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TERRORISM INSURANCE

Status of Coverage Availability for Attacks Involving Nuclear, Biological, Chemical, or Radiological Weapons



GAO

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Highlights of [GAO-09-39](#), a report to congressional committees

Why GAO Did This Study

The Terrorism Risk Insurance Act of 2002 (TRIA) is credited with stabilizing insurance markets after the September 11, 2001, attacks by requiring insurers to offer terrorism coverage to commercial property owners (property/casualty insurance), and specifying that the federal government is liable for a large share of related losses. While TRIA covers attacks involving conventional weapons, insurers may use exceptions that may exclude coverage for attacks with nuclear, biological, chemical, or radiological (NBCR) weapons, which has raised concerns about the potential economic consequences of such attacks. TRIA's 2007 reauthorization directed GAO to review (1) the extent to which insurers offer NBCR coverage, (2) factors that contribute to the willingness of insurers to provide NBCR coverage, and (3) policy options for expanding coverage for NBCR risks. To do this work, GAO reviewed studies and reports and interviewed more than 100 industry participants about the availability of NBCR coverage in the market.

GAO provided a draft of this report to the Department of the Treasury and the National Association of Insurance Commissioners (NAIC). Treasury and NAIC said that they found the report informative and useful. NAIC did express what it said was a philosophical difference of opinion with GAO's characterization of risk-based premiums for workers' compensation insurers.

To view the full product, including the scope and methodology, click on [GAO-09-39](#). For more information, contact Orice Williams at (202) 512-8678 or williamso@gao.gov.

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What GAO Found

Consistent with the findings of a September 2006 GAO report on the market for NBCR terrorism insurance, property/casualty insurers still generally seek to exclude such coverage from their commercial policies. In doing so, insurers rely on long-standing standard exclusions for nuclear and pollution risks, although such exclusions may be subject to challenges in court because they were not specifically drafted to address terrorist attacks. Commercial property/casualty policyholders, including companies that own high-value properties in large cities, generally reported that they could not obtain NBCR coverage. Unlike commercial property/casualty insurers, insurers in workers' compensation, group life, and health lines reported generally providing NBCR coverage because states generally do not allow them to exclude these risks.

Commercial property/casualty insurers generally remain unwilling to offer NBCR coverage because of uncertainties about the risk and the potential for catastrophic losses, according to industry participants. Insurers face challenges in reliably estimating the severity and frequency of NBCR attacks for several reasons, including accounting for the multitude of weapons and locations that could be involved (ranging from an anthrax attack on a single building to a nuclear explosion in a populated area) and the difficulty or perhaps impossibility of predicting terrorists' intentions. Without the capacity to reliably estimate the severity and frequency of NBCR attacks, which would be necessary to set appropriate premiums, insurers focus on determining worst-case scenarios (which with NBCR weapons can result in losses that would render insurers insolvent). For example, a nuclear detonation could destroy many insured properties throughout an entire metropolitan area. Workers' compensation, group life, and health insurers that generally cannot exclude NBCR coverage from their policies also face challenges in managing these risks. For example, workers' compensation insurers said they face challenges in setting premiums that they believe would cover the potential losses associated with an attack involving NBCR weapons.

GAO reviewed two proposals that have been made to address the lack of NBCR coverage in the commercial property/casualty market. The first proposal, part of an early version of the bill to reauthorize TRIA in 2007, would have required insurers to offer NBCR coverage, with the federal government assuming a greater share of potential losses than it would for conventional attacks. Some industry participants supported this proposal because insurers otherwise would not offer NBCR coverage and because a substantial federal backstop was necessary to mitigate the associated risks. However, others said that some insurers might withdraw from the market if mandated to offer NBCR coverage, even with a substantial federal backstop. In a second proposal by some industry participants, the federal government would assume all potential NBCR risks through a separate insurance program and charge premiums for doing so. However, critics said the government might face substantial losses on such an NBCR insurance program because it might not be able to determine or charge appropriate premiums.

Contents

Letter		1
	Results in Brief	4
	Background	9
	Most Commercial Property/Casualty Insurers and Reinsurers We Contacted Exclude or Limit Coverage for NBCR Risks, While Workers' Compensation, Life, and Health Insurers Generally Are Required to Offer Such Coverage	13
	Potential Financial Consequences of NBCR Attacks Limit Property/Casualty Insurers' Willingness to Offer Coverage; Insurers for Other Lines of Insurance Report Limited Capacity to Manage Associated Risks	19
	Proposals to Increase Coverage for NBCR Attacks in the Property/Casualty Market Have Advantages and Disadvantages	27
	Agency Comments and Our Evaluation	35
Appendix I	Objectives, Scope, and Methodology	39
Appendix II	Comments from the National Association of Insurance Commissioners	43
Appendix III	GAO Contact and Staff Acknowledgments	47
Related GAO Products		48
Tables		
	Table 1: Types of Potential NBCR Attacks and Their Effects	11
	Table 2: Examples of Proposed or Existing Pooling Arrangements	30
	Table 3: Examples of Current and Past Federal Insurance Programs	34
Figure		
	Figure 1: Examples of Potential Property/Casualty and Workers' Compensation Losses from Different NBCR Scenarios in New York City	22

Abbreviations

AASCIF	American Association of State Compensation Insurance Funds
ACLI	American Council of Life Insurers
ANI	American Nuclear Insurers
FEMA	Federal Emergency Management Agency
ISO	Insurance Services Office
NAIC	National Association of Insurance Commissioners
NBCR	nuclear, biological, chemical, and radiological
NCCI	National Council on Compensation Insurance, Inc.
NFIP	National Flood Insurance Program
RIMS	Risk and Insurance Management Society, Inc.
TRIA	Terrorism Risk Insurance Act

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United States Government Accountability Office
Washington, DC 20548

December 12, 2008

The Honorable Christopher J. Dodd
Chairman
The Honorable Richard C. Shelby
Ranking Member
Committee on Banking, Housing, and Urban Affairs
United States Senate

The Honorable Barney Frank
Chairman
The Honorable Spencer Bachus
Ranking Member
Committee on Financial Services
House of Representatives

While the September 11, 2001, terrorist attacks killed nearly 3,000 people and resulted in an estimated \$32.5 billion in insured losses as of 2006, analysts estimate that casualties and property damage involving unconventional weapons, such as nuclear, biological, chemical, or radiological (NBCR) materials, could be substantially worse under some scenarios.¹ For example, under a RAND Corporation simulation of a terrorist-detonated nuclear explosion in the Port of Long Beach, California, 60,000 people could die instantly, another 150,000 people could require emergency medical treatment, and losses could reach \$1 trillion.²

Although the Terrorism Risk Insurance Act of 2002 (TRIA) requires companies that offer commercial property/casualty insurance (i.e., coverage for building damage and related legal costs for injuries to third parties) to provide coverage for terrorist attacks and specifies that the federal government assume a significant share of the associated financial

¹For statistics on the September 11, 2001, terrorist attacks, see Department of the Treasury, Board of Governors of the Federal Reserve System, Securities and Exchange Commission, and Commodity Futures Trading Commission, *Terrorism Risk Insurance: Report of the President's Working Group on Financial Markets* (Washington, D.C.: September 2006), 8.

²Charles Meade and Roger C. Molander, *Considering the Effects of a Catastrophic Terrorist Attack* (Santa Monica, Calif.: 2006). This scenario, developed by the RAND Center for Terrorism Risk Management Policy, involved a 10-kiloton nuclear bomb in a shipping container that explodes on the ground, shortly after the container is unloaded onto the pier.

responsibility, insurers' standard exemptions may exclude coverage for terrorist attacks involving NBCR materials.³ While TRIA has been credited with stabilizing markets for terrorism insurance for conventional weapons, such as explosives, Members of Congress, academics, and policyholders have expressed concerns about a potential lack of coverage for terrorist attacks involving NBCR materials. In particular, they have stated that a substantial amount of uninsured losses could prolong economic recovery associated with an NBCR attack.

In a September 2006 report, we analyzed issues related to insurers' coverage for terrorist attacks involving NBCR weapons in commercial property/casualty policies as well as in other insurance lines, including workers' compensation, group life, and health.⁴ We found that many commercial property/casualty insurers and reinsurers (companies that offer insurance to insurers) sought to exclude NBCR coverage from their policies or place significant restrictions on such coverage, largely because of potentially catastrophic losses associated with an NBCR attack. Although insurers reported that they would rely on standard policy exclusions for nuclear and pollution risks to generally limit exposure to NBCR risks, we noted that such exclusions may be challenged in courts.⁵ We found that although insurers in other lines also were concerned about attacks involving NBCR materials, state regulators generally did not permit

³Pub. L. No. 107-297, 116 Stat. 2322 (Nov. 26, 2002). Under TRIA, for 2007 and each year thereafter, the federal government would reimburse participating insurers for 85 percent of their losses up to a specified level, after the insurers pay a deductible equal to 20 percent of an individual insurer's earned premium.

⁴See GAO, *Terrorism Insurance: Measuring and Predicting Losses from Unconventional Weapons Is Difficult, but Some Industry Exposure Exists*, GAO-06-1081 (Washington, D.C.: Sept. 25, 2006). Commercial property/casualty insurance covers physical losses to property, business interruption or loss of the use of buildings due to property damage, and legal liability related to the maintenance of the property and business operations. Workers' compensation insurance covers employees for death or injuries as a result of a workplace incident. Group life insurers sell policies to members of a group, usually employees of the same company or members of the same association, to provide benefits to designated survivors after the death of the insured. Health insurance covers medical expenses resulting from sickness and injury.

⁵Because TRIA requires that insurers offer terrorism coverage that does not "differ materially" from the coverage in the rest of the policy, in their initial offer of terrorism coverage, insurers may not add any additional exclusions or conditional language to the policies specifying any terrorism risk as not being covered. However, representatives of insurers reported that their long-standing exclusions for nuclear and pollution risks generally contained in their commercial property/casualty policies would apply to exclude coverage for NBCR damages caused by terrorist attacks.

these insurers to exclude such risks from their policies. State workers' compensation laws generally require workers' compensation insurers to cover all risks, including claims from terrorist acts involving NBCR materials, and some state regulators do not allow life and health insurers to exclude such risks from their policies. Unlike commercial property/casualty and workers' compensation insurers, life and health insurers would not be eligible for federal reimbursement for terrorism losses under TRIA.⁶

In December 2007, Congress passed and the President signed the Terrorism Risk Insurance Program Reauthorization Act of 2007, which extended the federal TRIA program until 2014.⁷ The 2007 Reauthorization Act directed us to update our analysis of issues related to NBCR coverage. Specifically, the act required us to review (1) the extent to which insurers and reinsurers offer coverage for NBCR attacks; (2) the factors that contribute to the willingness of insurers and reinsurers to provide coverage for NBCR attacks and their ability to manage these risks; and (3) any public policy options for expanding coverage for these risks, given current insurance market conditions.

To address our objectives, we reviewed reports and studies on terrorism insurance for NBCR risks and interviewed more than 100 insurance industry participants about the availability of NBCR coverage in the market, factors contributing to the availability of NBCR coverage, and their views on options to expand the market for NBCR coverage. For coverage in commercial property/casualty and workers' compensation markets, we interviewed officials and representatives from state regulators, rating agencies, risk modeling firms, insurer and policyholder trade associations, national and regional insurance and reinsurance brokers, insurance and reinsurance companies, and policyholders in a variety of industries, in six geographic markets (Atlanta; Boston; Chicago; New York; San Francisco; and Washington, D.C.) that received different rankings for terrorism risk by an industry analyst. We interviewed some participants in specialized insurance markets, including a nuclear pool, Bermuda reinsurers, and a national broker with expertise in

⁶TRIA provides federal reinsurance for insured losses only in commercial lines of property and casualty insurance, which includes workers' compensation policies among other things. TRIA does not include health or life insurance. See 15 U.S.C. § 6701 note (Terrorism Insurance Program § 102(12)).

⁷Pub. L. No. 110-160, 121 Stat. 1839 (Dec. 26, 2007).

environmental insurance.⁸ Furthermore, we interviewed private insurers that provide workers' compensation insurance and a judgmental sample of nine state workers' compensation funds that generally provide insurance for employers that cannot obtain it in the private market. Our analysis of NBCR coverage and capacity in the life and health insurance industries was more limited. We reviewed our September 2006 report and interviewed state insurance regulatory officials in California; Georgia; Illinois; Massachusetts; New York; and Washington, D.C., about NBCR coverage. We also interviewed representatives from several group life and health insurers with a large market share nationwide and in these same states. Although we selected industry participants to broadly represent national and specific market conditions, our sample may not represent the universe of insurers, insurance brokers, policyholders, and regulators. As a result, we could not generalize the results of our analysis to the entire national market for terrorism insurance for NBCR attacks in the commercial property/casualty, workers' compensation, life, and health insurance markets. To obtain views on the advantages and disadvantages of some public policy options for expanding coverage for NBCR risks, we reviewed options proposed in legislation, suggested by industry participants, or discussed in our prior reports or in other reports. See appendix I for more detailed information on our scope and methodology.

We conducted this performance audit from January 2008 to December 2008, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Results in Brief

Consistent with findings in our 2006 report, representatives of most commercial property/casualty insurers we contacted said that they continue to exclude coverage for terrorist attacks involving NBCR materials, and representatives from several reinsurance companies that do offer such coverage reported placing significant restrictions on it. Insurance representatives reported that they continued to rely on long-established exclusions, such as the nuclear and pollution exclusions, to exclude or limit coverage. However, some insurance industry participants

⁸A pool of insurers provides joint coverage for losses at nuclear power plants.

said the applicability of these exclusions, particularly the pollution exclusion, could be challenged in court because the exclusions were not specifically developed to address terrorist attacks. In addition, representatives from policyholders, such as the owners of large properties in cities that are viewed as being at high risk of attack, including New York City and San Francisco, generally reported that they did not have coverage for attacks involving NBCR materials because (1) their insurers did not offer it; (2) they viewed available coverage as being too expensive to purchase (such as five times higher than their total property insurance costs); or (3) they had not sought coverage. Furthermore, due to the limited amount of NBCR coverage, some property owners said they had set up their own insurance companies, called captive insurers, specifically to cover the risks associated with such attacks.⁹ Unlike commercial property/casualty insurance policies, workers' compensation, group life, and health insurance policies generally provide NBCR coverage because these insurers generally are not able to exclude such coverage. Workers' compensation insurers generally are required to cover losses resulting from injuries sustained at the workplace, and state regulators generally review the terms for offering such coverage, including price and policy limits. Representatives from life and health insurers also reported that state regulators generally have not permitted them to exclude NBCR risks from their policies, although representatives of an insurer and a state regulator we interviewed reported some exceptions that indicate some policies may exclude or limit coverage for NBCR risks.

Commercial property/casualty insurers and reinsurers generally do not offer or strictly limit NBCR coverage because of the uncertainties about the risk and the potential for catastrophic losses, according to industry participants, and insurers that are required to provide such coverage—in workers' compensation, life, and health—reported some challenges in managing the associated risks. Property/casualty insurance industry participants we contacted told us that NBCR risks generally are uninsurable because insurers lack a reliable means to estimate the severity (because of the wide range of potential weapons and targets) and frequency (because of the impossibility of predicting terrorists' intentions)

⁹Captive insurers are generally established by major corporations, such as large real estate companies, to self-insure a variety of risks.

of such attacks.¹⁰ Without the ability to reliably estimate the severity and frequency of NBCR attacks, insurers lack a basis for setting premium rates to compensate for their potential losses. As a result, industry representatives reported that insurers and reinsurers focus on the most catastrophic NBCR attacks, under scenarios with widespread financial damage. For example, some representatives of property/casualty insurers told us that the scale of a nuclear blast could affect a far greater portion of an insurer's portfolio than a truck bomb of conventional explosives, potentially rendering insurers that chose to offer NBCR coverage insolvent. Although representatives of workers' compensation insurers in the private market told us they may not offer coverage to employers in geographic areas considered to be at higher risk of terrorist attack, representatives from state funds—state-established insurers generally designed to accept all employees—reported that they generally are required to cover all employers, regardless of location or risk level.¹¹ Both private workers' compensation insurers and state funds we contacted also said that they face challenges in managing NBCR risks, such as setting premiums that they believe would cover the potential losses associated with a terrorist attack that involved NBCR weapons (workers' compensation insurers in many states are permitted to add a uniform surcharge of one penny per \$100 of employee payroll to cover terrorism risks, including those involving NBCR materials). While group life and health insurers may have somewhat more regulatory flexibility than certain workers' compensation insurers to manage NBCR risks, they may face challenges in doing so. For example, group life insurers, due to competitive pressure within the industry, may be unwilling to restrict coverage in certain geographic markets perceived to be at higher risk of terrorist attack. Furthermore, partly due to their limited experience with the effects of attacks involving NBCR materials, representatives from

¹⁰Insurers rely on estimates of the severity (range of damages) and frequency (number of losses in a given time period) to predict expected losses and calculate premiums adequate to cover those losses. For example, insurers have access to large amounts of statistical and historical data on automobile accidents from which they can estimate expected losses; however, for infrequent and potentially catastrophic risks, such as NBCR attacks, insurers have little to no prior experience from which to use in estimating expected losses.

¹¹Private workers' compensation insurers are companies that may elect to provide coverage for workers' compensation in a state or for a particular employer. State workers' compensation funds are generally residual market programs established by the state to either (1) accept employers that cannot obtain insurance coverage in the private market or (2) serve as the monopoly or sole provider for workers' compensation insurance coverage in the state.

group life and health insurers said it is difficult for them to develop risk-based premiums to cover potential losses from an NBCR attack.

The two proposals that we identified and reviewed to increase the availability of insurance coverage for terrorist attacks involving NBCR materials focus on the commercial property/casualty market because such coverage is largely unavailable in that market and would involve the federal government assuming most or all of the associated financial risks.¹² One recent legislative proposal would amend TRIA to mandate that insurers make NBCR coverage available and would provide greater federal financial support for attacks involving NBCR weapons compared with the current TRIA program for terrorism attacks in general.¹³ A variety of industry participants supported this proposal. For example, representatives of one insurer said that, given insurers' reluctance to cover terrorist attacks involving NBCR materials, the only way to make such coverage available would be to mandate that commercial property/casualty insurers offer NBCR coverage. To offset the potential costs to insurers in providing such coverage, the federal government would assume a greater share of the potential losses. A recent RAND study also concluded that requiring insurers to cover NBCR risks may reduce potential taxpayer costs in comparison to the current situation in which the federal government may be asked to cover a large share of uninsured losses from an NBCR attack, as it has done after natural catastrophes and

¹²In prior reports, we have identified and reviewed other options for expanding insurance availability for natural catastrophes and terrorist attacks, such as allowing insurers to set aside tax-deductible reserves for such events, forming risk-sharing pools, or facilitating the issuance of catastrophe bonds through changes in the tax code. While some of these options (such as tax-deductible reserves and risk pools) are also discussed in this report, our analysis is in the context of insurers being required to provide NBCR coverage, with the federal government assuming a significant share of the associated financial exposure. The options we reviewed for this report were proposed either as initial legislation or by industry participants as a means to help insurers manage any NBCR risks that they would retain. However, given the nature of NBCR risks as discussed in this report, in the absence of a mandate that insurers provide NBCR coverage, these other options have limited support. See GAO, *Terrorism Insurance: Status of Efforts by Policyholders to Obtain Coverage*, [GAO-08-1057](#) (Washington, D.C.: Sept. 15, 2008); and *Catastrophe Risk: U.S. and European Approaches to Insure Natural Catastrophe and Terrorism Risks*, [GAO-05-199](#) (Washington, D.C.: Feb. 28, 2005).

¹³The federal share of insured losses under TRIA is 85 percent, with insurers being responsible for a deductible of 20 percent of direct earned premiums as well as a copayment; the proposal would lower the deductible to 3.5 percent for losses resulting from an attack using NBCR materials the first year of the program and raise it incrementally thereafter. See H.R. 2761, 110th Cong. § 3 (2007).

terrorist attacks.¹⁴ However, other industry participants said that even with a reduced exposure to the costs of an NBCR attack, some insurers might withdraw entirely from the commercial property/casualty insurance market if they were required to offer coverage for attacks involving NBCR materials. Under a separate proposal suggested by some industry participants, the federal government would assume complete financial liability for policyholders that elect coverage and charge premiums for doing so. Insurers would be responsible for administering the program similar to other federal insurance programs such as the National Flood Insurance Program. While some industry participants said that the only way to help ensure the availability of NBCR coverage would be for the federal government to assume all of the potential costs, others disagreed for several reasons. For example, some expressed concerns about the potential costs of such a program. The federal government may face substantial challenges in establishing appropriate premiums for NBCR risks and, therefore, could face significant losses, which has been the case in other federal insurance programs. In addition, some said insurance companies may not have the experience needed to provide claims adjustors and other personnel for areas affected by attacks involving NBCR materials.

We provided a draft of this report to the Department of the Treasury (Treasury) and the National Association of Insurance Commissioners (NAIC) for their review and comment.¹⁵ In oral comments, Treasury officials said that they found the report informative and useful. They also provided technical comments that we incorporated where appropriate. NAIC provided written comments that are reprinted in appendix II. In these comments, NAIC officials said they found our report useful and informative and agreed with its analysis of the various policy options, but also said that they had a philosophical difference of opinion with some statements in our draft report. In particular, NAIC commented on our discussion on the ability of workers' compensation insurers to charge risk-based premiums to employers perceived as being at higher risk for terrorist attacks. NAIC said that the draft report implied that state insurance regulators, due to voter and legislative pressure, keep premium

¹⁴Lloyd Dixon, Robert J. Lempert, Tom LaTourrette, and Robert T. Reville, *The Federal Role in Terrorism Insurance: Evaluating Alternatives in an Uncertain World* (Santa Monica, Calif.: 2007).

¹⁵NAIC is an organization of state insurance regulators and serves to coordinate regulation of multistate insurers.

rates artificially low for workers' compensation insurers rather than relying on actuarial science. NAIC disputed what they characterized as our implied contention and suggested that the recent profitability of the workers' compensation insurance industry indicates that premiums have not been suppressed by regulatory actions. We made clarifications to the draft to address certain NAIC comments. For example, we more fully described the surcharges that workers' compensation insurers may levy for covering losses from terrorist attacks, including those involving NBCR weapons. However, the draft report in no way meant to imply that state insurance regulators succumb to voter and legislative pressures in approving rates, and simply reported that workers' compensation insurers and some regulators we contacted for both our September 2006 report and this report said that they did not believe the permissible surcharge would be sufficient to cover the potential losses associated with an NBCR attack.¹⁶ Given that NBCR risks may not fully satisfy the principles of insurability (as we said in our September 2006 report), statements by representatives of workers' compensation insurers that question whether the permitted surcharge would be sufficient to cover potential losses do not appear to be inherently unreasonable. We also note that while NAIC reports that workers' compensation insurers have been profitable over the past several years, this does not mean that any premiums collected from this surcharge would be sufficient to cover the losses associated with a future NBCR attack. NAIC also provided technical comments that we incorporated as appropriate. We also obtained technical comments from several state insurance regulators and other organizations on a draft of this report, which were incorporated as appropriate.

Background

Congress enacted and the President signed TRIA in 2002 to help restore confidence and stability in commercial property insurance markets after private insurers withdrew terrorism coverage in the wake of the September 11 attacks. TRIA requires that commercial property/casualty insurers, including (among others) workers' compensation insurers, "make available" coverage for certified terrorist events under the same terms and conditions as other, nonterrorism coverage. Following a terrorist attack, the federal government would reimburse insurers for 85 percent of their losses after insurers pay a deductible of 20 percent of the value of each

¹⁶[GAO-06-1081](#).

company's prior year's direct earned premiums.¹⁷ Federal reimbursement is activated when aggregated industry losses exceed \$100 million and is capped at an annual amount of \$100 billion.¹⁸ TRIA also would cover losses caused by NBCR terrorist attacks if the insurer had included this coverage in the insurance policy.

Originally enacted as a 3-year program, TRIA was reauthorized in 2005; in 2007, Congress extended the program until 2014. In the deliberations over the 2005 and 2007 Reauthorization Acts, Congress considered mandating that commercial property/casualty insurers offer coverage for NBCR risks, with significantly lower deductibles and copayments.¹⁹ Congress also considered adding group life insurance to the TRIA program, so that group life insurers could receive reimbursements for the majority of their claims from terrorist events, including NBCR attacks.²⁰ Members of Congress supporting this provision argued that group life insurers were vulnerable to the same extraordinary losses from a terrorist attack as other insurance lines and could become insolvent after a catastrophic event. However, Treasury testified that the Administration did not want to expand TRIA to cover group life insurers, citing some reports that the group life insurance market has remained competitive after September 11. The NBCR requirement and the group life provisions were not included in the final TRIA reauthorizing legislation.

¹⁷See 15 U.S.C. § 6701 note (Terrorism Insurance Program §§ 102(7)(F) and 103(e)(1)(A)). Treasury regulation codified at 31 C.F.R. § 50.5(d), defines "direct earned premium" as "a direct earned premium for all commercial property and casualty insurance issued by any insurer for insurance against all losses, including losses from an act of terrorism, occurring at locations" within the United States or, to U.S. Air Carriers or U.S. flag vessels, or at the premises of any U.S. mission. Treasury provided further clarification that direct earned premiums are "earned as reported to the NAIC in the Annual Statement in column 2 of Exhibit of Premiums and Losses (commonly known as Statutory Page 14)" and cover all risks, not only risks from terrorism.

¹⁸The Terrorism Risk Insurance Program Reauthorization Act of 2007 clarified language on insurers' liability, stating that insurers are not responsible for losses that exceed an annual liability cap of \$100 billion. See 15 U.S.C. § 6701 note (Terrorism Insurance Program § 103(e)(2)(A)(i) and (ii)).

¹⁹H.R. 2761, 110th Cong. § 3 (2007); H.R. 4314, 109th Cong. § 2 (2005).

²⁰*Id.*

Variation in Potential Weapons Involving NBCR Materials and Examples of Prior Attacks

Government and other experts have stated that terrorist attacks involving NBCR weapons could affect people and property in a variety of ways, depending on the weapon used as well as the location of the attack. Table 1 provides examples of attacks using NBCR weapons as well as some of their potential effects.

Table 1: Types of Potential NBCR Attacks and Their Effects

Threat	Type of threat	Example of an event	Potential effects
Nuclear	Detonated device	A 10-kiloton nuclear device is detonated in a large city	Destruction of buildings with subsequent high-energy radiation and extreme heat forming a cloud from which highly lethal radioactive material would fall.
Biological	Anthrax	A concealed device sprays anthrax spores in a city	Agents—such as anthrax and smallpox—can multiply in the human body, significantly increasing their effects. Many biological agents are highly virulent and toxic; they may have an incubation period so that their effects are not seen for hours to days.
Chemical	Nerve agent	Sarin is sprayed into the ventilation system of three commercial buildings in a city	Because many chemicals are inherently hazardous, the release of chemicals or the risk of contamination at chemical facilities poses a potential threat to public health and the economy. Approximately 800,000 shipments of hazardous materials such as liquid chlorine and ammonia travel daily throughout the United States by ground, rail, air, water, and pipeline. Many of these materials are explosive, flammable, toxic, and corrosive and can be extremely dangerous when improperly released, and a release could cause injury or death and significant environmental damage.
Radiological	Dispersal device	“Dirty bombs” are detonated in three cities in regional proximity	A dirty bomb uses conventional explosives to disperse radioactive material across the immediate area. The primary short-term exposure hazard to humans would be inhalation of radioactive material suspended in the dust and smoke from the explosion, leading to radiation injury and potential death.

Source: GAO.

Note: For additional information on NBCR attacks, see GAO, *Homeland Security: First Responders’ Ability to Detect and Model Hazardous Releases in Urban Areas Is Significantly Limited*, [GAO-08-180](#) (Washington, D.C.: June 27, 2008); *Combating Nuclear Terrorism: Federal Efforts to Respond to Nuclear and Radiological Threats and to Protect Key Emergency Response Facilities Could Be Strengthened*, [GAO-08-285T](#) (Washington, D.C.: Nov. 15, 2007); *Chemical and Biological Defense: Updated Intelligence, Clear Guidance, and Consistent Priorities Needed to Guide Investments in Collective Protection*, [GAO-07-113](#) (Washington, D.C.: Jan. 19, 2007); and *Combating Terrorism: Need for Comprehensive Threat and Risk Assessments of Chemical and Biological Attacks*, [GAO/NSIAD-99-163](#) (Washington, D.C.: Sept. 14, 1999).

Previous attacks involving NBCR materials in United States and Japan also illustrate a range of consequences. In September and October 2001, contaminated letters laced with anthrax were sent through the mail to two U.S. senators and members of the media. As a result, 22 individuals contracted anthrax disease, and 5 of these individuals died. In 1984, the Rajneeshee religious cult in Oregon contaminated salad bars in local restaurants with salmonella bacteria to prevent people from voting in a local election. Although no one died, 751 people were diagnosed with the

food-borne illness. In 1995, 12 people were killed and many more were injured after Aum Shinrikyo, a State Department-designated terrorist organization, released the chemical nerve agent Sarin in the Tokyo subway.

Overview of State Regulation of Insurance and Workers' Compensation Insurance Providers

States have the primary responsibility for regulating the insurance industry in the United States, and the degree of oversight varies by insurance line and state. In some lines of insurance, state regulators guide the extent of coverage by approving the wording of policies, including the explicit exclusion of some perils. Regulators coordinate their activities, in part, through NAIC. According to an NAIC representative, while practices vary by state, state regulators generally review prices for personal lines of insurance and workers' compensation policies but not for commercial property/casualty policies. In most cases, state insurance regulators perform neither rate nor form review for large commercial property/casualty insurance contracts because it is presumed that businesses have a better understanding of insurance contracts and pricing than the average personal-lines consumer. Reinsurers generally are not required to obtain state regulatory approval for the terms of coverage or the prices they charge.

Because state laws generally require employers to carry workers' compensation insurance, which covers employees for death or injuries as a result of a workplace incident, employers generally obtain coverage either from a private insurance company or from a fund established by the state.²¹ Twenty-six states have established separate funds, either run by the state or as a separate company, according to the American Association of State Compensation Insurance Funds (AASCIF), and most of these states provide workers' compensation coverage for all employers seeking it. An NAIC official told us that when state governments began requiring employers to purchase workers' compensation coverage, many states established separate funds to provide a mechanism to ensure coverage for those employers that could not obtain it in the private market. The majority of state funds are competitive, meaning that the state fund competes for business with other private insurers. However, in four states,

²¹Texas is an exception; most employers in that state may elect not to have the protections of workers' compensation insurance. In at least 35 states and Washington, D.C., employers may establish high-deductible programs with admitted insurers, where the employer covers losses under a net retention level and the insurer (or insurers) covers any claims above that amount, according to the National Council on Compensation Insurance, Inc. (NCCI).

the state fund is the sole insurer for workers' compensation, unless an employer is permitted to self-insure.²² The National Academy of Social Insurance reported that in 2006, just over half of workers' compensation benefits (50.38 percent) were paid by private insurers, with just under half coming from state funds (19.66 percent), federal programs (5.98 percent), and self-insured employers (23.98 percent).²³

Most Commercial Property/Casualty Insurers and Reinsurers We Contacted Exclude or Limit Coverage for NBCR Risks, While Workers' Compensation, Life, and Health Insurers Generally Are Required to Offer Such Coverage

Commercial property/casualty insurers and reinsurers generally seek to exclude coverage for NBCR risks or place significant restrictions on such coverage. According to industry participants, insurers interpret the language of longstanding exclusions developed for nuclear and pollution risks as excluding terrorist attacks involving NBCR weapons, but the use of such exclusions may be challenged in court. Representatives from policyholders from a variety of industries, including real estate, financial services, and hospitality, also told us that they do not have NBCR coverage either because a very limited amount of NBCR insurance is available or they do not view the rates for available coverage as reasonable. A few policyholders also reported self-insuring these risks through captive insurers. Representatives from workers' compensation, life, and health insurers we contacted generally reported that they cover losses from terrorist attacks, including those involving NBCR materials, because they said state regulators generally do not allow these insurers to exclude such risks.

²²As of September 30, 2008, and according to NCCI, these states are North Dakota, Ohio, Washington, and Wyoming. In addition, information from AASICF and NCCI indicated that in all but five states, the state fund cannot turn away or limit coverage.

²³Source: NAIC. In order to self-insure workers' compensation losses, employers must meet certain eligibility requirements proving they are financially able to do so.

NBCR Coverage Generally Is Unavailable in Commercial Property/Casualty Insurance and Reinsurance Policies, but the Exclusions Used to Limit Coverage Could Be Challenged in Court

While few market surveys that we identified specifically have addressed the availability of property/casualty insurance for terrorist attacks involving NBCR materials, our interviews with a range of industry participants suggests that such coverage continues to be limited.²⁴ Representatives from the majority of the insurers and reinsurers we interviewed said that their companies generally do not offer NBCR coverage or offer a limited amount of such coverage. Representatives of large insurance and reinsurance trade associations, as well as national insurance brokers, also reported a general lack of coverage for NBCR risks. According to a representative from a large national insurance broker, he was not aware of any primary insurers that offered NBCR coverage as part of their standard property/casualty policies. The representative said that some insurers that offer “stand-alone” terrorism insurance policies offer NBCR coverage, but demand for this product is minimal due to its relatively high price and restrictions. Although representatives of several reinsurers based in Bermuda told us that their companies offer some NBCR coverage, the reported restrictions on these policies help illustrate some of the limitations of the available coverage. For example, the policy language of one reinsurance contract we reviewed limited NBCR coverage only to losses resulting from the initial “force or violence” of the NBCR terrorist attack and did not cover long-term effects, such as resulting illnesses or business interruption.

Insurance companies seek to limit their coverage for NBCR risks by relying on long-standing exclusions for nuclear and pollution risks, which already have been approved by state regulators. As we stated in our September 2006 report, insurers have written exclusions related to nuclear hazard risks into their standard policies for decades, generally to protect themselves from losses related to nuclear power accidents. Furthermore, representatives from the Insurance Services Office (ISO), a national organization for the property/casualty insurance industry that develops standardized policy language designed to comply with regulatory requirements, said that insurers also typically exclude coverage for losses caused by pollution and contamination. ISO representatives told us that

²⁴In 2005, Treasury reported on results of a national survey of insurers that found, on average, that 35 percent of insurers in TRIA-eligible lines reported they wrote some coverage for NBCR terrorism risks. However, Treasury officials have stated some limitations with this figure, as some insurers responding to the survey may offer NBCR coverage in one commercial property/casualty policy and some may offer in all of their policies. See Department of the Treasury, Report to Congress, *Assessment: The Terrorism Risk Insurance Act of 2002* (Washington, D.C.: June 30, 2005).

the pollution exclusion was developed to exclude coverage for the release of many different substances—such as asbestos or pesticides—that could cause harm to people and the environment. Some insurance representatives said that the pollution exclusion could be applied to biological and chemical agents released in a terrorist attack.

Because these exclusions were developed for other purposes, some regulators and insurance industry participants said that their use by insurers in the event of an attack involving NBCR materials could be challenged. Representatives from one large insurer told us that language in the nuclear hazard exclusion may not be clear enough to apply to a nuclear terrorist attack. Similarly, representatives from a large insurance company said the pollution exclusion would not apply unless the terrorist attack itself was deemed to be a polluting event. An official from the New York Insurance Department also said that the Department did not interpret the definition of “pollutants” in the standard pollution exclusion forms to apply to biological and chemical terrorist attacks. Courts determine whether a particular substance is or is not a pollutant based upon, among other things, the language in the policy, the facts and circumstances of the case, and the law of jurisdiction.²⁵ As we stated in our September 2006 report, given the potential for litigation and court interpretation, insurers and other industry experts have raised some concerns as to how effectively the pollution exclusion would protect insurers against losses resulting from an NBCR terrorist attack.

Property/casualty insurers also may face potential exposure to losses from NBCR attacks as the result of state requirements, but it is difficult to assess the extent of this exposure. According to industry officials, 16 states—including California, Illinois, and New York—require property/casualty insurers to cover losses from fire following an event, regardless of the cause of fire.²⁶ As we reported in 2006, in the case of a nuclear bomb detonation, once the property was destroyed, insurers could dispute the extent to which fire (covered in “fire following” states) or the

²⁵See Couch on Ins. § 127.8 (2006).

²⁶According to information from the Insurance Information Institute and ISO, the states that do not allow exclusions to the Standard Fire Policy for terrorism—thereby requiring coverage for fire following an act of terrorism—are California, Georgia, Hawaii, Illinois, Iowa, Maine, Massachusetts, Missouri, New Jersey, New York, North Carolina, Oregon, Rhode Island, Washington, West Virginia, and Wisconsin. Connecticut and Virginia enable an exclusion of fire following a certified act of terrorism. Fire coverage in both of these states would be required if TRIA expired.

blast (excluded by the nuclear exclusion) caused the damage. However, given the potential devastation resulting from a nuclear terrorist attack—including potentially widespread destruction and protracted evacuations—it may be difficult for insurers, policyholders, regulators, and courts to resolve any issues related to the cause of loss.

Property/Casualty Policyholders Report That NBCR Coverage Generally Is Unavailable or Available at Prices They View as Unaffordable

Information we obtained from commercial policyholders in a range of industries across the country also indicate that property/casualty coverage for NBCR risks is very limited. For example, we interviewed representatives from real estate companies that own large, high-value commercial properties (such as office buildings or hotels) in cities—including Chicago, New York, and San Francisco—that generally are viewed as being at high risk of terrorist attack. While representatives from these companies said that they generally were able to obtain coverage for terrorist attacks that involve conventional weapons, such as truck bombs, they generally did not have NBCR coverage. In addition, results from a recent survey of risk managers conducted by the Risk and Insurance Management Society, Inc. (RIMS), show that commercial policyholders generally have not been offered NBCR coverage in their insurance policies. Although the RIMS survey has several limitations, it found that less than 15 percent of the respondents had coverage for NBCR attacks.²⁷ Furthermore, representatives we contacted from industries such as transportation, hospitality, entertainment and utilities also reported that they did not have NBCR coverage, or had limited coverage, such as for only chemical risks.²⁸

Policyholders we contacted said that they generally lacked NBCR coverage because (1) their insurers did not offer it; (2) the prices quoted on the coverage that was available were viewed as too expensive to purchase; or (3) they did not seek coverage. For example, a representative of a shopping center development company with retail locations in various cities throughout the United States said that the company is concerned

²⁷RIMS officials told us they surveyed their deputy members, or the company's highest-ranking individual responsible for making insurance decisions. Deputy members from 377 of 3,500 companies responded to the survey, about a 10 percent response rate. RIMS representatives told us that they could not determine the industry or the size of company the respondents represented.

²⁸In addition to one-on-one interviews with policyholders, we conducted group discussions with representatives of 14 policyholders at the annual RIMS conference in San Diego, California, in April 2008.

about the risks of NBCR attack and has sought insurance coverage. However, the representative said that the company has not been able to identify any insurers that would offer the company NBCR coverage or provide pricing information. In addition, representatives of a commercial real estate developer in Washington, D.C., said that quoted insurance premiums for NBCR coverage were five times higher than their total property insurance costs. Insurance brokers we contacted told us that although some of their commercial policyholder clients have inquired about NBCR coverage, the demand for such coverage is less than that for conventional terrorism coverage. As we stated in 2006, demand for conventional terrorism coverage is high in the commercial real estate sector because mortgage lenders generally require companies to purchase coverage. However, according to brokers and a lender that we interviewed, lenders do not require companies to secure coverage for NBCR terrorist attacks because such coverage is largely unavailable.

Due to concerns about the potential for NBCR attacks and the general lack of coverage offered by insurers, some policyholders said that they had established captive insurers to self-insure the risk and obtain federal reinsurance under TRIA.²⁹ Captive insurers are generally established by major corporations, such as large real estate companies, to self-insure a variety of risks. Corporations may create captives for several reasons, including to obtain coverage for certain risks that may no longer be provided by the private market (such as medical malpractice insurance), access additional coverage directly from a reinsurer, or reduce tax payments. According to a representative from an insurance broker that helps companies in establishing and managing captives, companies either may add NBCR coverage to an existing captive insurer or may create one to cover NBCR risks. For example, a representative from a national real estate company told us that he had difficulty finding terrorism insurance at prices viewed as reasonable and without restrictions, so the company established a captive that covered NBCR risks. Although captives may help some companies limit their potential exposure from NBCR attacks, available information suggests that captives are not widely used for this purpose, perhaps because companies may lack the financial resources

²⁹Under TRIA, insurers required to participate in the program are generally defined as entities, among others, licensed and or admitted to engage in the business of providing primary or excess insurance in any state. *See* 15 U.S.C. § 6701 note (Terrorism Insurance Program § 102(6)(A)(i)). Because captives are licensed and admitted by the states, captives may be insurers under TRIA and, therefore, may be eligible for payments for losses related to certified NBCR attacks.

necessary to do so.³⁰ To illustrate, representatives from 18 percent of the 39 policyholders we contacted and 6 percent of the 377 respondents to the RIMS survey that we have previously discussed reported using captives to insure NBCR risks.

Workers' Compensation, Life, and Health Insurers Generally Cover NBCR Risks Due to State Requirements

Unlike property/casualty insurers, workers' compensation insurers we contacted said that they offer NBCR coverage because they generally are not permitted to exclude it under state laws and regulations. As we found in 2006, applicable state laws generally require workers' compensation insurers to cover all perils, including those from NBCR risks. Under state workers' compensation laws, employers are responsible for covering unlimited medical costs and a portion of lost earnings for injuries or illnesses that occur during the course of employment, regardless of the cause, according to NAIC.

Similarly, we were told that group life insurers generally do not exclude NBCR coverage from their policies, according to regulators and industry participants. Officials from five of the six state insurance regulators that we interviewed reported that they do not allow terrorism or NBCR attacks to be excluded from life insurance policies.³¹ However, officials from these regulatory agencies also said that their states had not enacted laws that explicitly require insurers to offer such coverage. Given the lack of statutory requirements, officials from Washington, D.C., told us that group life insurers in the District could exclude NBCR risks from their coverage. However, representatives from the American Council of Life Insurers, a national trade association for life insurers, reported that they were not aware of the use of NBCR exclusions and believed that group life insurers generally cover NBCR risks; officials from several large life insurance companies confirmed that they provided coverage.

Finally, health insurers also generally cover NBCR risks, according to state regulators, representatives from America's Health Insurance Plans, and health insurers we contacted. According to industry participants, health insurers generally are required to pay claims, regardless of the cause that led to the claim. Insurance regulatory officials from several states with

³⁰States that allow corporations to set up captives may subject those captives to certain capital and licensing requirements.

³¹Regulatory officials we interviewed were from California, Georgia, Illinois, Massachusetts, New York, and Washington, D.C.

locations viewed as high risk—California, Georgia, Illinois, Massachusetts, and New York—told us that they do not permit health insurers to exclude NBCR coverage from their policies. However, regulatory officials in Washington, D.C., said that health insurers were not mandated to cover NBCR risks in the District and insurers had filed policies with NBCR exclusions. In addition, a representative from one large health insurer said that the insurer would invoke the *force majeure* clause—a general contract provision used to relieve parties from their responsibilities due to circumstances beyond their control, such as acts of God—to exclude NBCR risks. However, representatives from two state regulators we interviewed told us they were not familiar with the *force majeure* clause, and an official from the Georgia Department of Insurance told us he did not think the clause would apply to terrorist acts involving NBCR materials.

**Potential Financial
Consequences of
NBCR Attacks Limit
Property/Casualty
Insurers' Willingness
to Offer Coverage;
Insurers for Other
Lines of Insurance
Report Limited
Capacity to Manage
Associated Risks**

Commercial property/casualty insurers and reinsurers generally are not willing to provide coverage for NBCR attacks or place significant restrictions on the coverage they offer because of the uncertainties surrounding such attacks and their potential for generating catastrophic losses. Although private workers' compensation insurers generally have greater flexibility than state funds to limit their exposure to losses from NBCR attacks by not offering coverage to certain employers, both private insurers and state funds may face other challenges in managing the risks associated with terrorist attacks involving NBCR weapons, such as limits on their ability to price such risks and obtain private reinsurance. Life and health insurers may also face challenges in managing NBCR risks, such as competitive market pressures and challenges in establishing appropriate premiums for their potential exposures.

Commercial Property/Casualty Insurers and Reinsurers Are Concerned about the Uncertainty and Potential Enormity of Losses from NBCR Attacks

As we stated in our September 2006 report, many insurers view terrorist attacks, particularly attacks involving NBCR materials, as an uninsurable risk because of uncertainties about the severity and frequency of such attacks. Insurance companies typically manage and assess risk on the basis of their expected losses, using historical information about the range of damages (severity) and the number of incidents in a given period of time (frequency). For some risks, such as those related to driving automobiles, insurers have access to a substantial amount of statistical and historical data on accidents, from which they can predict expected losses and then calculate premiums that are adequate to cover these losses. Large claims from automobile accidents also generally do not occur to a large number of policyholders at the same time, which serves to limit insurers' exposures. In contrast, catastrophes, including natural disasters such as hurricanes as well as terrorist attacks, present unique challenges to insurers because they may result in substantial losses and are relatively infrequent. To address these challenges, insurers may use computer models developed internally and by outside firms to help estimate the financial consequences of various disaster scenarios, and in some cases, to develop appropriate premiums. However, as we have previously noted, due to data limitations, estimating the potential consequences of terrorist attacks is fundamentally different and substantially more difficult than forecasting natural catastrophes. For example, substantial data are available on the frequency and severity of hurricanes, but the United States has experienced relatively few terrorist attacks, particularly those involving NBCR materials.³²

Estimates of the potential severity of attacks involving NBCR materials may be particularly difficult to produce for several reasons, according to insurance industry participants and representatives from firms that have developed computer models for catastrophe risks. For example, as we previously have discussed, a wide range of potential weapons are associated with NBCR attacks, which could result in varying amounts of property damage as well as injuries and deaths (see fig. 1). While estimates for the damage resulting from nuclear blast in an urban area exceed the loss estimates for a chemical attack on a single building or facility, loss estimates also may vary for different types of attacks using the same





³²In the United States, the number of terrorist attacks with significant insured losses includes the September 11 attacks, the 1995 Oklahoma City Bombing, and the 1993 World Trade Center bombing, according to the Insurance Information Institute. In addition, as we previously have discussed, a limited number of incidents involving biological agents have occurred in the United States. See [GAO/NSIAD-99-163](#).

agent. For example, one modeling firm has produced a scenario in which a moving truck releases anthrax in a highly populated urban area creating total insured losses of \$144 million, 20 times higher than if the anthrax were released through a sprayer inside the ground floor of a large building.³³ Representatives of insurers and reinsurers we interviewed expressed concerns about models' ability to account for all of the potential losses associated with an NBCR attack, such as business interruption and litigation costs, which may be difficult to quantify. In addition, a recent report by one modeling firm stated that decisions about the extent of cleanup required for nuclear and radiological contamination likely will be made after the attack, creating further uncertainties about the cost of rebuilding or remediation.³⁴

³³See Stephen J. Carroll, Tom LaTourette, Brian G. Chow, Gregory S. Jones, and Craig Martin, *Distribution of Losses from Large Terrorist Attacks Under the Terrorism Risk Insurance Act* (Santa Monica, Calif.: 2005). The authors concede that their analysis is limited by the sparse history of documented anthrax victims, so that "there is substantial uncertainty about the injury distribution that can be expected in an attack."

³⁴AIR, *Proposed NBCR Changes to TRIEA [Terrorism Risk Insurance Extension Act] and Their Impact on Insurers' Terrorism Exposure* (Boston, Mass: October 2007), 1. In addition, we have recently reported that urban plume models that federal agencies have developed specifically for tracking the release of NBCR materials in urban areas have major limitations in terms of predicting the path and the extent of contamination. See [GAO-08-180](#).

Figure 1: Examples of Potential Property/Casualty and Workers' Compensation Losses from Different NBCR Scenarios in New York City

Attack in New York City			Estimated losses (dollars in billions)	Estimated fatalities (numbers in thousands)
Type	Form	Size		
Chemical 	Sarin gas	1,000 kg ground dispersal	\$34	6,000
Radiological 	Dirty bomb	15,000 curies of Cesium-137	43	A few
Biological 	Anthrax	1 kilogram anthrax slurry	118	34,000
		10 kilogram anthrax slurry	254	80,000
		75 kilogram anthrax slurry	501	207,000
Nuclear 	Nuclear power plant sabotage	Nearby nuclear powerplant	217	A few
	Nuclear bomb	Battlefield 1 kiloton	205	1,300,000
		Tactical 5 kiloton	584	3,000,000

Sources: Risk Management Solutions, Inc.; Art Explosion (images).

Note: According to Risk Management Solutions, Inc, the dirty bomb scenario would use a TNT detonation to disperse spent fuel rods of Cesium-137. In the anthrax slurry attack, anthrax would be aerosolized and released in a watery mixture by a high pressure hose. A battlefield 1 kiloton bomb would come from a suitcase-size bomb, and the tactical 5 kiloton bomb would come from a larger nuclear device.

Insurers also face challenges with developing frequency estimates for NBCR attack scenarios. Representatives of risk modeling firms told us they use worldwide incidents of NBCR attacks and researchers' opinions on terrorists' capabilities and potential targets to develop estimates for NBCR event frequency. However, some insurance industry participants described frequency estimates of NBCR attacks as too subjective to be used as a basis for pricing coverage, because views on the frequency of attacks vary. For example, while one modeling firm stated in a recent report that its estimates for the frequency of terrorist attacks are

0.6 events per year, or 2.0 events every 3 years, the representative of a large commercial property/casualty insurer said that his firm viewed the risk as occurring once every 8 years.³⁵ Furthermore, insurance experts said that terrorists continue to adjust their strategies, thereby making past attacks a poor predictor of future events.

Because insurers and reinsurers face challenges in reliably estimating the severity and frequency of terrorist attacks involving NBCR materials and setting appropriate premiums, industry representatives reported that their companies focus on the most catastrophic attacks under scenarios with widespread financial losses. For example, some representatives of property/casualty insurers told us that the scale of a nuclear blast could have a devastating impact on an insurer that chose to offer NBCR coverage, because such an attack could destroy or render uninhabitable many or all buildings within a large metropolitan area. In contrast, we have previously reported that since TRIA was enacted, insurers have some ability to limit their potential losses from terrorist attacks involving conventional weapons such as truck bombs, because the damage resulting from such attacks might be confined to a smaller geographic area, such as a radius of several blocks from the attack.³⁶ Representatives of insurers we contacted told us their companies may limit their property/casualty coverage in locations viewed as at high risk for a terrorist attack, such as New York City; however, they reported that the potential losses from an NBCR attack could far exceed what their company would be able to cover. As we reported in 2006, academic experts and industry participants have pointed out that insurers have little incentive to insure catastrophic events that might jeopardize their financial soundness and solvency, so insurers remain unwilling to offer coverage for NBCR attacks.

³⁵Risk Management Solutions, Inc., *Terrorism Risk: 7-Year Retrospective, 7-Year Future Perspective; RMS White Paper* (Newark, Calif.: 2008).

³⁶We recently reported that insurers mitigate potential losses from a single, conventional terrorism attack by limiting the amount of property coverage that they would offer in confined geographic areas within cities. Using risk models, insurers map the locations of properties they cover as well as other types of coverage they provide in the area so that they can consider the extent to which one terrorist attack could trigger losses among multiple lines of insurance. See [GAO-08-1057](#).

Private Workers’
Compensation Insurers
Have Somewhat Greater
Flexibility to Manage
NBCR Risks by Choosing
Which Employers to Offer
Coverage, but Private
Insurers and State Funds
Face Other Risk
Management Challenges

Although private and state workers’ compensation insurers generally must cover losses resulting from NBCR attacks, private companies generally have greater flexibility in managing their exposures to losses from NBCR attacks under the TRIA program. Specifically, private insurers may choose to which employers they will offer coverage.³⁷ Accordingly, representatives of private insurers reported that their companies have monitored or limited coverage offerings to employers with employees concentrated in locations considered to be at higher risk for an NBCR attack. For example, representatives of smaller, more regionally based insurers said their companies decided not to offer coverage for certain employers that have employees concentrated in densely populated locations, or limited their overall coverage offerings for workers’ compensation in urban areas.³⁸

In contrast to private insurers, state workers’ compensation funds generally are unable to limit their NBCR risks on the basis of employers’ perceived risk levels. State laws and regulations generally require state funds to provide coverage to all employers—regardless of their location or risk level—and serve either as the state’s sole insurer or as the insurer of last resort. While officials from some state funds we contacted said that they were concerned about exposure to losses from an NBCR attack, they also said the nature of their funds’ operations might limit that exposure to some degree. For example, representatives from some funds said that because they offered coverage to a significantly large group of employers of varying sizes across the state, their exposure to losses from NBCR attacks was somewhat diversified.

Finally, representatives of private workers’ compensation insurers and state funds told us that they faced some challenges in managing NBCR exposures, such as pricing the risk and obtaining adequate amounts of

³⁷Private insurers offering workers’ compensation insurance policies can decide to which employers to offer coverage, but as we have previously discussed, their workers’ compensation policies cannot contain any exclusions for losses from terrorist or NBCR attacks.

³⁸Residual market mechanisms called “assigned risk plans” can limit the ability of private workers’ compensation insurers to manage NBCR risks in some states. In these states, employers that cannot obtain workers’ compensation coverage in the private or “voluntary” market are assigned to private workers’ compensation insurers, which administer their claims and share in the funding of those claims. Representatives of one private insurer we contacted told us that with assigned risk policyholders, their company has less information about the type and location of the employer. See also Patricia Danzon and Scott E. Harrington, “Workers’ Compensation Rate Regulation: How Price Controls Increase Costs,” *Journal of Law and Economics*, vol. 44, no. 1 (April 2001), 5.

private reinsurance. Recognizing workers' compensation insurers' exposure to terrorism risks, state regulators in at least 37 states, including the District of Columbia, have permitted insurers to apply a statewide surcharge, or additional premium, (which is on average about 1 cent per \$100 payroll) to cover the potential losses from terrorist attacks, including those involving NBCR materials.³⁹ The National Council on Compensation Insurance, Inc. (NCCI), developed statewide surcharges based on the results of a model, as a way for insurers that underwrite in states that belong to NCCI to cover potential losses from terrorism, including those using NBCR materials.⁴⁰ NCCI officials told us that their surcharges generally are uniform across a state and insurers using this surcharge generally cannot levy higher surcharges for employers they perceive to be at higher risk of terrorist attack. Furthermore, NCCI's surcharges were developed to cover potential losses from terrorist attacks involving conventional as well as NBCR weapons. Officials from the New York Compensation Rating Board, which develops workers' compensation rate proposals for the state of New York (which does not belong to NCCI), also told us the state's surcharges were developed to cover potential losses from both conventional and NBCR terrorist attacks. However, as we stated in our 2006 report, state regulators and insurance representatives advised us that any surcharges that insurers may be permitted to charge for NBCR exposure likely would not cover potential losses. Similarly, representatives of private workers' compensation insurers we contacted for this report that underwrite coverage in locations considered at high risk for terrorist attacks said that their surcharges for terrorism may not cover all of their potential exposure. In addition, representatives of many of the private insurers and some of the state funds we interviewed said that they had little to no private reinsurance for NBCR risks, and that they would rely on TRIA in the event of a catastrophic NBCR attack.

³⁹One cent per \$100 payroll is the average for the voluntary workers' compensation terrorism surcharge. The highest surcharge developed by NCCI is 5 cents per \$100 payroll, used in Washington, D.C.

⁴⁰NCCI is an organization that prepares insurance rate (price) recommendations for workers' compensation insurance.

Group Life and Health Insurers May Face Challenges in Managing NBCR Risks

In contrast to workers' compensation insurers, life and health insurers may have somewhat more flexibility to manage the risks associated with terrorist attacks involving NBCR materials. For example, unlike workers' compensation insurers, the prices charged by group life insurers generally are not subject to state regulatory approval. Group health insurers generally are able to negotiate the terms of health care coverage with employers and employees, unlike workers' compensation benefits that are state-mandated.

However, based on the limited amount of work we conducted, we found that for terrorist attacks involving NBCR materials, group life and health insurers face the following risk-management challenges:

- Group life insurers may not actively seek to limit the amount of coverage that they offer in geographic markets perceived to be at high risk of attack, according to representatives from the American Council on Life Insurance (ACLI) and several large companies we contacted. According to these officials, the group life insurance market is highly competitive, with insurers competing to cover employers, even in densely populated urban areas at risk for terrorist attacks. Furthermore, life insurers' use of models to manage the risks associated with providing coverage in densely populated areas may be limited. We spoke with representatives from two group life insurers that reported that while they have started to use models to review the impact of catastrophic scenarios, they lack specific data on the location of employees from some employers to monitor their concentration of insured individuals. An ACLI representative said that group life insurers with exposures across the country may be better able to manage risks from an NBCR attack than smaller, more regional insurers with portfolio concentrations near target locations.
- We also previously reported on the difficulties group life insurers face in charging higher premium rates to employers perceived to be at higher risk of terrorist attacks, including attacks involving NBCR materials.⁴¹ Life insurers price their products on the basis of mortality tables derived from experience with prior insurance contracts and calibrated to the effects of individual characteristics, such as smoking, or group characteristics, such as occupation type. According to ACLI, group life insurance policies currently are not designed or priced to account for catastrophic financial losses and mass casualties from an unpredictable terrorist attack with an NBCR weapon.

⁴¹[GAO-06-1081](#).

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- Similarly, health insurers may face difficulties in setting premium rates to address the risks of terrorist attacks, including those involving NBCR materials. For example, health insurers said that they generally price coverage on the basis of previous experience with insured populations, and that without knowing the frequency and severity of NBCR risks, they could not develop actuarially sound prices for such a risk. Furthermore, because illnesses or symptoms of illnesses resulting from NBCR attacks could take years to develop, it might be very difficult for insurers to establish appropriate premiums for such long-term risks.

Proposals to Increase Coverage for NBCR Attacks in the Property/Casualty Market Have Advantages and Disadvantages

Because the current commercial property/casualty market generally lacks coverage for terrorist attacks involving NBCR materials, the two proposals we reviewed to increase the availability of such coverage focus on that market. The proposals involve the federal government assuming most or all of the associated financial liabilities of such attacks. For example, an early version of the bill to reauthorize TRIA in 2007 would have required insurers to make NBCR coverage available and would have lowered their exposure to potential losses. While such a proposal may increase the availability of NBCR insurance, some industry participants believe it would disrupt insurance markets. Alternatively, some industry participants have suggested that the federal government should fully insure losses from terrorist attacks involving NBCR materials, similar to other federal disaster insurance programs. This program could help ensure the availability of NBCR insurance, according to some industry participants, but others said the program could result in substantial losses to the federal government.

Proposal 1: Amend TRIA to Require Insurers to Make NBCR Coverage Available with the Federal Government Assuming Greater Financial Responsibility for Potential Losses

The House of Representatives initially passed an early version of the 2007 reauthorization of TRIA that would have amended the act to (1) require insurers to make NBCR coverage available to policyholders, and (2) require the federal government to assume a relatively high proportion of the associated financial risk. With certain exceptions, the proposal would have required insurers to offer coverage for NBCR attacks under terms, amounts, and other coverage limitations that did not differ materially from their coverage for other types of risks. The proposal would have allowed an insurer to exclude NBCR coverage altogether (except for workers' compensation or other state coverage requirements) or offer a separate NBCR terrorism policy at different terms, amounts, and other coverage limitations than other types of coverage, if a policyholder rejected an insurer's initial offer for coverage. To compensate insurers for the risks associated with providing NBCR coverage, the proposal initially would have set insurers' TRIA deductibles for such attacks at 3.5 percent

of direct earned premiums, substantially lower than the 20.0 percent deductible insurers would pay under the current program for terrorist attacks in general.⁴² In addition, under this proposal, insurers' copayment, or additional share of losses, for an NBCR attack would have varied depending on the size of the losses associated with the attack. In the case of a smaller NBCR attack, an insurer would have paid 15 percent of its losses after paying its deductible, and for very large NBCR attacks, 5 percent.⁴³ Additionally, the proposal would have permitted insurers to voluntarily reserve some of their conventional and NBCR terrorism premiums, tax-free, in a fund maintained by Treasury to cover the TRIA deductibles or copayments associated with losses from future terrorist attacks.⁴⁴

Given insurers' general reluctance to provide NBCR coverage, some industry participants we contacted stated that this proposal was reasonable. For example, a representative from one insurer said that unless mandated to do so, insurers would not offer coverage for NBCR risks. Representatives from other insurers and industry participants, including regulators, told us that limiting insurer losses for NBCR events would help insurers better manage risks associated with NBCR attacks. With their financial exposures limited, insurers could more easily develop terms and conditions for NBCR coverage to policyholders and offer the coverage at lower rates. In addition, some industry participants said that the provision in the legislation allowing for separate pricing of NBCR coverage would (1) allow insurers to tailor insurance coverage and prices to the type of terrorist attack, and (2) provide policyholders with the choice of purchasing NBCR and conventional terrorism coverage together or separately.

⁴²See H.R. 2761, 110th Congress (September 2007). For property/casualty insurance, this deductible would have increased by 50 basis points (0.5 percent) each succeeding program year.

⁴³The bill provided for different copayments depending on the amount of losses from an attack. The federal share of compensation for insured losses would have been 85 percent of aggregate industry qualified NBCR losses of less than \$10 billion, 87.5 percent for losses from \$10 billion to \$20 billion, 90.0 percent for losses from \$20 billion to \$40 billion, 92.5 percent for losses from \$40 billion up to \$60 billion, and 95.0 percent above \$60 billion. In contrast, the federal share of insured losses for terrorist attacks in general is 85.0 percent, regardless of the amount of losses from an attack, up to the \$100 billion cap.

⁴⁴Specifically, section 4 of the proposed legislation would have established a Terrorism Buy-Down Fund. Insurers also could have used the premiums reserved in this fund to pay for losses from an attack that did not meet the \$100 million TRIA program trigger, which could have benefited smaller insurers.

A recent study by the RAND Corporation found that requiring insurers to offer NBCR coverage, with the federal government assuming significant financial liability for the associated losses from large attacks could be beneficial.⁴⁵ For example, the RAND study stated that under such a program the number of policyholders purchasing coverage would increase substantially from current levels.⁴⁶ Furthermore, the study concluded that the federal government's expected outlays for compensation and assistance following attacks involving NBCR materials actually might decrease. Given that property/casualty coverage for NBCR attacks is largely unavailable, in the event of such an attack, the study noted that the federal government might decide to provide a large amount of disaster assistance or other compensation following an attack, as it has done for the victims of natural catastrophes and terrorist attacks. If insurers were required to provide some coverage for NBCR attacks, the study concluded that the federal government's expected costs could be somewhat lower under certain conditions than otherwise would be the case.⁴⁷

Some industry participants also suggested that insurers could use different strategies in addition to TRIA to further manage the risks associated with providing NBCR coverage, as would be mandated under this proposal. In particular, some participants said they favored insurers forming risk pools or changing tax laws to permit insurers to set aside tax-deductible reserves to offset some of the losses associated with terrorist (including

⁴⁵See *The Federal Role in Terrorism Insurance*. Specifically, the study analyzed the effect of modifying TRIA to require insurers to offer policies that cover NBCR and conventional attacks with a reduced deductible for NBCR attacks and a hard program cap on the total amount of losses for which insurers would be responsible. The analysis in the study suggested that providing for a specific limit on total insurer losses and lowering the deductible were critical to achieving positive outcomes if TRIA were to be modified to require insurers to offer coverage for NBCR terrorist attacks.

⁴⁶The RAND study did not analyze the effect of allowing policyholders to purchase NBCR coverage separately from conventional coverage. However, the authors noted that because existing research suggests overall low demand for NBCR coverage, allowing NBCR coverage to be offered separately might not result in substantial increases in the number of policyholders purchasing such coverage.

⁴⁷The RAND study found that partial government reimbursement of insurer losses in the larger, and they presumed less likely, NBCR attacks would lower prices for NBCR coverage and increase the percentage of businesses purchasing such coverage. The higher rate of businesses purchasing NBCR coverage would reduce government liabilities in the likelier smaller attacks, across a broad range of assumptions about the relative likelihood of large and small attacks and the fraction of uninsured losses that are compensated by the government.

NBCR) attacks, similar to provisions in the legislative proposal.⁴⁸ We have reported that establishing a group of insurance companies to pool their assets could allow insurers to provide a greater amount of coverage for the entire market than could be provided by each individual company. Furthermore, as we discussed in our prior reports, allowing either a pool or individual insurers to maintain tax-deductible reserves could provide the industry with incentives to expand capacity to cover catastrophic risks, such as attacks with NBCR materials.⁴⁹ Table 2 provides information on existing or proposed pooling arrangements in the United Kingdom and the United States that are designed to help insurers manage the risks associated with terrorist attacks involving NBCR materials or accidents involving nuclear materials.

Table 2: Examples of Proposed or Existing Pooling Arrangements

Pooling arrangement	Program description	Program funding	Reserves taxed?
Pool Reinsurance Company, Limited (Pool Re)	A mutual reinsurer in the United Kingdom that provides reinsurance for terrorism and NBCR risks for members' commercial property policies. Terrorism coverage is optional for policyholders, and participation is voluntary for insurers, but member insurers must reinsure all terrorism coverage with Pool Re.	In the event of an act of terrorism, coverage from Pool Re takes effect after members pay individual deductibles. If the resources of Pool Re are exhausted, the United Kingdom government provides an unlimited guarantee. Pool Re pays the government a premium for this guarantee and would have to repay the Treasury any amount received from the guarantee.	No
Industry proposed U.S. reinsurance pool	A national reinsurance pool for commercial property terrorism risk, including NBCR risks. Insurers would continue to charge policyholders their own rates for terrorism coverage and would purchase reinsurance from the pool.	In the event of a terrorist attack, the insurance industry would pay 5 percent of losses, and the pool would pay 95 percent of losses up to \$40 billion. If the pool did not have the resources to pay its share of losses, it could issue bonds. The federal government would be responsible for losses in excess of \$40 billion, up to \$100 billion. Losses above \$100 billion would be reviewed by Congress.	No

⁴⁸Under current federal tax law, insurers can take a deduction for losses that already have occurred and for setting aside reserves for fair and reasonable estimates of the amount the insurer will be required to pay on future losses. However, reserves for uncertain future losses currently are not tax deductible. Because the size and timing of terrorist attacks are uncertain, any reserves set aside for potential terrorism losses would be taxed as corporate income in the year in which they were set aside. According to a Treasury official, insurers are permitted to pool coverage under the current TRIA program.

⁴⁹[GAO-08-1057](#) and [GAO-05-199](#).

Pooling arrangement	Program description	Program funding	Reserves taxed?
Price Anderson reinsurance pool	Provides for liability coverage for all commercial nuclear reactors in the event of a catastrophic incident. Approximately 22 insurance companies participate in American Nuclear Insurers (ANI), a joint underwriting association that underwrites and administers the policies. Insurers participate on a voluntary basis, subject to certain membership requirements.	All reactors are required to carry \$300 million in primary liability insurance, which is written primarily by ANI. ANI's premium reserve fund and capacity from member insurers cover claims on these policies. If losses exceed the primary coverage, a pool financed by retrospective premiums equally assessed to all commercial nuclear reactors provides reinsurance. A 5 percent surcharge per commercial nuclear reactor may be imposed to provide additional funding to cover damages resulting from a nuclear incident.	According to ANI, member insurers only pay taxes on portion of premiums they receive as reimbursement for their expenses.

Sources: GAO, Aon, and ANI.

Note: For more information on Pool Re, see GAO, *Terrorism Insurance: Alternative Programs for Protecting Insurance Consumers*, [GAO-02-175T](#) (Washington, D.C.: Oct. 24, 2001). Aon, which is a global insurance broker, issued a report on the commercial property terrorism market that included a long-term pooling proposal to address the issue of terrorism risk in the United States. See Aon, *Property Terrorism Update, TRIA in the Balance* (New York, N.Y.: October 2005).

However, other industry participants cautioned that requiring insurers to provide NBCR coverage, even with the federal government assuming a relatively high percentage of the associated financial exposure, could have adverse consequences for insurance markets. For example, a variety of industry participants said that under such a mandate, insurers may be less willing to offer property/casualty coverage and may withdraw from the market or not offer coverage in areas viewed as at high risk of attack. Some industry participants expressed particular concern about the impact that such a proposal would have on smaller insurers. While this proposal substantially would have lowered the deductible for attacks involving NBCR materials, a few industry participants said that the proposed copayments for such attacks still could be substantial for smaller insurers. The officials said that smaller insurers may lack the financial capacity to cover such potential costs.

In addition, some industry participants and policyholders said that this proposal could be prohibitively costly to policyholders and taxpayers. As we have previously discussed, industry participants said that estimates of the severity and frequency of terrorist attacks involve many uncertainties, making pricing difficult. Consequently, some industry participants said that insurers, faced with a mandate of providing NBCR coverage, might set premiums at rates they consider necessary to compensate for the risks of a catastrophic attack, which could deter many commercial entities from purchasing such coverage. For example, two researchers we contacted said that when Pool Re expanded its coverage to include NBCR risks after the September 11 attacks, prices for terrorism coverage doubled. In

addition, some industry participants said that if the federal government were liable for a greater portion of insured losses resulting from an NBCR attack, then the overall costs to the taxpayer from that attack could be significant. Furthermore, although the RAND study concluded that costs to the federal government could be reduced by requiring insurers to offer NBCR coverage, the study noted that in the case of extremely large NBCR attacks, the federal government's financial liability could be larger than if it did not participate in the market for terrorism insurance and require insurers to offer NBCR coverage. We also note that the federal government's total costs could be higher under this option than the current situation where NBCR coverage is generally unavailable, and Congress later decided to provide additional funding to pay for uninsured losses from such an attack.

Finally, information from our previous work, as well as interviews with some industry participants, raises questions about whether establishing pools or permitting insurers to maintain tax-deductible reserves materially would enhance available coverage for terrorist attacks, including those involving NBCR materials.⁵⁰ According to industry participants and a study by a global consulting firm on a proposed pool for workers' compensation coverage for terrorism risk, a reinsurance pool might not create new industry capacity or bring in additional capital to support writing more business.⁵¹ The study noted that if the overall industry does not have enough capital to manage the risk of an NBCR attack, then neither would an industry pool that simply combines existing industry capital in a new structure. Furthermore, we have reported that overall insurance capacity might not increase if a pool or individual insurers were allowed to establish tax-deductible reserves. Because reinsurance premiums already are tax-deductible, insurers would receive similar tax benefits from traditional reinsurance, pool reinsurance, or individual reserves.

⁵⁰[GAO-08-1057](#).

⁵¹The Tillinghast and Reinsurance Businesses of Towers Perrin, *Workers' Compensation Terrorism Reinsurance Pool Feasibility Study, Summary of Study Findings and Conclusions* (March 2004). The study was facilitated by the American Insurance Association and funded by 14 insurers that account for roughly 40 percent of the workers' compensation market.

Therefore, insurers might substitute the pool reinsurance or individual reserves for their current reinsurance program, if that program includes coverage for NBCR attacks.⁵²

Proposal 2: Federal Government Completely Insures Losses for Terrorist Attacks Involving NBCR Materials, with Insurers Administering the Program

Given concerns about the potential financial and other consequences of requiring insurers to provide NBCR coverage, some industry participants we contacted suggested that the federal government should develop a separate program to insure against such attacks. Under this proposal, the federal government would serve as insurer, covering all losses for NBCR attacks and charging premiums for providing these services. The insurance industry's role largely would be administrative, as some industry representatives reported that the industry would have the staff, processes, and experience in place to manage such tasks. For example, insurance companies could be responsible for collecting premiums, adjusting claims, and disbursing claims payments from the government to policyholders. This proposal could be similar to other federal insurance programs shown in table 3, where the government assumes most, if not all, of the risk.⁵³ These other programs generally were created because of gaps in coverage in the private market or the perception that the risks were uninsurable.

⁵²[GAO-08-1057](#).

⁵³For more information on these programs, see GAO, *Natural Disasters: Public Policy Options for Changing the Federal Role in Natural Catastrophe Insurance*, [GAO-08-7](#) (Washington, D.C.: Nov. 26, 2008); *National Flood Insurance Program: Preliminary Views on FEMA's Ability to Ensure Accurate Payments on Hurricane-Damaged Properties*, [GAO-07-991T](#) (Washington, D.C.: June 12, 2007); *Federal Emergency Management Agency: Improvements Needed to Enhance Oversight and Management of the National Flood Insurance Program*, [GAO-06-119](#) (Washington, D.C.: Oct. 18, 2005); *Crop Insurance: Actions Needed to Reduce Program's Vulnerability to Fraud, Waste, and Abuse*, [GAO-05-528](#) (Washington, D.C.: Sept. 30, 2005); and *Crop Insurance: Federal Program Faces Insurability and Design Problems*, [GAO/RCED-93-98](#) (Washington, D.C.: May 24, 1993).

Table 3: Examples of Current and Past Federal Insurance Programs

Program name	Program description	Insurance industry role
Federal Crop Insurance Corporation	Insurance for farmers in the event their crops are damaged by floods, droughts, or other national disasters. The Federal Crop Insurance Corporation offers farmers varying subsidy rates for crop insurance, depending on the level of protection they seek.	Private insurance companies sell and service crop insurance policies. Insurance companies share a percentage of the risk of loss or opportunity for gain associated with each insurance policy written. Companies also receive a percentage of the premium on policies sold to cover their administrative costs.
National Flood Insurance Program (NFIP)	Residential and commercial insurance available to participating communities to cover losses due to flooding. Policyholders may pay a subsidized, discounted, or full-risk rate premium, depending on the location of the property, amount of coverage, and when the community joined the program.	Private-sector insurance agents and adjusters sell, service, and adjust claims. Participating insurance companies receive an expense allowance for their services and are required to remit premium income in excess of this allowance to the NFIP Fund. The companies also receive a fee for adjusting and settling claims.
FAA Aviation Insurance Program	Prior to September 11, this program provided coverage for international flights into hostile territories. The program has since extended coverage to domestic flights, as an alternative to commercial third-party war risk insurance.	None. FAA issues policies, collects applicable premiums, and pays claims.
War Damage Corporation	A government-owned corporation that provided insurance against loss or damages from enemy attack during World War II. It was formed as the War Insurance Corporation on December 13, 1942, after the attack on Pearl Harbor. All policies expired in 1947, and the War Damage Corporation was terminated, except for purposes of liquidation.	The government hired insurers as agents and reimbursed them for their expenses. According to a Treasury official, they assumed risk for 10 percent of losses in excess of net premiums collected, subject to an industry cap.

Sources: GAO, the Coalition to Insurance Against Terrorism, and Treasury.

While some industry analysts said that this proposal was the only way to ensure that NBCR coverage would be widely available, others expressed concerns about the potential costs of such a program to the federal government and its effects on the private market. With the government responsible for most, if not all, of the losses in the event of a terrorist attack involving NBCR materials, several industry participants expressed concerns about the potentially large post-disaster costs for the federal government and, ultimately, taxpayers. We note that other government disaster insurance programs have proven to be costly and have administrative challenges. For example, we have reported that while NFIP and the Federal Crop Insurance Program were created to provide affordable insurance coverage, they do not collect enough in premiums to fund potential losses from catastrophic disasters. Therefore, Congress has had to appropriate funds after disasters, such as floods, to pay

catastrophic claims.⁵⁴ Given the difficulties associated with reliably estimating the potential severity and frequency of terrorist attacks involving NBCR materials as discussed in this report, the federal government may face substantial challenges in establishing premiums sufficient to offset the risks involved in providing insurance coverage for such attacks.

In addition to the large potential costs to taxpayers, industry participants expressed other concerns about the federal government assuming complete financial responsibility for potential NBCR property/casualty losses. For example, some industry participants, including regulators, did not think that the government should be responsible for all of the potential losses from an NBCR attack and that insurers could assume some of the risk. Furthermore, we have previously reported that some industry participants believe that too much federal government involvement in disaster relief crowds out private insurance and reduces the private market's ability and willingness to provide insurance-based solutions to covering catastrophe risk.⁵⁵ Finally, while insurers would play a largely administrative role under this proposal, some insurers expressed reservations about this potential responsibility because they have no experience training, equipping, and sending claims adjusters and other personnel into areas where NBCR materials have been released.

Agency Comments and Our Evaluation

We provided a draft of this report to the Department of the Treasury and NAIC for their review and comment. In their oral comments, Treasury officials said that they found the report informative and useful. They also provided technical comments that were incorporated where appropriate.

⁵⁴In [GAO-08-7](#), we reported that crop insurance subsidies totaled about \$2.3 billion in crop years 2005 and 2006, and that flood insurance subsidies total about \$1.3 billion annually. We also have reported that to pay \$17.7 billion in flood losses from the 2005 Gulf Coast hurricanes, the Federal Emergency Management Agency (FEMA), which administers NFIP, borrowed \$17.5 billion from Treasury. As of December 2007, FEMA owed more than \$17.3 billion to Treasury. See GAO, *National Flood Insurance Program: Financial Challenges Underscore Need for Improved Oversight of Mitigation Programs and Key Contracts*, [GAO-08-437](#) (Washington, D.C.: June 16, 2008).

⁵⁵[GAO-08-7](#).

NAIC provided written comments on a draft of this report, which have been reprinted in appendix II. In their comments, NAIC stated that the report was materially accurate and they agreed with our discussion on proposed policy proposals for expanding NBCR coverage in the commercial property/casualty market. However, NAIC reported a philosophical difference of opinion with comments in the draft report about the ability of workers' compensation insurers to charge risk-based premiums for attacks involving NBCR weapons. NAIC stated that our draft report contained references that implied that state insurance regulators, due to voter and legislative pressure, keep premium rates artificially low for workers' compensation insurers rather than relying on actuarial science. NAIC disputed what it characterized as our implied contention and suggested that the recent profitability of the insurance industry indicates that premiums have not been suppressed by regulatory actions.

We made clarifications in the draft to address certain NAIC comments, such as more fully describing the surcharges that workers' compensation insurers may levy for covering losses from terrorist attacks, including those involving NBCR weapons. However, the draft report in no way meant to imply that state insurance regulators succumb to voter and legislative pressures in approving rates, and simply reported that workers' compensation insurers and some regulators we contacted for both our September 2006 report and this report said that they did not believe the permissible surcharges would be sufficient to cover the potential losses associated with an NBCR attack.⁵⁶ Given that NBCR risks may not fully satisfy the principles of insurability, as we said in our September 2006 report, statements by representatives of workers' compensation insurers that question whether the permitted surcharges are sufficient to cover potential losses do not appear inherently unreasonable. As discussed in the final report, the permitted surcharge in many states is the same for conventional terrorist attacks and for those involving NBCR weapons and insurers generally are not permitted to levy higher surcharges for employers they perceive to be at higher risk of attack. Furthermore, we note that while NAIC reports that workers' compensation insurers have been profitable over the past several years, this does not mean that any premiums collected from this surcharge would be sufficient to cover the losses associated with a future NBCR attack.

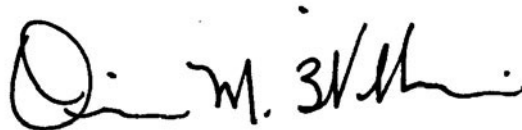
⁵⁶ [GAO-06-1081](#).

NAIC also commented on statements in the draft report regarding the ability of group life insurers to manage exposures to NBCR risks. Specifically, NAIC said that the competitive nature of group life insurance markets has more of an impact on group life insurers' decisions to provide NBCR coverage in their policies than any regulatory constraints. NAIC stated that if one group life insurer were to exclude coverage for NBCR risks, and other group life insurers did not exclude such coverage, the insurer excluding NBCR risks would be at a competitive disadvantage. NAIC concluded that employers may choose not to purchase coverage from the group life insurer that excluded NBCR risks, unless the price difference was substantial. We generally agree with NAIC that competitive market pressures may affect group life insurers' willingness to limit NBCR coverage, and note that the argument was included in the draft provided to NAIC for its review and comment. Nevertheless, we made some adjustments to the text to ensure that this analysis was better communicated throughout the final report. NAIC also provided additional technical comments and observations that were incorporated as appropriate.

We also sent excerpts of our draft report to the six state regulators discussed in this report (California, Georgia, Illinois, Massachusetts, New York, and Washington, D.C.) for their review. Three state regulators responded that they did not have any changes to our characterization of NBCR requirements in their states, and one regulator provided a technical comment that we made. We also provided excerpts of the draft report to five other organizations referenced in this report, and all five responded, some with technical comments that were incorporated where appropriate.

We are sending copies of this report to the appropriate congressional committees, the Department of the Treasury, NAIC, and other interested parties. The report is also available at no charge on our Web site at <http://www.gao.gov>.

If you or your staffs have any questions about this report, please contact me at (202) 512-8678 or williamso@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix III.

A handwritten signature in black ink, appearing to read "Orice M. Williams". The signature is fluid and cursive, with a large initial "O" and a distinct "M." followed by a stylized "Williams".

Orice M. Williams
Director, Financial Markets and
Community Investment

Appendix I: Objectives, Scope, and Methodology

Our objectives were to review (1) the extent to which insurers and reinsurers offer coverage for nuclear, biological, chemical, and radiological (NBCR) attacks; (2) the factors that contribute to the willingness of insurers and reinsurers to provide coverage for NBCR attacks and their ability to manage these risks; and (3) any public policy options for expanding coverage for these risks, given current insurance market conditions.

To address the first objective, we reviewed relevant studies and interviewed representatives of more than 100 organizations, including insurer and policyholder trade associations; individual policyholders; national insurance and reinsurance brokers; and insurance and reinsurance companies with knowledge of the commercial property/casualty, workers' compensation, group life, and health insurance markets nationwide and with expertise in specific geographic markets. We also interviewed local brokers, insurance companies, and local property owners in cities and regions with locations considered to be at high, moderate, and low risk of exposure to terrorist attacks. These locations included Atlanta; Boston; Chicago; New York; San Francisco; and Washington, D.C. We selected these markets on the basis of rankings of locations by risk of terrorism exposure from the Insurance Services Office (ISO), an insurance industry analytics firm. Insurers may use these rankings, which account for cities' risk of terrorist attacks and the potential for associated losses, as a basis for charging additional premiums for terrorism exposure, according to ISO and several regulators we contacted. We interviewed some participants in specialized insurance markets, including a nuclear pool, Bermuda reinsurers, and a national broker with expertise in environmental insurance. We spoke with representatives of policyholders that own hundreds of properties and other entities nationwide. These entities included large office towers in major U.S. cities, properties in proximity to high-profile federal buildings, hotels, industrial buildings, hospitals, sports stadiums, a chemical company, a railroad company, and residential properties in locations throughout the United States. In addition to one-on-one interviews, we also conducted group discussions with representatives of 14 policyholders at the annual Risk and Insurance Management Society, Inc. (RIMS), conference in San Diego, California, in April 2008. Although we selected industry participants to provide broad representation of market conditions geographically and by industry, their responses may not be representative of the universe of insurers, insurance brokers, policyholders, and regulators. As a result, we could not generalize the results of our analysis to the entire national market for commercial property/casualty, workers' compensation, group life, and health insurance. We determined that the

selection of these sites and participants was appropriate for our objectives, and that this selection would allow coverage of locations considered to be at high, moderate, and low risk of exposure to terrorist attacks, and would obtain information related to NBCR coverage for major insurers, policyholders, and other organizations to generate valid and reliable evidence to support our work.

We also reviewed the Department of the Treasury's *2005 Report to Congress, Assessment: The Terrorism Risk Insurance Act of 2002* and its results from a survey of commercial property/casualty insurers on the coverage they offered for NBCR risks. We were limited in our ability to use this information because it was unclear from the survey question whether an insurer offered NBCR coverage in one commercial property/casualty policy or in all policies. We also reviewed results from a survey of risk managers conducted by RIMS of their membership. However, we also were limited in our ability to use results from this survey on purchase rates of NBCR insurance as a signal for approximating overall demand because of the low response rate (approximately 10 percent) to the survey.

To address the second objective, we selected large, national insurance companies to interview on the basis of their market share in the states we studied—California, Georgia, Illinois, Massachusetts, and New York as well as Washington, D.C. In the commercial property/casualty and workers' compensation market, these national insurance companies held from 37 to 52 percent of the market share in the states we studied, according to information provided by the Insurance Information Institute. In addition, we interviewed representatives of regional insurance companies in our selected markets. We also spoke with representatives of seven reinsurance companies, including two of the largest worldwide reinsurance companies as well as risk modeling firms, state regulators, and two credit rating agencies.

To select state workers' compensation funds, we compiled and analyzed available data on workers' compensation state funds based on information from the American Association of State Compensation Insurance Funds and the National Council on Compensation Insurance, Inc. We selected nine workers' compensation state funds on the basis of the

- presence of a metropolitan city in the state;
- presence of cities considered at risk for terrorist attacks, developed using estimates from ISO; and

- type of state fund—either monopolistic (fund is the sole insurer in the state) or competitive (fund competes with private insurers to offer workers’ compensation coverage)—and its size.

To learn more about the coverage in the group life and health insurance markets and factors affecting that coverage, we interviewed state regulators in California; Georgia; Illinois; Massachusetts; New York; and Washington, D.C., as well as officials from the American Council of Life Insurers and America’s Health Insurance Plans—two large national trade associations. We also interviewed several group life and health insurers with large shares of the market both nationally and in the selected states, as well as one large group life reinsurance company and a representative from a national brokerage firm with expertise in the reinsurance market for group life carriers. Although we selected insurers from each of the lines we studied to provide a broad representation of size and geographic scope, we could not generalize the results of our analysis to the entire population of private insurers or workers’ compensation state funds.

To address the third objective, we reviewed options proposed in legislation, discussed in our prior reports or in other reports, or suggested by industry participants. We also interviewed academics, representatives from research organizations, and consumer interest groups. Although these discussions did not produce a consensus about what measures would increase the availability of NBCR coverage, for this report we focused on two proposals deemed viable by a variety of industry participants. We selected the proposal to amend Terrorism Risk Insurance Act to require insurers to make NBCR coverage available and lower insurers’ deductibles and co-payments from a recent legislative proposal. We selected the option for the federal government to insure losses for terrorist attacks involving NBCR materials from interviews conducted with industry participants. We compiled and analyzed the views of the industry participants listed above on these two proposals and reviewed our prior reports to obtain information about other federal insurance programs. We did not attempt to evaluate the prospective impact of these proposals and, therefore, did not come to any conclusions about the advisability of implementing them.

We conducted this audit in Atlanta; Boston; Chicago; New York; San Diego; San Francisco; and Washington, D.C., from January 2008 to December 2008, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable

basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides basis for our findings and conclusions based on our audit objectives.

Appendix II: Comments from the National Association of Insurance Commissioners



National Association of Insurance Commissioners

November 18, 2008

Orice M. Williams, Director
Financial Markets and Community Investment
United States Government Accountability Office
441 G St. NW, Room 2440B
Washington, DC 20548

RE: GAO Report on Terrorism Insurance
Status of Coverage Availability for Attacks
Involving Nuclear, Biological, Chemical,
or Radiological Weapons

Dear Ms. Williams:

The National Association of Insurance Commissioners (NAIC) appreciates the opportunity to comment on the captioned GAO report. The NAIC is always pleased to work with the GAO to make sure that members of Congress and the public are informed about important regulatory and public policy matters.

The NAIC is a voluntary organization of the chief insurance regulatory officials of the 50 states, the District of Columbia and five U.S. territories. The NAIC's overriding objective is to assist state insurance regulators in protecting consumers and helping maintain the financial stability of the insurance industry by offering financial, actuarial, legal, computer, research, market conduct and economic expertise. Formed in 1871, the NAIC is the oldest association of state officials. For more than 135 years, state-based insurance supervision has served the needs of consumers, industry and the business of insurance at-large by ensuring hands-on, frontline protection for consumers, while providing insurers the uniform platforms and coordinated systems they need to compete effectively in an ever-changing marketplace.

There are some areas where the NAIC believes there are technical corrections needed and a few areas where there is a philosophical difference of opinion about what the GAO has concluded. Our suggested changes follow:

- The last sentence of the second paragraph of the Highlights says, "For example, state regulators generally do not permit workers' compensation insurers to charge risk-based premiums to employers." This is an area where the NAIC has a fundamental disagreement with the GAO's conclusion. The NAIC does not dispute that on occasion, regulators do not permit insurers to charge all that they wish. However, this reference and others imply that state insurance regulators are subject to voter and legislative pressure to keep premiums affordable and coverage readily available and succumb to these pressures instead of relying on actuarial science. The GAO seems to have fallen into a common trap of assuming that insurers and their actuaries have perfect information about what workers' compensation and terrorism losses will occur during the next

EXECUTIVE HEADQUARTERS	2301 McGee Street, Suite 800	Kansas City, MO 64108-2662	p 816 842 3600	f 816 783 8175
GOVERNMENT RELATIONS	444 N. Capitol Street, NW, Suite 701	Washington, DC 20001-1509	p 202 471 3990	f 202 471 3972
SECURITIES VALUATION OFFICE	48 Wall Street, 6th Floor	New York, NY 10005-2906	p 212 398 9000	f 212 382 4207

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year and how the economy will behave. The basic assumption made by the GAO and by academics that have concluded there is rate suppression, is that the actuaries working for insurers are always correct in their projections of the needed price for the future experience period and regulatory actuaries are always wrong if they disagree with the company actuaries. The truth arguably is somewhere in between. Projected loss costs to cover the insurer's exposure to losses vary widely depending on which risk modeling firm the insurer selects to produce its terrorism loss costs. If an insurer selects the output of a modeling firm that produces higher rates, the regulator might object and suggest that another modeling firm might be more appropriate. Your text and the work of academics that study this topic would brand that regulator as a rate suppressor, even if the insurer's future results prove that the regulatory actuary was correct. Recent financial performance for workers' compensation insurers shows that the industry is profitable with a 61.3% loss ratio for 2007, 60.7% for 2006 and 65.5% for 2005. Over the three year time span, property and casualty insurers were able to increase their policyholder surplus from \$427 billion to \$530 billion. If the regulators are actively engaged in rate suppression and not letting insurers charge risk-based prices, how are they able to operate so profitably?

- On page 2 of the report, the last sentence on the page says, "State insurance laws generally require workers' compensation insurers to cover all risks..." We suggest that you change "insurance" to "workers' compensation" as it is the workers' compensation laws not the insurance laws that contain this requirement.
- The industry opinion disputed in the first bullet point of the letter appears again on page 6 in the 15th through 18th lines. It is correctly attributed to industry participants, but is incorrect as most states have allowed workers' compensation insurers to add a charge for covering acts of terrorism. The industry might believe that the additional rate is not sufficient; however, it is incorrect to say they are not generally allowed to charge higher premiums.
- On page 6, lines 18 through 23 discuss the perspective of life insurers with regard to providing coverage for acts of terrorism on group life insurance contracts. We agree with the statements made, however, there is a missing element that is not captured in the text. It is generally the market conditions of the employee benefits market that have a greater influence on the coverages offered by group life insurers than any regulatory constraints. If one group life insurer decided it would not offer coverage for acts of terrorism, including NBCR, while other group life insurers offered the coverage, the one insurer excluding the coverage would be at a competitive disadvantage. Employers generally do not want to have to tell the surviving spouse and children that there is no compensation forthcoming for the loss of their loved one. Thus, the employer would have a natural tendency to select from the insurers providing the coverage rather than from those excluding the coverage, unless the price difference was substantial.
- On page 12, we offer updated numbers for your consideration to replace those included from the Insurance Information Institute. We would suggest the following amended sentence: The ~~Insurance Information Institute~~ National Academy of Social Insurance reported that in ~~2005~~2006, just over half of workers' compensation benefits (~~50.8~~50.38 percent) were paid by private insurers, with the other half coming from state funds (~~49.4~~49.66 percent), federal programs (~~5.95~~9.98 percent), and self-insured employers (~~23.8~~23.98 percent). We believe that NASI is the source for the numbers used by the Insurance Information Institute.

- On page 13, line 5 through 8, there is discussion about why workers' compensation insurers are not allowed to exclude coverage for acts of terrorism. The report says that it is "...because state regulators generally do not allow them to exclude such risks." A more accurate statement would be that state workers' compensation laws require the insurer to assume all of the obligations that an employer has to its employees as a result of work related accidents and injuries regardless of cause of loss. Further the mention for life insurers and health insurers misses the mark. See the comments for page 6, lines 18 through 23 above.
- On page 18, the last sentence in the second paragraph has further discussion on life insurance and coverage exclusions. The comments for page 6, lines 18 through 23 above also apply in this instance.
- On page 19, lines 1 through 8 discuss the *force majeure* clause and the possibility that health insurers would use the standard clause to relieve them of responsibility for providing coverage for acts of terrorism. We would generally agree with the official from the Georgia Department of Insurance who suggested that the *force majeure* clause probably would not apply to terrorists acts involving NBCR materials. The *force majeure* clause is generally found in contracts other than insurance and is intended to relieve one of the parties of performance demanded by the contract for unforeseen events beyond the control of the party. These would include natural disasters or other "Acts of God," war, riots, crimes or the failure of third parties—such as suppliers and subcontractors—to perform their obligations to the contracting party. *Force majeure* clauses are intended to excuse a party only if the failure to perform could not be avoided by the exercise of due care by that party. Taken to the extreme suggested by the industry representative, the *force majeure* clause could be used by homeowners insurers to deny claims for wind damage from a hurricane, damage from a riot or fire damage from a lightning strike (an Act of God). Clearly these contracts are intended to provide coverage for the very acts that the *force majeure* clause intends to disallow.
- On page 19, the sixth line of the paragraph in the middle of the page suggests that private insurers can "restrict coverage" to certain employers. The choice of language implies something that insurers cannot do—namely restrict coverage within an individual contract. What the private insurer can do is not offer any workers' compensation coverage to the employer. This paragraph also contains the disputed allegation that state regulators will not let insurers charge risk-based premiums. Please see the discussion in the first bullet point of this letter.
- On page 24, the last line of the first paragraph has a missing word that changes the meaning of the last sentence. We suggest you add "offerings;" between "coverage" and "for." Without the additional word, the sentence could be read to say that the insurers somehow limited workers' compensation coverage, perhaps by adding a terrorism exclusion or other type of impermissible coverage limitation. With the addition of "offerings;" it is clear that the insurer is limiting coverage by not offering to insure certain employers.
- On page 25, the allegation that regulators do not allow insurers to charge risk-based premiums appears again. Please refer to the explanation contained in the first bullet point of this letter.
- On page 25, the first paragraph mentions that the rate for terrorism insurance is the same throughout the state. It might be tradition, more than regulation; that is to blame for this circumstance. The NCCI and other state-based workers' compensation advisory organizations have not, to our knowledge, ever encouraged the use of territorial rating for workers'

compensation insurance. Workers' compensation is class rated using various occupational classifications that price the relative likelihood of the employees in the class to experience a work-related injury or illness. It is also experience rated where an employer's loss experience is compared to the expected average loss experience of all employers with similar employees and the individual employer's rate is adjusted either upward or downward based on whether its loss experience is better or worse than average expected loss experience.

- There is a discussion of the group life and health insurance challenges in managing NBCR risks that starts on page 25 and continues through page 27. The last bullet point in the section (page 26 and 27) has a discussion about how the insurer might have difficulty pricing NBCR risks because illnesses could take many years to develop. We do not disagree with the discussion; however, it seems to be missing one possible outcome. That is for the business to change health insurance providers. Thus the health insurer that was at-risk when the NBCR event occurred might not be the health insurer that ends up with the claim. The claim would instead go to the health insurer at-risk at the time the illness manifests itself.

Overall, the reviewers believed that the report was materially accurate with the exceptions noted in this letter. The reviewers agree with the discussion regarding the options presented in the report for Congress to consider.

Thanks again for all your hard work in making government accountable to the public that it serves.

Sincerely,



Andrew J. Beal,
Acting Executive Vice President and CEO

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Orice Williams, 202-512-8678 or williamsso@gao.gov

Staff Acknowledgments

In addition to the contact named above, Wesley M. Phillips, Assistant Director; Rudy Chatlos; Andrea Clark; Katherine Bittinger Eikel; Marc Molino; Jill M. Naamane; Linda Rego; Barbara Roesmann; Kathryn Supinski; and Shamiah Woods made key contributions to this report.

Related GAO Products

Terrorism Insurance: Status of Efforts by Policyholders to Obtain Coverage. [GAO-08-1057](#). Washington, D.C.: September 15, 2008.

Terrorism Insurance Availability: Initial Results on Availability of Terrorism Insurance in Specific Geographic Markets. [GAO-08-919R](#). Washington, D.C.: July 11, 2008.

Homeland Security: First Responders' Ability to Detect and Model Hazardous Releases in Urban Areas Is Significantly Limited, [GAO-08-180](#). Washington, D.C.: June 27, 2008.

Natural Disasters: Public Policy Options for Changing the Federal Role in Natural Catastrophe Insurance. [GAO-08-7](#). Washington, D.C.: November 26, 2007.

Terrorism Insurance: Measuring and Predicting Losses from Unconventional Weapons is Difficult, But Some Industry Exposure Exists. [GAO-06-1081](#). Washington, D.C.: September 25, 2006.

Catastrophe Risk: U.S. and European Approaches to Insure Natural Catastrophe and Terrorism Risks. [GAO-05-199](#). Washington, D.C.: February 28, 2005.

Terrorism Insurance: Effects of the Terrorism Risk Insurance Act of 2002. [GAO-04-806T](#). Washington, D.C.: May 18, 2004.

Terrorism Insurance: Effects of the Terrorism Risk Insurance Act of 2002. [GAO-04-720T](#). Washington, D.C.: April 28, 2004.

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Catastrophe Insurance Risks: Status of Efforts to Securitize Natural Catastrophe and Terrorism Risk. [GAO-03-1033](#). Washington, D.C.: September 24, 2003.

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Terrorism Insurance: Alternative Programs for Protecting Insurance Consumers. [GAO-02-175T](#). Washington, D.C.: October 24, 2001.

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