Circular

MAY 29, 2008 ANNOUNCEMENT VA-2008-03

Virginia–Item 02-VA-2008–Catastrophe Provisions Miscellaneous Values, Rules and Statistical Codes

ACTION NEEDED

Please review the changes outlined in the attachments to this circular for impact on your company's systems and procedures. Also review the ***Status of Item Filings*** circular for state approval of this item.

Caution: At the time of distribution of this circular, this item has been filed with the regulator but is **not yet approved**. This information is provided for your convenience and analysis. Please do not use the information until the regulators have approved the filing.

BACKGROUND

NCCI has submitted Item 02-VA-2008—Catastrophe Provisions Miscellaneous Values, Rules, and Statistical Codes to the Virginia Bureau of Insurance. Item 02-VA-2008 proposes to eliminate the distinction between foreign and domestic terrorism and introduces Catastrophe (other than Certified Acts of Terrorism) by:

- Producing separate miscellaneous values by state to address losses resulting from "Terrorism" and "Catastrophe (other than Certified Acts of Terrorism)"
- Adopting the national Terrorism and Catastrophe (other than Certified Acts of Terrorism) rules in NCCI manuals
- Withdrawing state-specific Statistical Code 9752 and replacing it with national Statistical Code 9740
- Adopting national Statistical Code 9741

IMPACT

The estimated impact is shown in Exhibits 6 and 11.

NCCI ACTION

NCCI will release updated pages of NCCI's ***Basic Manual for Workers Compensation and Employers Liability Insurance*** and ***Virginia Stat Plan*** upon approval.

PERSON TO CONTACT

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FILING MEMORANDUM

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

(To become effective for policies effective on and after 12:01 a.m. on September 1, 2008, applicable to new and renewal voluntary and assigned risk policies.)

PURPOSE

As a result of the recent passage of the Terrorism Risk Insurance Program Reauthorization Act of 2007 ("TRIPRA") by the United States Congress (Congress), this item eliminates the distinction between foreign and domestic terrorism and introduces Catastrophe (other than Certified Acts of Terrorism) by:

- Producing separate miscellaneous values by state to address losses resulting from "Terrorism" and "Catastrophe (other than Certified Acts of Terrorism)"
- Adopting the national Terrorism and Catastrophe (other than Certified Acts of Terrorism) rules in NCCI manuals
- Discontinuing state-specific Statistical Code 9752 and replacing it with national Statistical Code 9740
- Adopting national Statistical Code 9741

BACKGROUND

In response to the Terrorism Risk Insurance Act of 2002 ("TRIA" or the "Act") and the Terrorism Risk Insurance Extension Act of 2005 ("TRIEA"), NCCI filed Items B-1383, B-1398, P-1392, and P-1404, which implemented the Terrorism Risk Insurance Act of 2002 and then provided miscellaneous values for foreign terrorism. As a result of the passage of TRIA, NCCI filed catastrophe provisions for certified foreign terrorism losses in all NCCI states at the end of 2002. These catastrophe provisions were filed so that NCCI could exclude foreign terrorism losses from ratemaking.

At that time, Item B-1393–Miscellaneous Values for Domestic Terrorism, Earthquakes, and Catastrophic Industrial Accidents was also filed, but not approved in Virginia. However, earthquakes and catastrophic industrial accidents continue to be a significant exposure in Virginia which can result in losses of extraordinary magnitude for workers compensation. The exposure is real, and the absence of a large event in recent history means that the current loss costs and rates do not account for it. For this reason, NCCI is again proposing catastrophe provisions for earthquakes, and catastrophic industrial accidents. As with terrorism, NCCI would be excluding all catastrophe losses from ratemaking. The threshold for each of these exposures is $50 million. This means that the modeling results assumed that all events exceeding $50 million of loss for workers compensation would be removed from ratemaking.

Congress enacted the Terrorism Risk Insurance Program Reauthorization Act of 2007 (" TRIPRA") on December 26, 2007, which amends the definition of "act of terrorism" to include domestic terrorism. Due to the short time frame for compliance, NCCI filed Items 05-VA-2007 and 06-VA-2007 in response to TRIPRA to update the references to foreign terrorism and update a state-specific TRIA Disclosure Endorsement.

This filing now proposes that the terrorism miscellaneous value include both domestic and foreign terrorism. This will enable carriers to disclose one TRIA premium as opposed to separate premiums for foreign and domestic terrorism. Additionally, it is proposed that a miscellaneous value for Catastrophe (other than Certified Acts of Terrorism) be adopted. Therefore, this item proposes an updated miscellaneous value for Terrorism and introduces a miscellaneous value for Catastrophe (other than Certified Acts of Terrorism).

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For purposes of this item, the following definitions apply:

- **Catastrophe (other than Certified Acts of Terrorism):** Any single event, resulting from an Earthquake, Non-certified Act of Terrorism, or Catastrophic Industrial Accident, which results in aggregate workers compensation losses in excess of $50 million.
- **Earthquake:** The shaking and vibration at the surface of the earth resulting from underground movement along a fault plane or from volcanic activity.
- **Non-certified Act of Terrorism:** An event that is not certified as an Act of Terrorism by the Secretary of Treasury pursuant to the Terrorism Risk Insurance Act of 2002 (as amended), but that meets all of the following criteria:
  a. is an act that is violent or dangerous to human life, property or infrastructure;
  b. the act results in damage within the United States, or outside of the United States in the case of the premises of United States missions or air carriers or vessels as those terms are defined in the Terrorism Risk Insurance Act of 2002 (as amended) ; and
  c. an act that has been committed by an individual or individuals as part of an effort to coerce the civilian population of the United States or to influence the policy or affect the conduct of the United States Government by coercion.
- **Catastrophic Industrial Accident:** A chemical release, large explosion, or small blast that is localized in nature and affects workers in a small perimeter the size of a building.

Additionally, rule references to these catastrophe provisions will be changed and statistical codes will be replaced and introduced accordingly.

Catastrophe Modeling

Since there is a lack of historical data to support catastrophic loss estimates, NCCI has relied on catastrophe modeling for evaluating and estimating the risk associated with these exposures. In order to complete the modeling, NCCI contracted with EQECAT. Serving the global property and casualty industry, EQECAT is known as a technical leader and innovator in the development of analysis tools and methodologies to quantify insured exposure to natural and man-made catastrophic risk.

For this filing, EQECAT developed three models for NCCI. These three models address the potential exposure to workers compensation for terrorism, earthquake, and catastrophic industrial accidents. The models are described in detail in the Appendix.

Terrorism

Exhibit 3 shows the selected terrorism loss costs excluding LAE for states modeled by EQECAT. The modeling exercise produces a range of loss costs per employee for the modeled states shown in Columns (2) and (3). The loss costs exclude loss adjustment expense. The indicated loss costs per employee for modeled states are based on the modeling approach described in the Appendix assuming a frequency of one terrorist event per year as the default. The results are scalable based on a different frequency assumption. A range of .25 to 3 terrorism events per year countrywide was used, based on input from EQECAT.

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Two adjustments are necessary to convert this information to a loss cost per $100 of payroll. First, an adjustment is made to recognize the impact of TRIPRA. This adjustment recognizes that individual company exposure to a certified event is limited. Depending on the state, NCCI's analysis has led to an indicated adjustment factor of 45% to 95% for this component. This adjustment factor is shown in Column (4). The analysis is based on the provisions of the Act, which allow for a recovery of 85% of the insurer's losses above an individual company retention of 20% of the prior year's direct earned premium for that company. The program trigger is $100 million and there is an annual program cap of $100 billion in combined federal and industry-shared insured losses. For modeled states, NCCI looked at individual state loss distributions for terrorism and assessed the impact of the Act on a variety of attachment point and aggregate loss combinations. States whose aggregate expected losses are higher will expect a larger reduction in gross loss due to the Act. The second adjustment uses the state average weekly wage (Column (5)) to adjust the loss costs from a per-employee basis to a per-$100 of payroll basis. The range of indicated loss costs are shown in Columns (6) and (7). Column (8) shows the selected loss costs for the modeled states.

Exhibit 4 shows the selected terrorism loss costs including LAE by state. NCCI uses a proxy state approach to apply the terrorism provisions to the remaining nonmodeled NCCI states.

The table of proxy states is shown below:

Modeled States	Proxy States
Arizona	Colorado, Idaho, Louisiana, Montana, Nevada, Oregon, Rhode Island, Utah
Illinois	Maryland, Virginia
Iowa	Alabama, Alaska, Arkansas, Connecticut, Hawaii, Kansas, Kentucky, Maine, Mississippi, Missouri, Nebraska, New Hampshire, New Mexico, Oklahoma, South Carolina, South Dakota, Tennessee, Vermont, West Virginia
District of Columbia, Florida, Georgia, Indiana	None

Loss-based expenses by state are shown in Column (4). The final terrorism loss costs including LAE by state are shown in Column (5).

Exhibit 5 shows the final voluntary and assigned risk rates by state. Where applicable, the terrorism loss costs excluding loss adjustment expense by state have been divided by the permissible loss ratio (PLR) in order to reflect expenses, including loss adjustment expense.

Exhibit 6 shows the estimated impact of the proposed changes in terrorism provisions by state on both a percentage and a dollar amount basis.

Catastrophe (other than Certified Acts of Terrorism)

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Catastrophic Industrial Accidents—EQECAT developed a model to quantify the potential exposure to catastrophic industrial accidents. These are accidents that would produce workers compensation losses in excess of $50 million. A detailed description of the model is contained in the Appendix. The modeling was performed for Florida, Illinois, Kansas, Kentucky, Louisiana, and North Carolina.

Based on the modeling results, an industrial accident loss cost of .005 was selected in each state, excluding loss adjustment expense. This information is shown in Exhibit 7.

Earthquakes—EQECAT produced an earthquake model for each state with significant earthquake exposure. In addition, because of its unique nature, a tsunami model was also included for Alaska. The modeling was performed for Alaska, Arkansas, Hawaii, Missouri, Nevada, Oregon, South Carolina, Tennessee, and Utah. The indicated earthquake loss costs excluding loss adjustment expense are shown in Exhibit 8.

Catastrophe (other than Certified Acts of Terrorism) Loss Costs by State Including Loss Adjustment Expense

- Exhibit 9 shows the total catastrophe (other than certified acts of terrorism) loss cost by state including loss adjustment expense in Column (5). The loss-based expense factor shown in Column (4) is multiplied by sum of Columns (1) and (2) to include loss adjustment expense and other loss-based expenses by state.
- Exhibit 10 shows the final voluntary and assigned risk rates by state. Where applicable, the catastrophe (other than certified acts of terrorism) loss costs excluding loss adjustment expense by state have been divided by the permissible loss ratio (PLR) in order to reflect expenses, including loss adjustment expense.
- Exhibit 11 shows the estimated impact of the proposed catastrophe (other than certified acts of terrorism) provisions by state on both a percentage and a dollar amount basis.

Carrier Use of Loss Cost Information

- Exhibits 12-A, 12-B, 13-A, and 13-B propose changes to NCCI's ***Basic Manual*** miscellaneous values pages
- Exhibits 14–17 propose changes to NCCI's ***Basic Manual*** rules
- Exhibits 18-A, 18-B, and 19 propose changes to the statistical reporting codes to be used for reporting these charges

PROPOSAL

This item proposes:

- Adopting separate miscellaneous values for "Terrorism" and "Catastrophe (other than Certified Acts of Terrorism)"
- Adopting the national Terrorism and Catastrophe (other than Certified Acts of Terrorism) Rules 3-A-24-b and c in NCCI's ***Basic Manual***
- Discontinuing state-specific Statistical Code 9752 and replacing it with national Statistical Code 9740
- Adopting national Statistical Code 9741

This item is being filed in conjunction with Item 03-VA-2008—Catastrophe Provision Forms, which proposes that, effective September 1, 2008, the Virginia Terrorism Risk Insurance Program Reauthorization Act

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Endorsement (WC 45 04 01 A) be withdrawn and replaced with the Terrorism Risk Insurance Program Reauthorization Act Disclosure Endorsement (WC 00 04 22 A), and that the Catastrophe (other than Certified Acts of Terrorism) Premium Endorsement (WC 00 04 21 C) be adopted. This item and Item 03-VA-2008 should be adopted concurrently.

IMPACT

The estimated impacts is shown in Exhibits 6 and 11.

IMPLEMENTATION

The attached exhibits as listed in the Table of Contents include the proposed changes necessary to implement this item.

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APPENDIX

DESCRIPTION OF EQECAT CATASTROPHE MODELS

Introduction

In the past, separate EQECAT models were developed to provide estimates of the risks to workers compensation insurers due to the following perils:

- Terrorism events
- Industrial accidents
- Earthquake ground shaking

These models are described below. For purposes of this filing, only the Terrorism model has been updated.

TERRORISM

1. Exposure

The location, number, and types of employees are needed to characterize the risk exposures to terrorism events. Business information and Bureau of Labor Statistics databases were used to obtain the addresses of businesses and the estimated number of employees assigned to each location. With more than 100 million workers nationwide at over 10 million businesses, it was necessary to aggregate the exposure. For this model, the exposure was aggregated to the census block level (typically a city block). This aggregation level was suitable for the terrorist events that span hundreds of meters.

The number of workers in each block was prorated to approximately account for part-time workers, workers absent for various reasons, and the self-employed. The workers in each census block were grouped into five NCCI industry groupings: Goods & Services, Office & Clerical, Manufacturing, Construction, and All Others. Certain government classifications not covered by workers compensation were excluded.

2. Weapons Selection

Specific weapons were selected from the range of known or hypothesized terrorist weapons. The selection process considered weapons that have been previously employed, weapons that could cause large numbers of casualties, or weapons that would be more readily available. In some cases, a “likely” or “practical” weapons size (or quantity of agent) was selected; in other cases, a range of weapons sizes was selected, in part, to reflect standard quantities that might be available. The selected weapons and their sizes are described below.

Blast/Explosion

- Conventional explosives—400 lb / 4,000 lb / 12,000 lb TNT
- Nuclear bomb—1 kiloton and 10 kiloton
- Aircraft impact—large passenger airline

Chemical

- Chlorine—15-ton truck, 90-ton railcar
- Anhydrous ammonia—15-ton truck, 90-ton railcar
- Hydrogen cyanide—50 gallons
- Sarin—1 gallon
- Mustard gas—50 gallons

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Biological

- Anthrax—1 oz inside building, 1 oz outside building, 10 oz mobile dispersion
- Botulism Toxin—1 oz inside building

Radiological

- Nuclear power plant radioactive release due to sabotage—10% of core radioactivity
- Dirty bomb—10,000 curies

The effects of each type of weapon will vary with the size of the weapon, with atmospheric conditions, and in some cases with local terrain. If detailed knowledge is available, a correspondingly detailed simulation of the effects is possible but would be time-consuming to perform. In a large-scale nationwide analysis with millions of simulated events, where local atmospheric and terrain are only generally known, a simpler more generalized simulation is necessary. The simplifications necessary to efficiently model footprints of weapons effects are described below.

For conventional blast loading, blast simulation software is used to estimate casualties in various urban settings where the geometry and height of the buildings is varied. The results of these detailed simulations are used to develop simplified blast attenuation functions that vary with distance and with the general terrain. For conventional blast loading, the footprint is defined as a decreasing function of distance from the source of the blast.

The casualties for nuclear blast can be estimated on the basis of empirical data resulting from wartime and nuclear test experience. Casualties are assumed to be a function of distance from ground zero with the source located either at ground level or at a relatively low altitude. A simplified, conservative casualty footprint was created to encompass the range of conditions that could exist. Long-term radiation effects are not considered.

The casualty effects for aircraft impact are very much dependent upon the details of the event, so much so that only a simple, conservative footprint can be employed. A simplifying assumption is made that the extent of the footprint is a function of the height of the building.

For chemical, biological, and radiological agent releases, a plume is formed that is influenced by atmospheric conditions and by the terrain. The footprint of the cumulative dose that is deposited by a plume over time was calculated using the simulation software, MIDAS-AT (Meteorological Information and Dispersion Assessment System—Anti-Terrorism™). Terrain conditions were assumed to be “rough” to conservatively approximate a general urban terrain, and the wind direction was assumed to be unchanging. The plume footprint was calculated for low, medium, and high wind speeds and for three different atmospheric turbulence conditions. Any of the footprints could then be oriented in each of eight compass directions. Most of the footprints were truncated after an elapsed time of about two hours to account for successful evacuation.

3. Targets

A target is the location of a terrorist attack and, in the model, represents the locus of a casualty footprint. An inventory of targets is created by selecting locations with the following characteristics:

- Tall buildings—10 stories and higher
- Government buildings—with large number of employees or of a critical or sensitive nature (e.g., FBI office)
- Airports—major
- Ports—major
- Military bases—US armed forces
- Prominent locations—capitol buildings, major amusement parks, etc.

- Nuclear power plants—operational
- Railroads, railroad yards and stations—freight lines for railroad cars carrying chemicals
- Chemical facilities—emphasizes those with chlorine and ammonia on site

Nuclear power plants and chemical facilities receive only specific casualty footprints. Other locations are assigned more than one type of terrorist weapon.

Some footprints have no specific target but are distributed at regular intervals throughout the urban area. This spreads out the effect to a larger population in the urban area.

Mobile release anthrax is not located at any target but located in the general downtown area in major metropolitan areas.

4. Frequency of Attack

The relative likelihood of a type of attack occurring at a target location is represented by an assigned (annual) frequency. The significance of an attack's frequency is in its relationship to other attacks. Attack frequency is based on the following considerations:

- Availability of weapon
- Attractiveness of target
- Relative attractiveness of the region to other regions based on various theories

For footprints that are atmospheric releases of chemical, biological, and radiological agents, wind direction affects the assigned frequency. The frequency for each wind direction is weighted by the likelihood of the wind blowing in that direction based on historical wind speed and direction measurements for the region.

Nationwide results assume that there is, on average, one terrorist event per year. If a higher or lower degree of threat is perceived, results can be scaled assuming that all areas scale proportionately with the change in frequency.

5. Analysis Methodology

The analysis methodology applies a casualty footprint to an assigned target and then calculates the extent of casualties to the covered workers within the footprint. For chemical, biological, and radiological footprints, the dose to each employee is calculated, and a conversion is made to the degree or category of injury. Degree of injury is then converted to loss based upon the average costs by injury category provided by NCCI. The average costs provided vary by state.

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INDUSTRIAL ACCIDENTS

Industrial accidents are characterized by the following elements:

- Facilities where industrial accidents occur
- Accident types
- Frequencies of accidents

Facilities

Facilities capable of large industrial accidents resulting in casualties above a threshold were identified from
several public and commercial data sources. The facilities considered as potential sources for large industrial accidents are identified below:

- Refineries
- Chemical plants (oil, gas, petrochemical, etc.)
- Water utilities
- Power utilities
- Other manufacturing plants

Accident Types

Depending on the peril, the atmospheric conditions, the plant configuration and location, etc., the footprint of an accident could reach beyond the plant boundaries and affect workers in adjacent facilities and beyond. The perils considered in the study were broadly classified into three categories: chemical releases, large
explosions, and all other accidents.

- **Chemical Releases:** Chemicals considered included chlorine, anhydrous ammonia, and other nonspecific chemicals. A range of potential atmospheric releases of chemicals was considered in the analysis. The range encompassed an upper quantity represented by the total amount of chemical stored on site and, in some cases, identified in the facility's Risk Management Program submittal as the worst-case scenario, and a lower release quantity representing the minimum release quantity that could produce consequences to meet the threshold definition of large industrial accidents. A continuous range of release quantities was considered within the range. All of the scenarios considered were modeled probabilistically and included the likelihood of the releases and their consequences as described above.

- **Large Explosions:** Explosion simulation software is used to estimate blast pressures and consequences of the explosion in terms of casualties. These footprints were varied probabilistically to simulate the variability in the effects of an explosion. The size of explosions varied by facility. The largest explosions were modeled to occur at oil refineries, where a significant potential for explosions exists.

- **All Other Accidents:** In addition to the above accident types, a smaller event was considered at all modeled facilities to simulate all other industrial accidents such as fires, explosions, confined space accidents, structure and component collapse, and all other random accidents that meet the threshold damage criteria of large industrial accidents.

Frequencies of Accidents

The frequencies of occurrence of large industrial accidents in each of the modeled states were derived based on historical fatality and injury data available from BLS, OSHA, and other sources. Frequencies of extreme events, which are very large and very rare, were based on ABS Consulting expert opinion. The consequences of such events were benchmarked to the Bhopal-type event.

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The relative likelihood of the three categories of perils simulated in the analysis was derived from historical data and varies by state.

SEISMIC HAZARD (EARTHQUAKE)

Regional Hazard

The calculation of annualized losses requires a probabilistic representation of the location, frequency, and anticipated ground shaking of all earthquakes that can be expected to occur in the region. The characterization of the location and frequency of earthquakes comprise what is commonly known as a seismotectonic model. One component of the seismic hazard model is the source zonation. Source zonation entails identifying potential seismogenic sources that can affect the site. These sources can either be faults or diffuse zones of seismic activity, commonly referred to as area sources and background seismicity. Each source zone represents a fault or area in which earthquakes are expected to be uniformly distributed with respect to location and size.

Background seismicity is distinguished from an area source by the way that earthquake locations are treated. Earthquakes associated with background seismicity are allowed to have recurrence frequencies that smoothly vary over a region. Both area sources and background seismicity can include large earthquakes and are intended to model areas containing hidden or unknown faults or known faults, which are too numerous to be modeled individually. Earthquake source zones are identified from information on the geology, tectonics, and historical seismicity of the region.

The seismic hazard model also integrates the recurrence frequency of earthquakes. For each of the earthquake source zones, an earthquake recurrence relationship is developed. For area sources and background seismicity, this relationship is developed using an appropriate earthquake catalog, which is a listing of historically recorded or documented earthquakes. The catalog is analyzed for completeness by determining the time period over which all earthquakes of a given magnitude are believed to have been reported. Magnitudes are converted to a consistent magnitude measure (e.g., moment magnitude, M_W) for use with the strong-shaking attenuation relationships (described in the next section) and for the determination of earthquake recurrence relationships.

Faults are modeled by either a characteristic earthquake model or a Gutenberg-Richter recurrence relationship, or both, depending on the available geologic information. The characteristic earthquake model assumes that earthquakes of about the same magnitude occur at quasi-periodic intervals on the fault. Using both a characteristic earthquake and a Gutenberg-Richter model is similar to the characteristic earthquake recurrence relationship proposed by Youngs and Coppersmith (1985), which predicts relatively more frequent large magnitude earthquakes than does the Gutenberg-Richter relationship by itself. The characteristic recurrence relationship is consistent with paleoseismic and historical earthquake data on individual faults (e.g., Coppersmith, 1991). For most faults, the recurrence relationships are constrained to be consistent with known geologic deformation along the fault, since there are usually very few historical earthquakes from which to develop a reliable earthquake recurrence relationship.

The maximum magnitude for each earthquake source zone is estimated from the published literature, from comparisons with similar tectonic regimes, from historical seismicity, and from the dimensions of mapped faults. The seismic hazard model simulates approximately 2,000,000 stochastic events across the United States.

Site Hazard Severity

Attenuation relationships are used to predict the expected amplitude of ground shaking at a site of interest knowing an earthquake's magnitude and the distance from the fault to the site. Ground shaking is characterized by one or more ground-shaking parameters, the most notable of which are peak ground acceleration (PGA), response-spectral acceleration (S_a), and Modified Mercalli intensity (MMI). These predictions are made for a uniform soil condition. Attenuation relationships are chosen to correspond as

closely as possible to the tectonic environment of the region, since regional differences in earthquake source characteristics, crustal propagation properties, and site-response characteristics are known to have a significant effect on the observed ground shaking. Soil amplification factors are used to modify the ground-shaking parameter calculated for a uniform soil condition for the specific soil conditions at the site of interest. These factors are different for each ground shaking parameter. They are defined in terms of one or more site categories (or classes), each representing a specific set of site-response characteristics. Soil categories are defined in terms of simple qualitative or quantitative site descriptions, such as surface geology and shear-wave velocity (the speed at which seismic waves travel through the soil deposit, a measure of the strength of the deposit).

The effect of local soil conditions within each individual zip code was taken into account. In general, soft soil sites will experience higher earthquake motions than firm soil or rock sites for comparable locations relative to the earthquake fault rupture zone, thereby increasing the likelihood of damage to buildings on soft soil for a given earthquake.

CASUALTY VULNERABILITY

Casualty vulnerability establishes the casualty levels to various peril event magnitudes. While the casualty vulnerability for terrorism events and industrial accidents are rather similar, the casualty vulnerability for earthquakes is established rather differently.

Industrial Accidents

As discussed earlier in Section 3.2, three accident types were considered in the Industrial Accidents study: chemical releases, large explosions, and all other accidents. The latter category includes a variety of accidents that are localized in nature and affect workers in a small perimeter, the size of a building. These smaller scale accidents were simulated as small blasts. The methodology used to model chemical releases and blasts is as in the terrorism model described above.

Earthquakes

Workers' casualties due to earthquakes are directly correlated to the damage extent incurred by the buildings in which they work. Therefore, casualties due to earthquakes are estimated in two sequential stages:

- Estimation of building damage
- Estimation of worker's casualties based on the building damage

Building Damage at the Workplaces

Individual building vulnerability functions, that is, the probability of building damage given a level of ground shaking at the site, depends of the structure type, the age of construction, and the building height. Vulnerability functions account for variability by assigning a probability distribution bounded by 0% and 100% with a prescribed mean value and standard deviation. The vulnerability functions were based on historical damage data and insurance claims data—including the analysis of over 50,000 claims from the Northridge and other earthquakes.

The probability distributions of ground shaking at the site and vulnerability functions are combined to estimate the probability of building damage for each earthquake event. The probability of damage at the site level is also combined probabilistically, accounting for correlation in ground shaking between zip codes and in damage level between the same and different structure types within and between zip codes.

Note that considerable randomness exists in earthquake damage patterns where randomness denotes the irreducible variability associated with the earthquake event. Randomness as characterized by the following parameters:

- Ground shaking
- Damage to the average structure of a given class at a given level of ground shaking
- Each structure's seismic vulnerability relative to the average structure of its class

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Modeling uncertainty, the lack of knowledge in characterizing each element of the model, is statistically combined with randomness and correlation to estimate overall variability in damage and loss to the entire portfolio.

Casualties Due to Building Damage
Workers' casualty data resulting from earthquakes is very scarce in the United States. EQECAT is constantly using data from the most recent earthquakes worldwide to update its casualty functions, which correlate building damage to casualties. Because of differences in building design codes and construction practices, data from earthquakes outside the United States is adapted to local US conditions. This adaptation takes into consideration building damage state and its resulting casualties. To illustrate this concept, let us assume that a Reinforced Concrete building in Country X sustains 50% damage and causes injuries to 15% of its occupants. We assume that a similar Reinforced Concrete building, for example in California, sustaining the same damage level will cause a similar level of casualties. However, because of differences in building design and construction practices between California and Country X, the 50% damage could be caused by an earthquake acceleration of 0.3g in Country X, and twice that acceleration in California. In this example, higher seismic design provisions and practices are assumed applicable in California. The casualty rate functions used were developed using the most recent earthquake casualty data from Japan, Turkey, and Taiwan. EQECAT's proprietary workers compensation casualty rate functions are defined for four injury types: death, severe/major, minor/light, and medical.

Losses Due to Casualties
Loss rates by injury type were provided by NCCI and used in calculating losses due to workers' casualties. The same loss rates were applied to all three perils. As described in Section 2, earthquake exposures were defined for different work shifts. The number of casualties by work shift for each work site and earthquake event is estimated prior to the application of the loss rates.

Losses Due to Tsunami
Although all coastal states on the West Coast are prone to tsunamis, only Alaska was analyzed for this peril. Alaska has a higher worker rate near the shore in inundable zones and its coastline is in close proximity to the subduction zone capable of triggering tsunamis. In addition, in remote locations of Alaska, workers compensation extends coverage after the employee leaves the immediate work site. Other states such as Oregon and Hawaii can benefit from a warning advantage that would reduce the impact of tsunamis generated distances far away. A simplified model was formulated to estimate workers compensation loss due to tsunami inundation. This model is based on tsunami modeling developed for Japan, which makes use of historical data to derive a relationship between earthquake moment magnitude (Mw), distance from the earthquake rupture to the shore, and direct or indirect exposure to the wave to determine the run-up height of a tsunami wave. The quantity of historical data needed to develop such a relationship is not available for Alaska; however, the model adopts the Japanese method where the detailed physics of the wave are not being calculated.

Injury Rate
Casualties due to tsunami run-up are estimated by assuming a simple relationship between depth of inundation and the likelihood of being in one of four NCCI injury classes (outpatient treatment, minor/temporary disability, major/permanent disability, and death). There is scarce data available and the conditions under which the casualties occur is extremely variable. For this simplified approach, the injury relationships were subjected to the 1964 Mega-Thrust earthquake and the relationships calibrated to produce roughly the casualties suffered in the event.

Earthquake Modeling
The source of tsunami in Alaska is limited to the lengthy subduction zone that lies along the undersea trench that stretches from about Seward to the tip of the Aleutians. This subduction zone produces earthquake magnitudes estimated to be as large as Mw 9.2. Only the larger magnitude events have a potential for causing tsunami. For this analysis, magnitudes down to Mw 7.7 were considered. Based on the geometry of the subduction zone adopted from the USGS, ruptures of magnitudes between Mw 9.2

and Mw 7.7 were placed along the length of the trench. The frequency of each event, as a function of magnitude, was derived from an analysis of the earthquake catalog for the region. For each earthquake rupture, the surface distance between any location on the rupture plane and each near shore business location was calculated.

Analysis

The computations were performed for each earthquake rupture and for each site. Given the magnitude of the rupture and the distance from the ruptures to the site, the simplified equation estimates the run-up height. The difference between the elevation above sea level and the run-up height determines the depth of inundation. Inundation depth is then used to determine the percentage of employees who are in each injury category. From the number of employees at the location, the total casualty cost is estimated using NCCI-provided mean costs for each injury category. The cost is multiplied by the event frequency, and aggregated by NCCI occupancy class and by county. The losses from earthquake shaking and tsunami were combined through summation. This conservative treatment neglects the potential for overlap in casualties caused by shaking and by tsunami.

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 1-A

BASIC MANUAL

MISCELLANEOUS VALUES PAGES

APPLICABLE TO VOLUNTARY POLICIES

Terrorism …… See below:

State	Current Loss Cost	Proposed Loss Cost	Current Rate	Proposed Rate
Virginia	~~0.03~~	0.03	N/A	N/A

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 1-B
BASIC MANUAL
MISCELLANEOUS VALUES PAGES
APPLICABLE TO ASSIGNED RISK POLICIES

Terrorism ..... See below:

State	Current Assigned Risk Rate	Proposed Assigned Risk Rate
Virginia	~~0.04~~	0.04

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 2-A
BASIC MANUAL
MISCELLANEOUS VALUES PAGES
APPLICABLE TO VOLUNTARY POLICIES

Catastrophe (other than Certified Acts of Terrorism) …… See below:

State	Loss Cost	Rate
Virginia	0.01	N/A

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 2-B
BASIC MANUAL
MISCELLANEOUS VALUES PAGES
APPLICABLE TO ASSIGNED RISK POLICIES

Catastrophe (other than Certified Acts of Terrorism) …… See below:

State	Assigned Risk Rate
Virginia	0.01

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 3
TERRORISM LOSS COSTS FOR STATES MODELED BY EQECAT

State	Loss Cost per Employee (exc. LAE) Lower Range*	Loss Cost per Employee (exc. LAE) Upper Range*	Estimated Impact of TRIPRA**	State Average Weekly Wage***	Loss Cost per $100 of payroll (exc. LAE) Lower Range	Loss Cost per $100 of payroll (exc. LAE) Upper Range	Selected Loss Cost (exc. LAE)
(1)	(2)	(3)	(4)	(5)	(6)[1]	(7)[2]	(8)
Arizona	1.19	14.30	55%	731.68	0.002	0.021	0.01
DC	45.80	549.57	60%	951.91	0.056	0.666	0.04
Florida	0.59	7.12	85%	723.52	0.001	0.016	0.01
Georgia	0.79	9.50	80%	750.27	0.002	0.019	0.01
Illinois	4.29	51.46	45%	772.23	0.005	0.058	0.03
Indiana	0.31	3.75	95%	707.18	0.001	0.010	0.01
Iowa	0.63	7.57	90%	667.50	0.002	0.020	0.01

* Source: Loss cost information developed by EQECAT for terrorism events
** This adjustment reflects the impact of TRIPRA relative to terrorism events
*** 2007 US Bureau of Labor Statistics, Current Population Survey
[1] Column (6) = (2) x (4) / ((5) x 52 / 100)
[2] Column (7) = (3) x (4) / ((5) x 52 / 100)

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 4

TERRORISM LOSS COSTS INCLUDING LAE BY STATE

State	Proxy State	Selected Terrorism Loss Cost (exc. LAE)	Loss-Based Expense Factor	Terrorism Loss Cost (inc. LAE)
(1)	(2)	(3)	(4)	(5) = (3) x (4)
Virginia	Illinois	0.03	1.154	0.03

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 5
TERRORISM VOLUNTARY AND ASSIGNED RISK RATES BY STATE

State	Selected Terrorism Voluntary Loss Cost (exc. LAE)	Voluntary PLR	Selected Terrorism Voluntary Rate	Assigned Risk PLR	Selected Terrorism Assigned Risk Rate
(1)	(2)	(3)	(4) = (2) / (3)	(5)	(6) = (2) / (5)
Virginia	0.03	N/A	N/A	0.7350	0.04

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 6
ESTIMATED IMPACT OF CHANGES IN TERRORISM PROVISIONS BY STATE

State	Current Terrorism Loss Cost (exc. LAE)	Proposed Terrorism Loss Cost (exc. LAE)	Proposed Change in Terrorism Loss Cost (exc. LAE)	Avg. Non-Terrorism Loss Cost (exc. LAE)	Percentage Impact of Terrorism Loss Cost	CY 2006 WC Written Premium ($ 000)	Estimated Premium Impact ($ 000)
(1)	(2)	(3)	(4)	(5)	(6) = (4) / (5)	(7)	(8) = (6) x (7)
Virginia	0.03	0.03	0.00	0.83	0.0%	977,025	—

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EXHIBIT 7
CATASTROPHIC INDUSTRIAL ACCIDENT LOSS COSTS FOR STATES MODELED BY EQECAT

State	Catastrophic Industrial Accident Loss Cost per $100 of payroll (exc. LAE)	Payroll (00)
(1)	(2)	(3)
Florida	0.005	1,791,593,039
Illinois	0.007	1,551,847,685
Kansas	0.003	307,463,587
Kentucky	0.019	298,315,385
Louisiana	0.018	343,231,299
North Carolina	0.004	834,624,171
All States	0.007	5,127,075,166

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EXHIBIT 8
EARTHQUAKE LOSS COSTS FOR STATES MODELED BY EQECAT

State	Earthquake Loss Cost per $100 of payroll (exc. LAE)
(1)	(2)
Alaska	0.024
Arkansas	0.007
Hawaii	0.014
Missouri	0.008
Nevada	0.003
Oregon	0.005
South Carolina	0.003
Tennessee	0.009
Utah	0.005

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 9
CATASTROPHE (OTHER THAN CERTIFIED ACTS OF TERRORISM)
LOSS COSTS INCLUDING LAE BY STATE

State	Selected Industrial Accident Loss Cost (exc. LAE)	Indicated Earthquake Loss Cost (exc. LAE)	Loss-Based Expense Factor	Catastrophe Loss Cost (inc. LAE)
(1)	(2)	(3)	(4)	(5) = [(2) + (3)] x (4)
Virginia	0.005	0.000	1.154	0.01

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 10
CATASTROPHE (OTHER THAN CERTIFIED ACTS OF TERRORISM)
VOLUNTARY AND ASSIGNED RISK RATES BY STATE

State	Selected Catastrophe Voluntary Loss Cost (exc. LAE)	Voluntary PLR	Selected Catastrophe Voluntary Rate	Assigned Risk PLR	Selected Catastrophe Assigned Risk Rate
(1)	(2)	(3)	(4) = (2) / (3)	(5)	(6) = (2) / (5)
Virginia	0.005	N/A	N/A	0.7350	0.01

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 11
ESTIMATED IMPACT OF CHANGES IN CATASTROPHE PROVISIONS BY STATE

State	Current DTEC Loss Cost (inc. LAE)	Proposed Catastrophe Loss Cost (inc. LAE)	Proposed Change in Catastrophe Loss Cost (inc. LAE)	Avg. Non-Terrorism Loss Cost (inc. LAE)	Percentage Impact of Terrorism Loss Cost	CY 2006 WC Written Premium ($ 000)	Estimated Premium Impact ($ 000)
(1)	(2)	(3)	(4)	(5)	(6) = (4) / (5)	(7)	(8) = (6) x (7)
Virginia	0.00	0.01	0.01	0.96	1.0%	977,025	10,201

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 12-A
BASIC MANUAL
MISCELLANEOUS VALUES PAGES
ADVISORY LOSS COST PAGES

~~9752~~ 9740 Terrorism ~~Risk Insurance Act Certified Losses~~ (The Statistical Code ~~9752~~ 9740 has been established for the reporting of premium associated with this terrorism loss cost).

Terrorism ~~Risk Insurance Act~~ ~~Certified Losses~~ (Advisory Loss Cost)……0.03
(The Statistical Code ~~9752~~ 9740 has been established for the reporting of premium associated with this terrorism loss cost.)

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 12-B
BASIC MANUAL
MISCELLANEOUS VALUES PAGES
ASSIGNED RISK RATES

~~9752~~ 9740 Terrorism ~~Risk Insurance Act Certified Losses~~ (The Statistical Code ~~9752~~ 9740 has been established for the reporting of premium associated with this terrorism rate).

Terrorism ~~Risk Insurance Act~~ Certified Losses (Assigned Risk)……0.04
(The Statistical Code ~~9752~~ 9740 has been established for the reporting of premium associated with this terrorism rate.)

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 13-A
BASIC MANUAL
MISCELLANEOUS VALUES PAGES
ADVISORY LOSS COST PAGES

9741 Catastrophe (other than Certified Acts of Terrorism) (The Statistical Code 9741 has been established for the reporting of premium associated with this Catastrophe (other than Certified Acts of Terrorism) loss cost).

Catastrophe (other than Certified Acts of Terrorism) (Advisory Loss Cost)……0.01
(The Statistical Code 9741 has been established for the reporting of premium associated with this Catastrophe (other than Certified Acts of Terrorism) loss cost.)

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 13-B
BASIC MANUAL
MISCELLANEOUS VALUES PAGES
ASSIGNED RISK RATES

9741 Catastrophe (other than Certified Acts of Terrorism) (The Statistical Code 9741 has been established for the reporting of premium associated with this Catastrophe (other than Certified Acts of Terrorism) rate).

Catastrophe (other than Certified Acts of Terrorism) (Assigned Risk)……0.01
(The Statistical Code 9741 has been established for the reporting of premium associated with this Catastrophe (other than Certified Acts of Terrorism) rate.)

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 14
BASIC MANUAL—2001 EDITION
RULE 3—RATING DEFINITIONS AND APPLICATION OF PREMIUM ELEMENTS
A. EXPLANATION AND APPLICATION

24. Catastrophe Provisions

a. Terrorism Risk Insurance Act (TRIA) OF 2002 and any amendments thereto enacted by Congress.

b. Catastrophe (other than Certified Acts of Terrorism)

Premium for Catastrophe (other than Certified Acts of Terrorism) is calculated on the basis of total payroll according to Rule 2. A risk's total payroll in each state is divided by units of $100 and multiplied by the appropriate value found in the state pages. The calculation is expressed as (Payroll/100 x Catastrophe (other than Certified Acts of Terrorism) Value = Premium). This premium is applied after standard premium and is not subject to any other modifications including, but not limited to, premium discount, experience rating, schedule rating, or retrospective rating.

Unless an "If Any" policy develops premium during the policy term or at audit, policies issued on an "If Any" basis will not be charged this premium.

Per capita charges are not subject to premium under this Act.

c. Terrorism

Premium for Terrorism is calculated on the basis of total payroll according to Rule 2. A risk's total payroll in each state is divided by units of $100 and multiplied by the appropriate value found in the state pages. The calculation is expressed as (Payroll/100 x Terrorism Value = Premium). This premium is applied after standard premium and is not subject to any other modifications including, but not limited to, premium discount, experience rating, schedule rating, or retrospective rating.

Unless an "If Any" policy develops premium during the policy term or at audit, policies issued on an "If Any" basis will not be charged this premium.

Per capita charges are not subject to premium under this Act.

EXHIBIT 15
BASIC MANUAL—2001 EDITION
VIRGINIA STATE RULE EXCEPTIONS
RULE 3–RATING DEFINITIONS AND APPLICATION OF PREMIUM ELEMENTS
A. EXPLANATION AND APPLICATION

24. ~~Terrorism Risk Insurance Act of 2002 and any amendments thereto enacted by Congress~~

~~Premium for the Terrorism Risk Insurance Act of 2002 is calculated on the basis of total payroll according to Rule 2. A risk's total payroll in each state is divided by units of $100 and multiplied by the Terrorism Rate found in the state pages. The calculation is expressed as (Payroll/100 x Terrorism Rate = Premium). This premium is applied after standard premium and is not subject to any other modifications including, but not limited to, premium discount, experience rating, schedule rating or retrospective rating.~~

~~Unless an "If Any" policy develops premium during the policy term or at audit, policies issued on an "If Any" basis will not be charged this premium.~~

~~Per capita charges are not subject to premium under this Act.~~

a. ~~Terrorism Risk Insurance Act (TRIA) of 2002~~

~~This provision expires upon the expiration of TRIA or any amendments thereto enacted by Congress.~~

~~Rule 3 A 24 a does not apply in Virginia, but is replaced by Rule 3 A 24 as shown in these Virginia state exception pages of the ***Basic Manual for Workers Compensation and Employers Liability Insurance***.~~

b. ~~Domestic Terrorism, Earthquakes, and Catastrophic Industrial Accidents (DTEC)~~

~~Rule 3 A 24 b does not apply in Virginia.~~

c. ~~Foreign Terrorism~~

~~Rule 3 A 24 c does not apply in Virginia.~~

EXHIBIT 16
BASIC MANUAL—2001 EDITION
MISCELLANEOUS RULES

VIRGINIA WORKERS COMPENSATION PREMIUM ALGORITHM

The following algorithm provides the framework for premium charges and credits. Where not specified, the premium base would be the result from the prior line.*

	PREMIUM ELEMENTS	EXPLANATORY NOTES
	MANUAL PREMIUM	[(PAYROLL / 100) * RATE]
+	Supplementary Disease (foundry, abrasive, sandblasting)	[(SUBJECT PAYROLL / 100) * DISEASE RATE]
+	USL&H Exposure for non-F classification codes	[(SUBJECT PAYROLL / 100) * (RATE * USL&H FACTOR)]
	TOTAL MANUAL PREMIUM	
+	Waiver of Subrogation factor**	[% applied to the portion of Total Manual Premium where waiver is applicable]
+	Employers Liability (E/L) increased limits factor	[% applied to Total Manual Premium]
+	Employers Liability increased limits charge	[Balance to E/L increased limits minimum premium]
+	Employers Liability increased limits factor (Admiralty, FELA)	[Factor applied to the portion of Manual Premium where Admiralty/FELA coverage is applicable
+	Employers Liability/Voluntary Compensation flat charge	[Coverage in Monopolistic State Funds]
–	Small Deductible credit	[% applied to Total Manual Premium]
+	Aircraft Seat Surcharge	
	TOTAL SUBJECT PREMIUM	
x	Experience Modification (Exp Mod)	
	TOTAL MODIFIED PREMIUM	
x	Schedule Rating Factor	[(1 – SR Credit %) or (1 + SR debit %)]
x	Contracting Class Prem Adj Program Factor	[1 – CCPAP credit %]
+	Supplemental Disease Exposure (Asbestos, NOC)†	
+	Atomic Energy Radiation Exposure NOC†	
+	Charge for nonratable catastrophe loading †	
+	Balance to Minimum Premium (State Act)	[Balance to minimum premium at Standard Limits]
+	Balance to Minimum Premium (Admiralty, FELA)	
	TOTAL STANDARD PREMIUM ‡	
–	Premium Discount§	[% applied to Standard Premium]
+	Coal Mine Disease Charge	[Underground, surface, surface auger]
+	Expense Constant	
+	~~TRIA of 2002 Certified Losses and any amendments thereto enacted by Congress~~ Terrorism	[(PAYROLL / 100) * TERRORISM ~~RATE~~ VALUE]

* **The above rating method would be used in absence of independent carrier filings.**

EXHIBIT 16 (CONT'D)
BASIC MANUAL—2001 EDITION
MISCELLANEOUS RULES

	PREMIUM ELEMENTS	EXPLANATORY NOTES
+	Catastrophe (other than Certified Acts of Terrorism)	[(PAYROLL / 100) * CATASTROPHE (OTHER THAN CERTIFIED ACTS OF TERRORISM VALUE]
	ESTIMATED ANNUAL PREMIUM	

** Premium charges established for Waiver of Subrogration are not filed by NCCI for the voluntary market.

† Nonratable Element Premiums generated by nonratable portion of manual rate are subject to all applicable premium elements applied to the policy, however, not subject to experience rating or retrospective rating.

‡ Statistical calls for ratemaking data contain a different definition of "Standard Premium." Refer to ***Reporting Guidebook for the Annual Calls for Experience.***

§ For policies subject to premium adjustments under a retrospective rating plan, premium discount does not apply.

NOC =Not Otherwise Classified.

Note: For short rate cancellations, short rate percentage/short rate penalty premium factor is subject to experience rating, included in Total Subject Premium, and applied prior to Experience Modification.

EXHIBIT 17
BASIC MANUAL—2001 EDITION
MISCELLANEOUS RULES–APPLICABLE TO ASSIGNED RISK POLICIES ONLY

VIRGINIA ASSIGNED RISK WORKERS COMPENSATION PREMIUM ALGORITHM

The following algorithm provides the framework for premium charges and credits. Where not specified, the premium base would be the result from the prior line.

	PREMIUM ELEMENTS	EXPLANATORY NOTES
	MANUAL PREMIUM	[(PAYROLL / 100) * RATE]
+	Supplementary Disease (foundry, abrasive, sandblasting)	[(SUBJECT PAYROLL / 100) * DISEASE RATE]
+	USL&H Exposure for non-F classification codes	[(SUBJECT PAYROLL / 100) * (RATE * USL&H FACTOR)]
	TOTAL MANUAL PREMIUM	
+	Waiver of Subrogation factor	[% applied to the portion of Total Manual Premium where waiver is applicable, subject to minimum charge]
+	Employers Liability (E/L) increased limits factor	[% applied to Total Manual Premium]
+	Employers Liability increased limits charge	[Balance to E/L increased limits minimum premium]
+	Employers Liability increased limits factor (Admiralty, FELA)	[Factor applied to the portion of Manual Premium where Admiralty/FELA coverage is applicable]
+	Employers Liability/Voluntary Compensation flat charge	[Coverage in Monopolistic State Funds]
+	Aircraft Seat Surcharge	
	TOTAL SUBJECT PREMIUM	
x	Drug-Free Workplace Factor (1 – DFW credit)	
x	Experience Modification (Exp Mod)	
	TOTAL MODIFIED PREMIUM	
x	Assigned Risk Adjustment Program (ARAP) Surcharge	
x	Virginia Contracting Classification Premium Adjustment Program factor (1 – CCPAP credit %)	
+	Supplemental Disease Exposure (Asbestos, NOC)†	
+	Atomic Energy Radiation Exposure NOC†	
+	Charge for nonratable catastrophe loading†	
+	Balance to Minimum Premium (State Act)	[Balance to minimum premium at Standard Limits]
+	Balance to Minimum Premium (Admiralty, FELA)	
	TOTAL STANDARD PREMIUM‡	
+	Coal Mine Disease Charge	[Underground, surface, surface auger]
+	Expense Constant	
+	~~TRIA of 2002 Certified Losses and any amendments thereto enacted by Congress~~ Terrorism	[(PAYROLL / 100) * TERRORISM ~~RATE~~ VALUE]

EXHIBIT 17 (CONT'D)
BASIC MANUAL—2001 EDITION
MISCELLANEOUS RULES–APPLICABLE TO ASSIGNED RISK POLICIES ONLY

	PREMIUM ELEMENTS	EXPLANATORY NOTES
+	Catastrophe (other than Certified Acts of Terrorism)	[(PAYROLL / 100) * CATASTROPHE (OTHER THAN CERTIFIED ACTS OF TERRORISM) VALUE]
	ESTIMATED ANNUAL PREMIUM	

† Nonratable Element Premiums generated by nonratable portion of manual rate are subject to all applicable premium elements applied to the policy, however, not subject to experience rating or retrospective rating.

‡ Statistical calls for ratemaking data contain a different definition of "Standard Premium." Refer to ***Reporting Guidebook for the Annual Calls for Experience.***

NOC = Not Otherwise Classified.

Note: For short rate cancellations, short rate percentage/short rate penalty premium factor is subject to experience rating, included in Total Subject Premium, and applied prior to Experience Modification.

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 18-A
VIRGINIA WORKERS COMPENSATION STATISTICAL PLAN
ADDENDUM

AVAILABLE PREMIUM CREDIT/SURCHARGE PROGRAMS NOT SUBJECT TO EXPERIENCE MODIFICATION

Description	Stat Code	Premium Credit (–) or Debit (+)	Applicable States	Effective Date	Discontinuation Date
Terrorism—Not Subject to Experience Rating	9752	+	VA	01/01/08	08/31/08

ITEM 02-VA-2008—CATASTROPHE PROVISIONS MISCELLANEOUS VALUES, RULES AND STATISTICAL CODES

EXHIBIT 18-B
VIRGINIA WORKERS COMPENSATION STATISTICAL PLAN
ADDENDUM

AVAILABLE PREMIUM CREDIT/SURCHARGE PROGRAMS NOT SUBJECT TO EXPERIENCE MODIFICATION

Description	Stat Code	Premium Credit (–) or Debit (+)	Applicable States	Effective Date	Discontinuation Date
Catastrophe Provisions for Terrorism—Not Part of Standard Premium	9740	+	VA	09/01/08	

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EXHIBIT 19
VIRGINIA WORKERS COMPENSATION STATISTICAL PLAN
ADDENDUM

AVAILABLE PREMIUM CREDIT/SURCHARGE PROGRAMS NOT SUBJECT TO EXPERIENCE MODIFICATION

Description	Stat Code	Premium Credit (–) or Debit (+)	Applicable States	Effective Date	Discontinuation Date
Catastrophe Provisions for Catastrophe (other than Certified Acts of Terrorism)	9741	+	VA	09/01/08	