billion in insured losses; Rita, somewhere in the neighborhood of \$4 billion to \$7 billion; and Wilma, \$6 billion to \$10 billion. Most industry observers expect reinsurers to take the brunt of these losses. And unlike past storms, Katrina will probably result in far more losses on commercial lines than on personal lines. It would seem that premiums are set to increase substantially. But just how much will premiums be able to go up in the midst of a potentially sharp economic slowdown? With corporate profit sheets likely taking a hit in 2006, Katrina's impact could last even longer than initially thought.

Editor's note: This section was contributed by the Economist Intelligence Unit.

Overall Insurance-Market Consequences and Emerging Issues



In the aftermath of the costliest hurricane season on record—one that continues to wreak havoc on the Gulf Coast—we are left a roiled insurance market. At the time of publication, just two months after Hurricane Katrina and days after Hurricane Wilma, the insurance industry is facing a number of substantial issues whose outcomes will significantly affect the final impact the hurricanes have on insurers and insureds. There are few certainties among all the conjecture of industry professionals regarding the final impact of Katrina, Rita, and Wilma; however, there are a few issues on which we can all agree:

1. The burden of insurance losses among insurers will not be evenly distributed.
2. Coverage issues and reinsurance disputes will significantly affect final losses incurred.
3. Premium rates and capacity for all major property lines will be affected, with potential fallout for other coverage lines.

Hurricane Wilma made landfall in the Gulf Coast as this report was heading to press and, therefore, too late for inclusion as part of the overall discussion in this report. Early estimates are that Wilma caused between \$2 billion and \$10 billion in insured losses, potentially placing it alongside Rita in terms of financial impact.

Katrina: Uncertainty and Contradiction

On such issues as risk estimates, the burden of losses, and rate impacts, it seems that no two insurance-industry opinions concur. Catastrophic modelers estimate potential insured losses from Katrina that range from a low of US\$26 billion (EQECAT) to a high of US\$60 billion (Risk Management Solutions). Some insurers' executives claim that rates will go up across the board; some insurance analysts project a slowdown of insurance-market softening and, at most, a short-lived hard-insurance-market effect. Standard & Poor's (S&P) believes that reinsurers will bear the largest share of Katrina's costs, as a single storm involves only a single insured retention and puts the reinsurance industry on negative outlook. Analysts at Dowling & Partners Securities, LLC, indicate that as cost estimates rise above US\$40 billion, the finite limits provided by reinsurers can be "blown through the top," redistributing the loss burden back to primary insurers.

While the total magnitude of losses will not be known for some time, a significant discrepancy exists between early estimates by individual insurers and aggregate industry estimates. Historically, a greater percentage of the burden from hurricane-related losses has fallen on the personal lines insurance market; however, significant commercial industries affected

by Katrina indicate a reversal of this typical “market share.” Dowling & Partners predicts that 60 percent to 70 percent of the losses will fall on commercial lines versus 30 percent to 40 percent on personal lines. To date, commercial insurers have reported loss estimates of roughly US\$20 billion (both net and pretax), with most major insurance markets reporting. If 60 percent of the losses correspond to commercial lines and total industry losses are US\$45 billion (a low estimate), current reserve estimates are short by roughly US\$7 billion or 25 percent; demonstrating that the absolute impact on insurers’ balance sheets at this stage is not discernible.

Rita: A Dodged Bullet?

Although Hurricane Rita subsided as it approached landfall from a Category 5 to a Category 3 hurricane and largely missed the densely populated cities of Houston and Galveston, current estimates place it in the top 10 U.S. catastrophe losses for the insurance industry. Total aggregate loss estimates for Rita range from US\$2.5 billion to US\$10 billion, with significant damage inflicted on the cities of Port Arthur, Texas, and Lake Charles, Louisiana; to their oil refineries; and to nearby oil rigs. Rita’s impact on the insurance industry appears relatively small in comparison to Hurricane Katrina; however, the consequences of exposed vulnerabilities and failed models for the property reinsurance market will likely bring significant changes to both the insurance and reinsurance markets.

Pricing Uncertainty

Ineffective risk modeling and subsequent erroneous loss estimation of the impact a major hurricane could have in the Gulf Coast region has resulted in a dilemma for the insurance industry. Insurers are trying to price risks with what have proven to be questionable models, and buyers are uncertain about what to expect for pricing and capacity from the insurance market. There have been recent comments from insurers and reinsurers that property, marine, and marine-energy catastrophe rates might increase by 10 percent to 25 percent, with other lines such as aviation and casualty possibly hardening. The reinsurance prices being negotiated for the January reinsurance treaty renewals will provide an indication of things to come. However, the real rate impact of Katrina and Rita will be felt at year-end 2005 and into 2006 when insurers and reinsurers will be able to estimate the impacts of Hurricanes Katrina and Rita on their balance sheets with a better level of confidence.

In recent history, insurance-market-hardening cycles were triggered, at least in part, by an overall reduction in the property/casualty (P&C) insurance industry’s policyholders’ surplus—the amount by which the assets of insurers exceed their liabilities. In 2004, catastrophe losses for the industry were the costliest ever at US\$27.3 billion, yet policyholders’ surplus for the industry increased by 13 percent. Before Katrina, Rita, and Wilma, the P&C industry was on track to record an underwriting profit for

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the second year in a row—after having reported a net loss for 25 straight years. Rating agency A.M. Best Co. had estimated that the industry would generate net income of US\$32.5 billion. If there are no further major catastrophes in 2005—despite its being the new costliest year for catastrophes—the P&C industry may report net income and another increase in policyholders' surplus. On the surface, this would seem to imply that rates will not harden. However, the primary rate driver post-Katrina/post-Rita will not be the overall performance of the P&C industry; it will be the recently pummeled reinsurance market.

Reinsurers, unlike the direct insurance market, did not experience record levels of profitability in recent years. Legacy issues causing significant reserve development for prior years' losses, low interest rates, and an increase in natural catastrophes have hindered the profitability of reinsurers—especially the largest U.S. reinsurers. However, the reinsurance market as a whole posted significant net income and capital gains in 2003 and 2004. According to Fitch, Inc., another rating service, two-thirds of the industry-wide losses from Katrina—excluding State Farm's and Allstate's losses—will be absorbed by the reinsurance sector. Post-September 11 start-up reinsurers in Bermuda, with neither the asbestos nor the late-1990s soft-insurance-market pricing issues, are seeing profits from the first half of 2005 and, potentially, most of 2004 erased. As a result, they need to raise more capital in response to Katrina and Rita (for example, Montpelier Re, Platinum Underwriting Holdings Ltd., and PXRE). Rating agencies will likely demand more capital per a given amount of reinsurance risk assumed, leading to further capacity exiting from the reinsurance market. Thus, current reinsurance-market conditions indicate that reinsurance rates in affected lines will increase in both the short and medium term, with costs passed along to the primary insurers. Other lines of business might see the trend of insurance-market softening moderate in the short term due to uncertainty and insurers' goals of profitability.

Financial Security

With capital for the P&C industry increasing by more than US\$125 billion between year-end 2002 and June 30, 2005, sufficient capital exists in the insurance and reinsurance markets to pay for current loss estimates for Katrina and Rita; however, numerous factors will affect both the final aggregate loss figure and the burden of losses. As mentioned earlier, reinsurers could bear as much as two-thirds of the losses; but insurers that have exhausted their reinsurance coverages may also bear an unexpectedly larger portion of the total loss. The factors materially affecting the predictability and development of loss reserves are manifold and ongoing. The following is a brief list of some of the major factors that will determine the ultimate incurred insurance loss resulting from Katrina and Rita.

- **Reinsurance models:** Models based on PML (probable maximum loss) appear insufficient to depict reinsurers' ultimate exposures accurately. Many reinsurers will report final losses significantly greater than their models predicted.

- **Business interruption:** Business interruption and contingent business interruption losses will likely be larger for Katrina than for any other catastrophic event. Historically, no city has been closed; nor have businesses been shut down for such a prolonged period of time.
- **Mold:** Water damage will likely lead to mold damage and the need for cleanup, with the potential for claims for aggravated damages through loss of ingress and, possibly, claims for total loss of the affected properties.
- **Flood versus wind losses:** Court rulings will significantly affect this issue. Will valued-property law in Louisiana increase recoverables from private insurers (as contrasted with the federal flood insurance program) as it has in Florida?
- **Court rulings on various lawsuits:**
 - At least three lawsuits seek to have homeowners insurers pay for flood losses:
 - Mississippi Attorney General Jim Hood alleges the exclusions of flood losses violate state law.
 - Mississippi attorney Richard Scruggs alleges the cause of loss was storm surge caused by wind.
 - A Louisiana class-action suit alleges flood damage in New Orleans is covered because the flooding was caused by “improper and/or negligent design.”
 - A group of Louisiana fishermen is suing oil companies, claiming the companies did not design their facilities to withstand known hazards.
- **Liability exposure:** Will “deep pockets” (such as oil, construction, railroad, and insurance companies) be sued for damages from:
 - breached levees and infrastructure collapse; and
 - environmental discharge?
- **Government aid:** Will the Federal Emergency Management Agency (FEMA) or other governmental entities compensate victims of Hurricane Katrina? (Congress set up the Victim Compensation Fund of 2001 to compensate September 11 victims. Will there be similar legislation?)
- **Demand surge:** Upward pressure on building-supply costs and labor have led some insurers to offer to insure to 125 percent or 150 percent of replacement cost.

One Month Remaining

A scarred nation watched as Hurricane Rita appeared destined to sentence South Texas and the insurance market to a dire fate. Both were spared the level of destruction caused by Hurricane Katrina, but both were further crippled nonetheless. As the uncertainties and legal disputes caused by Hurricanes Katrina and Rita unfold, risk models will be reworked; insurers’ financial strength will be reviewed; and both will be tested another day. The overall P&C industry may yet report an overall profit for the year and an increase in policyholders’ surplus despite these catastrophes; however, hurricane season is not over until the end of November.

**Total Insured Loss Estimates
Resulting From Hurricane Katrina**

Organization	Estimate (in billions)	Date of Estimate
AIR Worldwide	\$61 to \$69	September 29
Brit Insurance	As much as \$50	September 6
EQECAT	\$26 to \$43	September 22
Fitch Ratings	\$25	September 2
Insurance Information Institute	Greater than \$21	September 6
Lloyd's Spokesman	\$15 to \$40	September 4
Munich Re	Up to \$40	September 28
PartnerRE Ltd.	\$30 to \$35	September 8
Risk Management Solutions	\$40 to \$60	September 9
Risk Management Solutions	\$40	September 9
Towers Perrin	\$40 to \$55	October 6

**Total Insured Loss Estimates
Resulting From Hurricane Rita**

Organization	Estimate (in billions)	Date of Estimate
AIR Worldwide	\$2.5 to \$5	September 24
EQECAT	\$3 to \$6	September 26
Insurance Information Institute	\$4.5	September 25
Fitch Ratings	\$4 to \$7	September 25

As of mid-October, Dun & Bradstreet estimated that there was a high likelihood that more than 214,000 businesses that had been in Katrina's and Rita's paths were still not in operation.

Specific Risk and Insurance Issues: Property

Issues and Impact

As already noted, insurers seem surprised at the magnitude and breadth of the claims arising out of Hurricanes Katrina and Rita since the size of these disasters was not in their models. Hurricane Katrina, especially, had a devastating impact on the property insurance marketplace. Never before had property insurers been affected to this extent by a single event that involved not only multiple geographies and businesses, but also multiple perils.

Properties in Alabama, Florida, Louisiana, Mississippi, and Texas were battered. More than 275,000 homes were destroyed—10 times the number flattened by Hurricane Andrew in 1992. Industries as diverse as gaming, health care, and transportation were affected, along with hospitality, real-estate, and retail companies and public entities. And as described in the following pages, marine and energy businesses were especially hard-hit.

There were nearly 70,000 businesses in the 10 Louisiana parishes affected by Katrina, and nearly all of them were disrupted in some way by the hurricane. As of mid-October, Dun & Bradstreet estimated that there was a high likelihood that more than 214,000 businesses that had been in Katrina's and Rita's paths were still not in operation. On October 20, the U.S. Labor Department reported that 478,000 people have lost their jobs as a result of Hurricanes Katrina and Rita.

The types of losses arising from the hurricanes and their aftermath may fall under multiple sections of a property policy:

- Hurricane losses are typically covered under the windstorm section and subject to a percentage deductible.
- Flood losses are generally covered under a flood endorsement and subject to dollar deductibles and flood-zone classification.
- Losses arising from denial of access, debris removal, riot, and civil commotion are typically covered elsewhere and subject to sublimits or differing deductibles.
- Business interruption coverage may be subject to dollar deductibles or waiting periods.
- Losses from off-premises power loss may have limited coverage.
- Contingent business interruption and interdependency losses—losses to locations that suffered no direct damage, but that are dependent on locations in the affected region—may be suffered by companies across the nation and around the world as a result of losses to suppliers and customers that sustained direct damage from the hurricanes.
- Mold, for the most part, is excluded by most property policies.

Many insurers are calling Hurricanes Katrina and Rita “insurance-market-changing” events and expect the back-to-back storms to end the two-year decline in property rates.

In summary, these hurricanes have shown that one event can lead to a multitude of insured—and uninsured—losses. It is critical both for insureds and insurers to be prepared for the worst.

Businesses that suffered losses are working to put together their claims, and some are looking at double-digit rate increases on renewal. Even businesses that did not suffer any losses are seeing their insurers scrutinize their catastrophe exposures. Rather than looking at the prospect of further reductions in their property rates, businesses will more likely be looking at increases.

Insurance-Market Consequences

Many insurers are calling Hurricanes Katrina and Rita “insurance-market-changing” events and expect the back-to-back storms to end the two-year decline in property rates. Additionally, many insurers are talking about returning property rates to their 2003 levels. Reinsurers and wholesale insurance markets are even more pessimistic than direct insurers. They were especially hard-hit by the events and are looking for the most significant rate increases.

But the responses by insurers have varied significantly, depending on the insured, the insured’s and the insurer’s catastrophe exposures, and the insured’s and the insurer’s losses.

Catastrophe-exposed risks—including (but not limited to) wind, flood, and earthquake—are experiencing the most significant program changes. Insurers are shifting around their catastrophe capacity, based on modeling and aggregation issues, continuing a trend that started even before Katrina. Catastrophe rate increases are ranging from 10 percent to more than 100 percent. Catastrophe deductibles are also increasing, with some insurance markets looking to expand their wind deductibles beyond just Tier 1 zones and others looking to combine wind and flood aggregates. Some insurance programs are reducing their reliance on difference in conditions (DIC) insurance markets by placing more catastrophe risk in their property placements, which entails involving more layers of coverage and more insurance markets to build the necessary capacity.

Businesses with no known catastrophe risks have generally seen their post-Katrina renewals varying from single-digit reductions to 10 percent increases. Insurers are making their assessments at this point on a case-by-case basis.

Insurers are continuing to quote new and renewal business, although it is taking them longer to deliver their premium quotations. They are seeking more detailed exposure information and watching what the insurance marketplace is doing before committing to price and capacity. Some insurers are insisting on “Best Terms”—meaning each insurance market in any one layer receives the same price—necessitating the replacement

of these insurance markets where clients have elected not to permit “Best Terms.”

Pre-Katrina, property insurance market capacity was well in excess of \$5 billion and growing. Catastrophe capacity, while significantly less than the \$5 billion “all risk” capacity, was generally sufficiently abundant to cover most risks. Since Katrina, we have seen a few reinsurers completely withdraw from the North American property insurance marketplace and many insurers and reinsurers restrict the catastrophe capacity they will commit to any one risk. Overall though, adequate capacity, even for catastrophe exposures, is still generally available—albeit, at an increased price.

A further complicating factor in the insurance marketplace at the moment is the uncertainty surrounding the renewal of the federal government’s Terrorism Risk Insurance Act (TRIA), currently due to expire on December 31, 2005. Without knowing whether this federal backstop will continue to exist into the new year, insurers are restricting their capacity in major metropolitan zones. Therefore, capacity is becoming an especially salient issue for risks with combined urban terrorism and catastrophe exposures. These risks are seeing the largest rate increases and undergoing extensive program restructuring in order to generate the necessary capacity.

Treaty reinsurance renewals on January 1, 2006, and in the early spring will greatly influence actions of insurers. The uncertainty over the terms and conditions of those treaty renewals may cause insurers to be fairly conservative in what they will insure—and at what price—over the next few months. It is likely that insurers will pass on any increased treaty costs to their policyholders and look to build replenishment of their now-depleted capital into their pricing models.

Builders Risk Insurance-Market Consequences

Although the U.S. builders risk insurance market appears to have escaped major project losses from Hurricanes Katrina and Rita, the impact of these events on the overall property insurance market may have an effect on individual builders risk insurers due to both the sharing of treaty reinsurance capacity with the insurers’ property underwriters and a possible retrenchment of facultative reinsurance.

While it is still early to forecast a broad hardening of this insurance-market segment, the hurricanes have already resulted in further reductions in builders risk capacity for projects in high catastrophe areas—particularly in southeast Florida. A number of insurers have pulled away from writing new risks in these areas, resulting in severe primary capacity problems for new projects. Most insurers have now reduced capacity in all coastal areas from North Carolina to Texas and are assessing significant monthly premium surcharges for wind and flood.



Suggested Strategies to Adapt to Changing Insurance-Market Conditions

There are a number of strategies that businesses can use in the face of today's uncertain property insurance market. Four of the most important follow:

- Get to the insurance marketplace early.
- Meet with the insurance markets in person.
- Be prepared to “sell” your account to the insurance markets.
- Weigh the impact of the possibility of higher retentions and higher insurance costs on your firm.

Marine and Energy

Issues and Impact

The post-Hurricanes Katrina and Rita picture in the marine and energy insurance market is still developing at this writing. From an energy perspective only, Hurricane Katrina produced moderate levels of catastrophe damage onshore and high levels of catastrophe damage offshore. In turn, Hurricane Rita produced only low levels of catastrophe damage onshore, but high levels of catastrophe damage offshore. Note: Much of the information about the damage, and particularly the information about the various rigs in the Gulf of Mexico, was taken from public information sources.

Hurricane Katrina

In the first days after Katrina, repair crews made good progress, bringing oil and gas production in the Gulf of Mexico back to life. The restoration of energy output to pre-Katrina levels stalled as industry specialists began to address some of the worst damage to the region's energy infrastructure.

As Katrina plowed through the Gulf of Mexico and slammed into the Gulf Coast on August 29, 2005, it resulted in shutting in 95 percent of all offshore crude oil and 88 percent of natural gas production and in closing about 10 percent of U.S. refining capacity onshore. At the height of the storm, a total of 482 platforms and 79 rigs were evacuated. These evacuations are equivalent to 58.85 percent of the 819 manned platforms and 58.96 percent of the 137 rigs currently operating in the Gulf of Mexico. The shut-in oil production of 901,726 barrels of oil per day was equivalent to 60.12 percent of the daily oil production in the Gulf of Mexico, currently approximately 1.5 million barrels of oil per day prior to the storm. The shut-in gas of 4.020 billion cubic feet of production per day was equivalent to 40.20 percent of the daily gas production in the Gulf of Mexico—approximately 10 billion cubic feet of production per day prior to the storm.

A.M. Best Co. expected that almost all rated insurers would be able to meet their commitments, although the ratings of a few might be lowered.

The damage being discovered to the offshore infrastructure has been increasing steadily; and we are aware of 58 offshore platforms and oil rigs having been damaged, with 37 completely lost. The closure of onshore facilities hit by Hurricane Katrina has meant that 10 percent of the U.S. refining capacity was knocked out of commission. Flooding and blackouts after Katrina are limiting access for damage assessment, repairs, and restoration of power. The refineries coming back to life are receiving 12.6 million barrels of oil from the U.S. Strategic Petroleum Reserve (SPR), the U.S. Department of Energy having authorized the release of crude oil from the SPR for refiners whose supplies were disrupted by the hurricanes. Although more than half of the eight refineries put out of action by Katrina are either up and running, in restart, or being checked in preparation for full-scale resumption of production, some look set to remain off-line for weeks or even months.

Insurers continue to tally the cost of Hurricane Katrina, with significant onshore damage to refineries adding to the cost of the offshore damage to platforms caught in Katrina's path. But it remains too early to estimate the total amount of losses, given the as-yet-undetermined business interruption and contingent business interruption costs. There is significant onshore damage to refineries; and we suspect that there is also damage to the pipelines, which will further affect business interruption claims.

A.M. Best Co. expected that almost all rated insurers would be able to meet their commitments, although the ratings of a few might be lowered. Best also said that issues likely to affect insurers and reinsurers include the 72-hour "occurrence" period used in reinsurance contracts, which means primary insurers will have two retentions; energy losses; the magnitude of losses from commercial properties in the coastal region; major infrastructure damage; and business interruption losses.

Hurricane Rita

Even though Hurricane Rita did not cause as much destruction onshore as Hurricane Katrina, two major refineries reported damage. These losses having occurred so soon after Katrina put additional pressure on the energy market.

The picture offshore is substantially different. Hurricane Rita caused far more damage to oil rigs than did Katrina. Despite the main part of the storm's path being to the east of the more mature concentration of rigs and platforms, it struck the western area of the Gulf where there is more exploratory activity.

Deepwater rigs in the Green Canyon area due south of Houma, Louisiana, had to deal with winds generated by Hurricane Rita that, at times, reached 155 mph and with seas that rose as high as 60 feet.

Mobile offshore drilling units were not the only casualties. A number of fixed platforms were lost in the South Timbalier, East Cameron, and Vermillion blocks.

Insurance-Market Consequences

While we cannot predict with certainty the precise effect Katrina and Rita will have on the marine and energy insurance market, upward movement of pricing seems the most likely scenario. Certainly, we are no longer seeing any rate reductions. And although the onshore energy-insurance market has breathed a sigh of relief that Hurricane Rita appears not to have produced an exceptional trail of destruction, there is every expectation that the treaty reinsurance market will impose substantial restrictions in terms of the catastrophe limits available at the December 1, 2005, and January 1, 2006, renewals.

With respect to the offshore insurance market, insurers have the more immediate problem that many of them have twice used up their aggregate reinsurance catastrophe limits. Some have reinstated their programs twice. Others may not be in a position to do that yet.

Shortly after Hurricane Katrina, S&P placed 10 insurance and reinsurance groups on negative credit watch as a result of increasing Hurricane Katrina loss estimates. While denying that downgrades were inevitable, an S&P credit analyst stated that “the credit watch placements highlight the continued uncertainty in accurately quantifying the insurance industry’s ultimate exposure” to Katrina losses.

Onshore Property

Before the back-to-back hurricanes and despite several refinery losses, the insurance market was experiencing continued gradual softening, broadening coverage, and higher policy limits. The profits generated for the past two years had led to slow, but steadily increasing capacity in the insurance market; and available capacity was in excess of US\$2 billion. Insurers were prepared to walk away from business below the profitability threshold or at least to reduce their participation on such business, but both coverage and capacity were still there. The insurance markets were continuing to seek quality risk-engineering information.

Now, insurance-market reactions to current renewals are mixed:

- Depending on losses, exposure array, geography, retentions, and limit required, reactions range from “as expiring” rates to triple-digit increases.
- Overall insurance-market capacity is fairly constant now, but we expect reductions going forward—especially as regards natural catastrophes.
- Renewals on an as-expiring basis are all but gone in the Europe/London insurance market.



- We expect upward pressure on deductibles—up to 60 days for business interruption and from 2 percent to 5 percent for direct damage to property from natural catastrophes as the new base line.
- January 1, 2006, reinsurance renewals are expected to be more expensive and more restrictive, with some compounding effect, as new terms are passed through to insurance buyers. The new catch phrase may be, “Pay more for less.”
- Insurers and reinsurers are likely to require additional and more detailed information for their new and revised modeling.
- On catastrophe modeling, insurers and reinsurers may start including factors for flood surge following catastrophe losses, which would further drive their PML/MFL (probable maximum losses/maximum foreseeable losses) estimates higher.

Offshore Property

Again, before Katrina and Rita, the insurance-market softening experienced during the second and third quarters of 2004 had already been halted by a succession of losses. The expectation was that insurers would reactively push for price increases across the board to counter their losses. In fact, differentiation arose between Gulf of Mexico (GOM) and non-Gulf of Mexico (non-GOM) businesses, with non-GOM business generally renewing “as expiring.”

It is too early to predict the aftermath; however, we are seeing evidence of insurance markets demanding increases across the board, including a “knock-on” effect for non-GOM business. October 1 renewals saw significant increases. Businesses with no Gulf exposure saw rate increases of 25 percent or more, while those with Gulf exposures saw increases in excess of 100 percent. Insurers are discussing:

- increasing rates further;
- providing sublimits for GOM exposures;
- excluding GOM exposures altogether;
- excluding GOM platforms built prior to a certain date;
- excluding business interruption coverage on GOM properties;
- increasing retentions for direct damage to property and waiting periods for business interruption;
- including a complete schedule of all GOM property in policy wording; and/or
- excluding “windstorm” coverage in the GOM region.

Some underwriters in London have used up their windstorm capacity, and those with windstorm coverage available are offering it to their renewal policyholders only. Windstorm capacity currently available in London for offshore exposure is estimated to be about US\$150 million.

The marine and energy insurance market is expected to worsen by the end of the year as losses and increased reinsurance costs are more fully realized.

Onshore Construction

Prior to the hurricanes, the marine and energy insurance market was already unsettled, shaken by some recent large-premium-volume projects. There were, however, indications that the insurance market was headed toward stabilization. “Favored” projects experienced softer insurance-market conditions. These included projects with large premiums, low exposure to natural hazards, significant participation by captive insurers, and/or high deductibles at the request of the insured.

There was a challenging environment for projects involving a significant amount of pipeline construction, poor loss experience, and/or low contract value, as well as those seeking low deductibles or purchasing high levels of delay in start-up coverage. Active capacity remained fairly constant, but was influenced by the nature of the project, its location, and the level of the insurer’s financial security acceptable to the policyholder. However, the anticipated demand was greater than the supply, meaning projects needed to compete for insurers’ attention. Guaranteed “maintenance” coverage remained effectively unavailable for the majority of projects.

A softening of the approach on “full design” coverage (the London Engineering Group’s March 1996 wording for extended defects) was available on most projects, provided that a mid-to-high deductible was applied, the insurer recognized the process, and experienced contractors and manufacturers were used. Natural perils had not affected rates, but there was a cautious stance on exposures to natural perils. And there was an increase in projects seeking DSU (delay in start-up) and ALOP (advance loss of profits) coverage.

Since the hurricanes, there have been no immediate changes. Again, it is too early to say what the impact will be, but we do anticipate changes to the current insurance market following year-end treaty renewals.

Offshore Construction

Before the hurricanes, stable insurance-market conditions had continued in 2005, with high rates and deductibles based largely on a two-tier insurance market:

- the “WELCAR” form, with coverage deficiencies that remain (for example, exclusions for faulty parts and/or faulty welds, insufficient limits or sublimit buybacks, and punitive deductibles); and
- the broad form, wider coverage, but with insufficient insurance-market capacity.

...there is an increased number of construction projects, all competing for insurance-market attention. It is important to ensure that key technical issues and/or challenges associated with each project have been identified.

A revised “WELCAR” form was still expected, but whether this would be later in 2005 or early in 2006 was unknown.

Since the hurricanes, some insurance markets are suggesting a 25 percent increase—even on non-GOM projects. Others remain stable. The insurance market has shown itself to be increasingly receptive to detailed technical presentations of project works and risk evaluations by responding with increased flexibility in terms.

Naturally, in the wake of the hurricanes, there is an increased number of construction projects, all competing for insurance-market attention. It is important to ensure that key technical issues and/or challenges associated with each project have been identified.

Marine Liability

The energy liability insurance market has generally been less affected by historic losses seen by the property insurance markets. The liability insurance-market results in the oil and gas sector have generally improved. Insurers are attempting to hold prices at least to the expiring policies’ pricing.

In the first quarter of 2005, the London and European insurance markets had started to show premium reductions. There are still small reductions across the board for both large and smaller accounts. The costs and influence of reinsurance are still significant, with treaty reinsurers still closely auditing direct insurers’ books of business. There appears to be a desire to maintain underwriting discipline, with insurers’ continuing to demand detailed and comprehensive underwriting information. Capacity is generally stable, and Lloyd’s capacity has shown no significant change since 2004.

Cargo

The post-Katrina and post-Rita major marine-cargo insurance markets in London and in the United States are responding differently.

- The marine Lloyds’ syndicates include underwriters for marine and energy lines of insurance. Since many of the energy businesses suffered significant losses (in many cases, “full limit” losses), there has been a more immediate effect on the marine underwriting of those syndicates that share the energy and marine risks. Accordingly, the London insurance market has responded by looking for increases on much of its business effective immediately. We expect to see these increases at all levels, including policyholders that need excess-capacity placements and those that have low loss ratios.
- The U.S. cargo insurance market does not have the direct link to the energy business that the London insurance market does. As a result, U.S. cargo insurers are still willing to negotiate attractive deals on both renewals and new business. We continue to see decreases on low-

loss-ratio business; however, the U.S. cargo insurance market is heavily dependent on reinsurance. Although many U.S. insurers renewed their annual treaties in July, pre-Katrina, there are a significant number that renew at year-end, and we would expect to see increases in their reinsurance costs.

Suggested Strategies to Adapt to Changing Insurance-Market Conditions

Both onshore and offshore insurance markets have specific driving issues as well as many common concerns, including enforcement of underwriting discipline and greater requirements for detailed information to feed new models. Marine and energy policyholders should be prepared to provide more information such as:

- descriptions of exact locations;
- methodology for developing values for direct damage to property and for business interruption; and
- platform age, air gaps, and so on.

In addition, businesses should perform a realistic evaluation of the dynamics and the future direction of the insurance marketplace. Reinsurance renewals will drive the ultimate size and shape of the marine and energy insurance marketplace.

The marine and energy insurance market is in flux and likely to remain so until early 2006, when most reinsurance renewals will have been completed and a better picture of the losses from Hurricanes Katrina and Rita will be available. It is critical to start working on renewals early and to attempt to secure renewal terms and pricing early to mitigate the effects referenced above.

Environmental

Issues and Impact

Hurricanes Katrina and Rita created unprecedented environmental challenges in the affected areas.

The U.S. Environmental Protection Agency (EPA) estimates that 100 million cubic yards of waste material will require identification, collection, management, and disposal—five times the volume created by Florida’s Hurricane Andrew in 1992. Officials have likened this volume to 1,000 football fields being covered with 50 feet of material. It may take up to two years to complete disposal operations. Closed landfills may need to be reopened to accommodate the waste volume. Previously uncontaminated

materials and properties have become contaminated with chemicals and bacterial matter.

The U.S. Coast Guard calculates that 7 million gallons of oil were released in southeast Louisiana, approximately two-thirds the volume spilled from the Exxon *Valdez*. The soup of sewage, chemicals, fuels, and trash is being pumped from inhabited areas into waterways and Lake Pontchartrain.

As of November 9, the EPA had collected more than 980,000 containers of hazardous household and orphaned waste throughout the region. The EPA is still assessing the impact from Hurricane Katrina on 24 Superfund sites on the EPA's National Priorities List (NPL) and from Hurricane Rita on another 30. NPL sites are the worst of the nation's hazardous-waste sites, and several of them were completely flooded. On the whole, however, the EPA did not find as significant a release of industrial chemicals as had initially been expected.

The EPA is also still assessing nearly 3,000 drinking-water systems, dozens of which are still contaminated or are not operational.

In light of these issues, several key environmental risks are developing:

Third-Party Liability

Surrounding property owners or the community may target certain facilities and file claims that might include property damage related to chemicals released during the hurricane or flooding and bodily injury related to alleged exposure to chemicals in the air or in sediments.

Regulatory Uncertainty

While bills have been introduced in Washington to provide various types of relief from certain environmental requirements, the scope and duration of such relief is not yet known. Emergency orders have been issued by the affected states that also provide various levels of short-term regulatory relief. Issues concerning regulatory relief will continue to prove controversial and will become increasingly refined to address individual barriers to cleanup, redevelopment, and start-up.

Debris/Waste Management

Cleaning up waste and debris can present a serious hazard, and the process should be controlled and planned to avoid exposing employees, contractors, and the community. For instance, without a clear understanding of the materials, incompatible chemicals may become commingled and react to create fires or explosions. Government-led cleanup operations may involve using portions of industrial sites as staging and separation areas for waste or debris. These activities pose the potential for creating new pollution conditions on the property or possibly exacerbating existing conditions.

Waste-management and disposal contractors should be carefully assessed...there are likely to be individuals who take advantage of this situation... which typically results in liability for the waste generator.

The waste-disposal infrastructure in the affected states is projected to become overwhelmed.

Waste-management and disposal contractors should be carefully assessed. Unfortunately, there are likely to be individuals who take advantage of this situation. As a result, the wastes may not get to a regulated facility, which typically results in liability for the waste generator. Reliance on incineration may cause problems as well. During the 1992 Hurricane Andrew cleanup in Florida, debris incinerators operated by the U.S Army Corps of Engineers in compliance with state and environmental requirements were shut down due to protests from activists and from the general public.

Cleanup Liability

Apportionment and allocation of cleanup costs represent a significant potential liability. Site contamination is resulting from new on-site releases, exacerbation of existing contamination, off-site migration of contamination, and impacts to your properties from third parties. Owners of previously uncontaminated property are now facing potential cleanup requirements. Ongoing remediation projects are experiencing major disruptions in remediation activities, technologies, and controls. Legislative solutions may be developed to address these highly complex issues, but there is no guarantee.

Claims Viability

It is critical to ensure that any claim is reported in a timely manner in order to preserve your rights in the future. However, constraints on access to sites in the affected areas may contribute to delays in claims reporting.

Current environmental policy offerings may include coverage for business interruption, cleanup-cost overruns, and certain known and disclosed preexisting conditions, as well as for liability associated with nonowned sites. Policies differ in their terms and conditions, exclusions, and coverage grants; but one issue remains relatively constant: the general need for a discharge, dispersal, or release of a pollutant into the environment to trigger coverage under a policy. There appears to be developing uncertainty about how insurers will address the concept of a release in the aftermath of massive flooding and its effects on claims resolution.

Start-up, Rebuilding, or Property Disposition

Restarting site operations can result in compliance risks. Owners and operators should be aware of regulatory constraints and reporting requirements related to starting up. Operations should be closely monitored during the start-up activities to determine if any previously unidentified conditions exist that may cause or contribute to environmental problems.

One environmental risk likely to be unique to the commercial building owners that face renovation and repair is mold. As owners renovate and

...at least one major provider of specialist environmental insurance expects reinsurance rate increases that will likely result in direct insurance rate increases.

repair structures, careful attention must be paid to building materials that can harbor mold growth. In an effort to perform renovations as quickly and as cost-effectively as possible, owners of some buildings might be inclined to replace only those building materials where water damage is evident. Unfortunately, extensive mold growth can occur behind walls, on building studs, and under flooring. Extra caution should be taken to determine if any of these contain moisture.

Companies may choose to abandon, sell, or redevelop sites located in the affected areas. Depending on the nature of the intended reuse of the property, state and/or federal regulations could compel investigation and remediation to a range of cleanup standards. Residential exposures (such as apartment buildings, condominiums, daycare facilities, and nursing homes) will require a higher degree of remediation; commercial structures (such as retail and office) will require less; and industrial facilities, generally, the least. One area of uncertainty is the extent to which industrial facilities facing rebuilding will be required to implement some remedial action.

A decision to abandon or mothball an affected location may have balance-sheet implications as well. Recent guidance issued by the Financial Accounting Standards Board (FASB) requires that unrealized environmental liabilities associated with Conditional Asset Retirement Obligations must be quantified and disclosed in accounting statements for fiscal years ending after December 15, 2005.

Finally, facilities may be required to upgrade pollution-control equipment as a result of triggering new control-technology requirements based on the cost of repairs/rebuilding. While some property policies may have been amended to cover the increased costs of construction associated with repairing damage, environmental-compliance costs are likely excluded. Companies may find themselves responsible for significant unexpected—and uncovered—costs for pollution-control upgrades.

Insurance-Market Consequences

Frequent discussions with leading providers of environmental impairment liability (EIL) coverages indicate that to date, a relatively small number of claims or potential claims have been reported. Early efforts to assess the impact of pollution releases are likely being hampered by lack of access. Hence, at this point, no immediate impact in underwriting guidelines or terms and conditions is discernable. There is an expectation that claims activity will increase as policyholders gain access to their facilities and take stock of environmental damage. As a result, it is too early to predict insurance losses or the potential for short- and long-term effects on environmental insurance coverages. That said, at least one major provider of specialist environmental insurance expects reinsurance rate increases that will likely result in direct insurance rate increases.

Given the magnitude of the environmental impact of the back-to-back storms, the predicted long duration of the cleanup effort, and the anticipated difficulty in assessing culpability, it will be some time before EIL insurers have a clear picture of their loss exposures related to these two events. Losses to primary EIL insurers will be limited due to the relatively small number of U.S. businesses that purchase EIL insurance. As a result, it is unlikely that loss experience from primary EIL insurers will, on its own, drive rate increases. However, many insureds will look to nonspecialist P&C policies for coverage. While many will find that they have no coverage, due to the “absolute” pollution exclusions prevalent on these policies, policies that do have limited coverage could result in substantial losses to nonspecialist insurance markets. This may have an indirect impact on EIL rates, terms, and conditions.

While it is too early to predict with any certainty what changes will occur, a number of factors related to the EIL insurance marketplace point to hardening of price and, in certain instances, changes to capacity, terms, and conditions:

- Historically, EIL rates, terms, and conditions have exhibited surprising stability during insurance-market softening or hardening events. This is likely due in part to the high net lines—amounts not reinsured—retained by primary EIL insurers. Any downward trend in primary net lines could affect pricing and capacity; and prior to these events, we had begun to hear that some primary EIL insurance markets were considering lowering their net lines.
- Another factor that may have influenced the stability described above is the perceived discrete nature of environmental risk. Given the potential for loss on multiple lines of coverage, this event will likely raise the overall insurer awareness to the potential for an aggregation of environmental exposures from a single event. We can expect that reinsurers will begin to ask how insurers are monitoring and/or controlling their aggregates. It is possible that if reinsurers, over the long term, continue to perceive this to be a problem, they will start modeling aggregations of risk themselves.
- Over the past several years, the number of reinsurers willing to provide treaty capacity for environmental risks has shrunk. This trend has been exacerbated by a tightening of the criteria that primary insurers use to develop their shortlists of potential treaty participants. As a result, reinsurance capacity is constrained. While we do not anticipate broad reduction in capacity, there is the potential that hardening of general reinsurance pricing could lead to rate increases in order to avoid redeployment of capital to other lines of business. It remains to be seen if this will have a meaningful impact. Prior to Katrina and Rita, with few exceptions, we have not found that available capacity is a limiting factor in solving businesses’ environmental insurance needs.
- In all but a few cases, EIL policies are provided by excess and surplus (E&S) lines insurers—insurers that generally provide coverages not

available from the traditional insurance markets. Historically, E&S insurance markets have provided capacity for hard-to-place risks. We anticipate that these insurers will be particularly hard-hit by Katrina property losses. The net effect of these issues may well be upward pressure in EIL rates over the short to medium term.

- In recent years, we have seen a noticeable improvement in the availability of coverage for mold-related claims. Given the widespread flooding in much of the Gulf Coast region, it is likely that restrictions on mold coverage will become evident, particularly in storm- and flood-prone areas. Any trend is likely to be more severe as regards portfolios of coverages involving significant amounts of habitational properties.
- The expected contamination of wetland and wildlife areas as a result of chemical releases from industrial sites and the pumping of contaminated floodwater could restrict the availability of coverage for natural-resource damage in industrialized coastal areas prone to flooding.
- There is the potential that this event will exert pressure for change in how environmental insurance is written. The EIL insurance marketplace is dominated by long-term, transactional solutions. In an effort to obtain a better balance between long-term, nonrecurring solutions and short-term recurring policies, insurers have begun to limit policy terms. This trend will likely gain pace as insurers come to terms with the impacts of Katrina and the increased uncertainty inherent in multiyear policies.

As previously mentioned, the number of U.S. businesses that purchase EIL coverages has been relatively limited. It is likely that this event will raise the overall awareness of many risk managers to the potential for environmental loss and result in an increased demand for specialist EIL policies. Further, it is likely that any changes in rates, terms, or conditions will be more prevalent in circumstances of complex, long-term solutions. This “adverse selection,” together with a trend to write more “short-term” policies, will lead to increased competition on the smaller, less complex areas of environmental insurance. This could have an overall dampening effect on the magnitude of any change.

Suggested Strategies to Adapt to Changing Insurance-Market Conditions

Review of Insurance Programs

Companies should review their existing insurance coverage to understand if their current insurance is adequate or if additional coverage is necessary to respond to the risks that are the result of a significant event. Many businesses have not taken advantage of the environmental insurance available for ongoing operations and the risks and exposures that exist even when events might appear to be minor. Pollution liability and cleanup cost-cap coverage will increase an organization’s ability to manage unexpected events and reduce the financial impact on the company.

Companies should oversee or monitor the management and disposal of wastes for which they have responsibility.

Review of Operational Environmental Requirements and Limitations

Companies must be familiar with the requirements that affect restarting their operations. Adequate documentation of the start-up efforts and activities should be developed and maintained by companies. Time limits on hazardous-waste accumulation and air-emissions requirements may be enforced unless legislation is passed to shield companies from enforcement of operational compliance during cleanup and start-up.

Waste and Debris Management

Companies should oversee or monitor the management and disposal of wastes for which they have responsibility. It is important to reduce potential long-tail liability for disposal that can be created during initial cleanup phases, developing and implementing methods for waste identification and segregation to prevent unintentional reactions from incompatible materials. In the event a waste and debris collection, staging, or segregation point is located on your property, consider determining how your liability may be affected by the creation of new pollution conditions potentially stemming from the operation or by the exacerbation of existing conditions.

Base-Line Site Conditions

Companies should assemble permits and technical or regulatory documents to establish base-line conditions for the facility. In the event another entity or regulatory agency implicates the company in certain pollution conditions, the company should be able to substantiate its preexisting environmental condition.

Claims Management

It is critical to ensure any claim is reported in a timely manner in order to preserve your rights in the future. One idea to consider is having the response/cleanup actions be managed, overseen, or reviewed by environmental claims experts.

Review of Emergency-Management Plans for Response During a Future Emergency

Companies may find that existing emergency-response plans did not work as anticipated or did not cover relevant elements of their operations/risks. Owners and operators should review their plans to ensure that they are integrated with all necessary operational aspects.

Legislative Responses to Katrina/Rita Relevant to Environmental Management

In order to better understand what environmental liabilities are likely to be mitigated—as well as those that remain—companies monitor legislative developments that provide relief.

Businesses with employees directly involved in recovery efforts will be confronted with the potential for injuries and illnesses that they would not otherwise face.

Workers Compensation

Issues and Impact

Businesses with employees directly involved in recovery efforts will be confronted with the potential for injuries and illnesses that they would not otherwise face. Appropriate preventive measures to mitigate those exposures should be taken.

In addition, both the interruption of normal business and the approach to recovery taken by businesses will have an impact on their premium calculations. The most obvious element is that decreased payrolls will reduce the auditable element of workers compensation (WC) policies. The less apparent implication arises from the many benefits—such as housing and food—that employers may be providing to employees who have suffered losses from the storms. Insurers will consider those benefits to be remuneration and, thus, subject to audit in determination of workers compensation premiums.

Businesses are struggling—and will continue for some time to struggle—with a range of devastating effects arising from Hurricanes Katrina and Rita:

- Some companies have been unable to account for all their employees.
- Proper investigation protocols for workers compensation are impossible, due to the current state of affairs.
- Filing state-mandated first reports of injury is difficult.
- Prior medical records will be unavailable for an extended time, further complicating matters.
- Treating physicians are unavailable (some have moved away, some are missing, and some are deceased).
- Complying with state regulations becomes a struggle for out-of-state medical providers, as they are unfamiliar with jurisdictional issues. This will slow the process down considerably and, worst-case scenario, halt the process altogether.
- Communication, so vital to the workers compensation process, becomes extremely difficult, as WC claimants are now displaced all over the United States, and obtaining needed information is almost impossible.
- Insurers' and third-party administrators' adjusting staffs will also be displaced, deceased, or in some other way disrupted, affecting the processing of a volume of claims. The replacement adjusting staffs will likely be unfamiliar with jurisdictional regulations.
- Compensability decisions are further complicated by claims for certain traumatic injuries, such as post-traumatic stress. The exception will be for public-safety personnel, due to the timing of the hurricanes, which occurred on a Monday and over a weekend.

- Benefit payments will be delayed and complicated due to the inaccessibility of banks in the affected areas.
- Secondary injuries—such as mental stress and hepatitis—will be complicated by the causality issue. It will be difficult to isolate the cause of loss because the loss of home or family, attempts to recover personal items, and efforts to assist others also expose individuals to such secondary injuries.

The outpouring of relief aid to the hurricane victims is heartwarming. However, certain issues must be considered. This is illustrated by the case of a U.S. firm with Canadian operations that was considering sending employees who wanted to volunteer in hurricane-damaged areas. Questions arose as to whether workers compensation coverage is in place for the employees under the business's current U.S. insurance policy if they were originally hired outside of the United States.

This case illustrates the complications that can arise with workers compensation coverage, even for employers not directly affected by the hurricanes. Employers need to understand that employees serving as volunteers will be governed by the jurisdiction in which they reside, not where they are sent to assist. Some states will "allow" claims against employers that encourage their employees to volunteer, while other states will deny claims if the activity of volunteers does not substantially involve performance of their usual line of work and/or is not in furtherance of the employer's business. Such issues must be examined on a case-by-case, state-specific basis. (Please see the "Analysis of Coverage for Volunteers" comparison at the end of this document.)

Insurance-Market Consequences

The cost of catastrophe reinsurance purchased by workers compensation insurers may increase in 2006 since most of the reinsurers providing catastrophe coverage for workers compensation are also significant writers of property catastrophe coverage. The effect on the pricing of direct insurance remains to be seen, as the treaties for most of the major casualty insurers were not up for renewal on October 1.

Increases in cost for workers compensation catastrophe reinsurance, coupled with the likely expiration of the Terrorism Risk Insurance Act (TRIA), are expected to affect both the availability and the cost of workers compensation coverage. The impact will probably be felt primarily by employers with high concentrations of employees in single locations. However, since insurers will be monitoring and controlling their aggregate catastrophe exposures across their books of business even more closely, there will likely be an impact on smaller employers located in areas with a large work-force population.

Many businesses in the storm-damaged areas are experiencing changes in their risk profiles and exposures as they take extraordinary steps to resume operations and/or to support recovery efforts in their communities.

Suggested Strategies to Adapt to Changing Insurance-Market Conditions

Early dialogue with your current workers compensation insurer is critical to identifying whether you should pursue alternatives as a precautionary measure. Insurers may require detailed information on the physical location of each employee for the next renewal, whereas this had been required only for locations with more than 100 or 300 employees in the past—depending on the insurer. Businesses should, therefore, review their available information to ensure that they are prepared to respond to this new information requirement.

General Liability

Issues and Impact

There will likely be litigation against certain parties as a result of Hurricanes Katrina and Rita, alleging that their negligence was the cause of or at least contributed to storm-related damages or deaths. Most of the defendants in these suits will probably be health care institutions and public entities.

Many businesses in the storm-damaged areas are experiencing changes in their risk profiles and exposures as they take extraordinary steps to resume operations and/or to support recovery efforts in their communities. These include exposures such as providing housing and food to employees and their families and making available to the general public facilities that would otherwise be restricted to employees and service providers. While most general liability policies would automatically provide coverage for these new exposures, businesses should analyze and manage these new risks and communicate with insurers to confirm that coverage will apply.

As with workers compensation, the interruption of normal business will have an impact on the premium calculations under policies subject to audit. The most obvious element is that decreased revenues and payrolls will reduce the auditable element of policies based, at least in part, on those exposures.

Insurance-Market Consequences

We do not expect a substantial reaction in the general liability insurance marketplace to Katrina and Rita. Rather, the more likely effect will be the overall insurance-market reaction from multiline insurers to the impact on their overall profitability. From what we have seen thus far, we anticipate that there will not be enough third-party claims arising out of the hurricanes to warrant any direct rating or underwriting reaction.

There are two likely exceptions to this: health care institutions and municipalities. These two industry sectors may experience significant

enough claims activity to trigger new underwriting requirements or even rate increases. The long-term effects in these two sectors may not be clear for some time, as each state in the Gulf Coast region has its own statute of limitations. As a result, some third-party claimants may not file their lawsuits until a year or more from now.

Suggested Strategies to Adapt to Changing Insurance-Market Conditions

As we have already stated, there are certain tried-and-true strategies to help deal with an insurance market that may be changing:

- Get to the insurance marketplace early.
- Meet with the insurance markets in person.
- Be prepared to “sell” your account to the insurance markets.
- Weigh the impact of the possibility of higher retentions and higher insurance costs on your firm.
- Be prepared to discuss disaster preparedness and emergency-response plans in more detail with insurers.

An early discussion with incumbent insurers to determine their intentions should leave adequate time to pursue alternatives.

Aviation

Issues and Impact

While neither Katrina nor Rita caused any significant aviation losses, the aviation insurance marketplace will likely be affected by these two events. The initial impact will probably be felt in the aviation reinsurance market, where the majority of direct aviation insurers’ programs renew in the period from October to January each year. Many of the reinsurers deploy some of their capital to the aviation insurance market; but in light of the back-to-back hurricanes, capital providers may shift some of their capacity to a potentially more profitable P&C book of business, thereby reducing aviation capacity.

Insurance-Market Consequences

Prior to Katrina, the trend for premium reductions in the 10 percent to 15 percent range had been expected to continue. Now, however, the main core of aviation reinsurers are suggesting up to 10 percent increases for renewals of insurance programs structured with a US\$250 million retention. Direct insurers are not necessarily accepting these higher terms and are currently exploring their options. To date, one major insurer has renewed its treaty with a single-digit increase.

One of the direct results of Hurricanes Katrina and Rita will be a boom in construction projects.... The US\$200 billion estimated for rebuilding will cause a huge lack of materials and a strain on the work force in the Gulf Coast region....

If reinsurers are successful in increasing premiums, the effect will permeate the direct insurance market, although probably not tangibly during the last quarter of 2005. It is possible, however, that the impact of Katrina will be the slowdown (and, in some cases, the cessation) of premium reductions to airline clients with policies that expire/renew in the fourth quarter and premium increases to aerospace clients when their policies are renewed.

Suggested Strategies to Adapt to Changing Insurance-Market Conditions

Companies should focus on every opportunity to develop more capacity on the aircraft products liability side. One way companies can accomplish this goal is by retaining more risk, such as self-insured and quota-share retentions. Aerospace industry captives could also effectively represent industry interests and directly increase its influence in the aviation insurance market.

Other Lines

Issues and Impact

One of the direct results of Hurricanes Katrina and Rita will be a boom in construction projects. Contractors, architects, engineers, and a variety of other industries connected with construction will be affected. The US\$200 billion estimated for rebuilding will cause a huge lack of materials and a strain on the work force in the Gulf Coast region, causing contractors to draw on resources from other parts of the country. One possible outcome of this demand/supply disconnect may be a push by some contractors for suspending surety requirements, suspending competitive bidding, and removing retainage—the amounts that owners usually hold back against satisfactory job completion.

Another area affected may be trade credit. Most trade-credit insurers have indicated that they anticipate an increase of claims, but that it is too early to determine the extent of that increase. Euler Hermes ACI (<http://www.eulerhermes.com>), the largest trade-credit insurer in the world, has confirmed that it has significant exposure in the Gulf states. Atradius (<http://www.atradius.com>), the second largest trade-credit insurer, has indicated that it also anticipates an increase in claims.

Insurance-Market Consequences

Directors and officers (D&O) liability rates remain favorable at this point; however, there are several issues that will bear close scrutiny over the next year as a result of the hurricanes which could lead to rate or coverage changes. One issue is the potential for lawsuits arising out of the failure to

Companies that have seen increased slow payments from customers in the Gulf region may consider contacting the National Association of Credit Managers....

purchase and maintain adequate insurance or other types of shareholder or derivative suits that somehow tap into the D&O insurance market. This could cause rates to increase and/or coverage to be restricted. We do not anticipate this happening, but it is a possibility.

The major issues arising out of Katrina and Rita for other lines of coverage are still unfolding. Clearly, the impact is more obvious and direct on coverages already discussed. However, at least some reinsurers are likely to want to recoup their losses with overall increases in pricing that will affect the entire P&C insurance market.

There is also an expectation that pricing for weather-related and energy-related insurance products will rise in response to long-range forecasts, which predict increased hurricane activity for the next 10 years.

Insurers' reactions have been mixed in the lines of coverage less directly connected to the damage in the Gulf Coast region. For example, the largest insurers in financial-services lines of coverage have not reacted directly. There have not been, nor do we anticipate, any limitations of coverage due to these events; and rates have not been increased.

Suggested Strategies to Adapt to Changing Insurance-Market Conditions

In addition to the strategies suggested for each of the specific areas of risk and insurance earlier in this report, there are alternative risk solutions that may be appropriate for some businesses and some risks. For example, both single-parent and group captives offer an alternative to the traditional insurance markets; however, the negative impact to the reinsurance market will also affect any captive that purchases reinsurance.

Companies that have seen increased slow payments from customers in the Gulf region may consider contacting the National Association of Credit Managers (<http://www.nacm.org>), which has been guiding credit managers on how to deal with slow-pay situations arising out of the hurricanes.

As the insurance market in financial services is not changing due to the hurricanes to date, we would advise our clients to make sure they keep abreast of all developments, watch the reinsurance market closely, and be prepared to market their account if the climate changes.

Performing a comprehensive risk-retention analysis will aid organizations in implementing P&C programs designed to maximize financial benefits while minimizing unnecessary or potentially material adverse risk assumption.

Businesses can help ensure their survival when faced with a catastrophe by using a plan that aids in quickly restoring essential services....

Preparation and Recovery

Unfortunately, Hurricanes Katrina and Rita will not be the last hurricanes. Hurricanes Wilma, Alpha, and Beta have already come ashore, although not in the same locations as Katrina and Rita. And even if Beta is the last hurricane of this season, there will be more hurricanes next year and the year after that. Businesses should consider developing strategies to help them cope with future storms. Whether your business has suffered direct damage this year or only the indirect aftermath of Katrina and Rita, it is in your best interest to be prepared for what may come your way in the future. Following are some actions your business may consider:

- **Loss-management plan:** Before a storm hits, businesses need to consider undertaking pre-loss actions such as developing business-continuity and crisis-management plans, establishing internal and external communications procedures, putting in place and testing emergency-response plans, assessing the resilience of their supply chains, instituting data backup and recovery protocols, evaluating levels of insurance coverage, and creating post-loss claims accounting and filing systems.
- **Natural-hazards risk assessment:** Computer modeling can be used to analyze and quantify a business's property risks and develop strategies—both risk management and insurance solutions—to help mitigate natural hazards.
- **Business-continuity management:** Businesses can help ensure their survival when faced with a catastrophe by using a plan that aids in quickly restoring essential services and determining the appropriate procedures and necessary tasks associated with storm watches, warnings, and emergencies.
- **Emergency-response planning:** Businesses should consider organizing a team to prepare their facilities for an approaching storm. The same team can direct preparedness, response, and recovery efforts. During a storm or other extreme event, it is vital to safeguard employees, visitors, and the public and to specify primary and backup emergency operation centers.
- **Supply-chain management:** Businesses should identify, quantify, and prioritize critical weather-related risks that may affect their supply network and develop strategies to mitigate the exposure, including identification of the best available alternatives. This can help businesses resume operations as quickly as possible following a storm.
- **Claims consulting:** Businesses should have an understanding in advance of the possible extent of property losses and of business interruption, extra expense, and other time-element losses. Being able to calculate

such losses quickly and accurately following a storm can aid in a speedy recovery of operations. It is also important to consider losses attributable to the inability to enter a facility because of emergency decrees by government officials.

- **Forensic accounting:** Forensic accounting allows organizations to track loss-related costs and expenditures more accurately and completely. It lays the groundwork for more detailed loss measurement and recovery by measuring and documenting all aspects of property damage, business interruption, and extra expense damages.

Analysis of Coverage for Volunteers

State	Volunteer Coverage / Endorsement	Explanation	Election of Benefits / Jurisdiction	Explanation
Alabama	Volunteers are generally not covered. Coverage is voluntary for volunteer firefighters or rescue-squad members.	Title 25, Chapter 5, Code of Alabama. §25-5-1, 25-5-50	Dependent on other state.	Employee injured or killed outside the state who would have been entitled to compensation within the state will receive such if certain prerequisites are met. Payments made by another state will be credited against payments due under this section (§25-5-35).
California	Volunteers are not automatically covered; coverage must be effected by endorsement. Volunteers for certain public agencies—including fire departments, recreation and park districts, and other public agencies—may be covered outright or by adoption. Volunteers for private nonprofit organizations may be covered if declared in writing by their boards prior to injury.	Labor Code §3350-3364	No, if there is a contract of hire and the injured is a California resident at the time of injury—regardless of state of injury.	The Division of Workers' Compensation, including the administrative director, and the appeals board have jurisdiction over injuries sustained outside of the state if the employee was a resident of California at the time of injury and the contract of hire was made within the state (§5305). An employee hired or regularly employed in this state and injured outside the state (or his or her dependents in case of death) is entitled to compensation under the law of this state. An employee hired outside of this state and his or her employer shall be exempted from this state's workers compensation law while temporarily working in this state if such employer has workers compensation coverage under the laws of another state, provided the other state grants reciprocal recognition (§3600.5).
Florida	Volunteer firefighters and volunteers for governmental entities are provided coverage; all other volunteers are excluded from coverage.	§440.02 Definitions (17) (b), employees include 3. volunteer firefighters responding to or assisting with fire or medical emergencies. (d) employee does not include; 6. A volunteer, except a volunteer worker for the state or a county, municipality, or other governmental entity.	May file in Florida or other states.	§440.09(1),(d) Employees injured out of state may file for workers compensation benefits if the contract of hire was made in Florida or the employer's principal place of business is in Florida. If the employee receives benefits from another state, he/she may file for Florida benefits, but total benefits may not exceed Florida's benefits.

Analysis of Coverage for Volunteers

State	Volunteer Coverage / Endorsement	Explanation	Election of Benefits / Jurisdiction	Explanation
Georgia	Volunteers are generally not covered. Included in coverage are: volunteer firefighters, volunteer law-enforcement personnel and volunteer emergency management, volunteer first responders, civil defense, emergency-medical service, and rescue organization workers if the appropriate county or municipality has resolved to include such personnel. Employees of district health services and active duty members of the Georgia National Guard and the State Defense Force are included.	Title 34, Chapter 9, Official Code of Georgia Annotated, titled "Workers' Compensation, §34-9-1; 34-9-2"	Dependent upon other state.	Act applies to injuries sustained outside the state if contract of hire was made within the state, unless the contract was expressly for service exclusively outside the state. But if employee receives compensation or damages under the law of another state, total compensation shall not exceed that provided by Chapter 9, §35-9-242.
Illinois	Volunteers are generally not covered. However, if presented to an arbitrator, coverage may be found as a reasonable expectation of the employee, subject to appeal.	Workers Compensation Act, §305/1; Case law	Yes, generally.	Act applies to employments outside the state where the contract of hire is made within the state; to employments within the state where the contract of hire is made without the state; to employments principally localized within the state regardless of accident or contracting site. Employee or dependents having a cause of action have choice of remedy in state of injury, of contracting, or where the employment is principally localized.
Louisiana	Volunteers generally appear to have coverage. Coverage is elective for "volunteer firefighters" Title 23, Chapter 10, 1036.	Presumption of employee status: "A person rendering service for another in any trades, business, or occupations covered by this chapter is presumed to be an employee under this chapter." Title 23, Chapter 10, 1044. Section 1044 presumes employee status when a person renders service for another. Section 1036 specifically identifies coverage for firefighters as elective.	Employees injured out of state may file for Louisiana benefits.	§1035.1 Employees may elect coverage under Louisiana law if injured out of state if their principal employment is with Louisiana or the contract for hire was made in Louisiana. Filing for out-of-state benefits does not bar filing for Louisiana benefits; however, benefits are offset by payments made in another state.
Mississippi	Volunteers appear to be covered in Mississippi.	Mississippi Code 1972 Title 71, 71-3-3 Definitions, (d) Employee means any person, including a minor whether lawfully or unlawfully employed, in the service of an employer under any contract of hire or apprenticeship, written or oral, express or implied, provided that there shall be excluded there from all independent contractors.	Employees injured out of state may file for Mississippi benefits.	§73-3-109 (1) and 73-3-109 (3) Employees injured out of state while in the course and scope of employment may seek Mississippi benefits. Employees who are injured in Mississippi but are regularly employed in other states and the employer has provided coverage with extraterritorial provisions may not file for Mississippi benefits.

Analysis of Coverage for Volunteers

State	Volunteer Coverage / Endorsement	Explanation	Election of Benefits / Jurisdiction	Explanation
North Carolina	Excludes coverage for a person whose employment is both casual and not in the course of the trade, business, profession, or occupation of his or her employer. Volunteer policemen and volunteer deputy sheriffs are covered. Coverage is extended to members of the State Volunteer Fire Department and members of the auxiliary law-enforcement personnel.	Chapter 97-2 Definitions Employee. Chapter 160A-282 and Chapter 69-25-8 provide coverage for some volunteer firefighters and all volunteer law-enforcement officers.	Employees injured out of state may file for North Carolina benefits.	§ 97-36 Employees injured out of state, but hired in North Carolina; with a contract of hire made in North Carolina; or whose employer's primary place of business is North Carolina may file for North Carolina benefits. If the employee receives benefits from another state, he/she may file for North Carolina benefits, but total benefits may not exceed North Carolina benefits.
New York	Coverage provided for volunteer law-enforcement and firefighter personnel as well as volunteer civil-defense personnel sponsored or authorized by a local office under regulations of the civil-defense commission.	Workers Compensation Law, Chapter 67, Article 1. Section 2, Definition 4: Employee does include volunteer law-enforcement and civil defense members. Chapter 64A, Article 1, 3: Definitions include volunteer firefighters.	No provisions under New York law.	No extraterritorial provisions under New York law.
South Carolina	Volunteers generally not covered. Volunteer state constables are covered.	Title 42, Chapter 1, Section 130, 42-1-130: Employee defined, excludes coverage for a person whose employment is both casual and not in the course of the trade, business, profession, or occupation of his or her employer. Coverage is afforded to volunteer state constables while performing duties in connection with their appointments.	Employees injured in South Carolina may file for benefits.	§ 42-15-10 Any employee covered by the provisions of this section may file a claim where they were hired, the state where injured, or the state where employment is located. When the compensation or damages are received under the laws of another state, nothing contained in South Carolina law shall be construed to permit a total compensation for the same injury greater than that provided by South Carolina.
Tennessee	Volunteers are not considered employees and are not covered.	§50-1-106(10)(A),(B),(C)	Ambiguous to election; unclear if dependent upon other state.	Act applies if injuries sustained outside the state would have entitled the employee (or his/her dependents, in the event of his/her death) to benefits had such injury occurred within the state, provided that at the time of such injury, the employment was principally localized within this state or contract of hire was made within this state (§50-6-115).

Analysis of Coverage for Volunteers

State	Volunteer Coverage / Endorsement	Explanation	Election of Benefits / Jurisdiction	Explanation
Texas	Volunteers not considered employees. Coverage may be elected for volunteers.	§401.012, 406.091	Dependent upon other state.	Act applies to injuries received outside state if employee had significant contacts with state and employment was principally located in this state (§406.071). "Significant contacts" and "principally located" are defined (§§406.071(b) and 406.072). Employee may agree in writing with employer on principal location of employment, and executive director may enter into interjurisdictional agreements, which bind all subject employers and employees once adopted by the commission as a rule (§§406.073 and 406.074). Employee's election to pursue remedy and successfully recover in another state bars recovery under this Act (§406.075). Less stringent requirements for state employees injured while performing services outside the state (§501.025).

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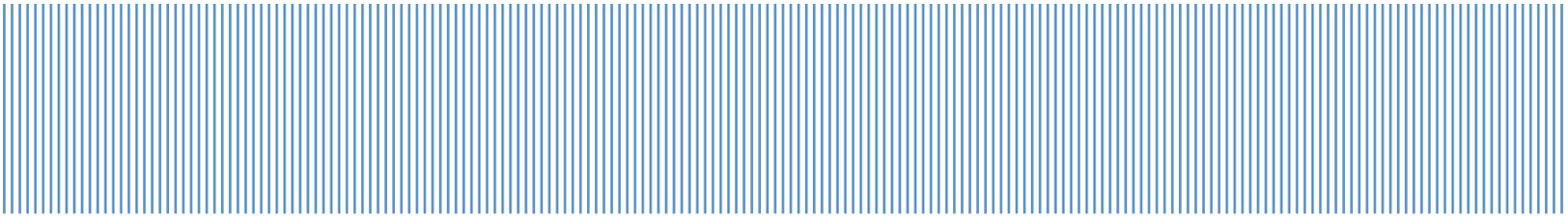
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