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Before the
Committee on Homeland Security's Subcommittee on Transportation Security
and Infrastructure Protection

on

**Chemical Security: The Implementation of the Chemical Facility Anti-
Terrorism Standards and the Road Ahead**

Testimony of:

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**CURRENT LAW AND DEPARTMENT OF HOMELAD SECURITY REGULATIONS
ARE INADEQUATE
PERMANENT LEGISLATION IS ESSENTIAL TO SECURITY**

**INHERENTLY SAFER TECHNOLOGIES
CAN ELIMINATE CATASTROPHIC CONSEQUENCES OF A TERRORIST ATTACK**

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"You know, the threat is just staring us in the face. I mean, all you'd have to do is to have a major chemical facility in a major metropolitan area go up and there'd be hell to pay politically. People will say, 'Well, didn't we know that this existed?' Of course, we knew."
--- Former Senator Warren Rudman (R-NH), November 2003

The September 11th terrorist attacks successfully used our own infrastructure against us with tragic results. They also demonstrated that tight perimeter security, such as in the case of the Pentagon, is incapable of preventing such attacks. Should a chemical plant be targeted, a truck bomb, a small plane, helicopter or a high powered rifle would easily render the industry's current reliance on fence-line security totally useless. In fact, U.S. chemical facilities have been referred to as "**pre-positioned**" weapons of mass destruction (WMD).

Reports during the summer of 2007 of renewed terrorist's capacity to carry out attacks inside the U.S. are a sobering reminder of the nearly six years of neglect following the 9/11 attacks. The vulnerability of U.S. chemical plants to terrorism and serious accidents such as the 1984 disaster in Bhopal, India have been widely recognized. The potential magnitude of these risks surpasses the 9/11 attacks. Once released these chemicals and gases can remain dangerous for up to 14 miles in an urban area (20 miles in a rural area) and put the lives of millions of people at risk.

The nature of these risks meets any definition of a weapon of mass destruction. The manner in which people would be killed and injured is terrifying. Poison gases such as chlorine will literally melt the lungs of its victims causing them to drown in their own lung fluid (pulmonary edema). Survivors could be left with life long disorders.

Although we would all like to believe the threat of terrorist attacks is unlikely, U.S. intelligence officials now believe terrorist attacks are more likely today than before the U.S. invaded Iraq in 2003 (September 24, 2006 N.Y. Times). More recently on July 10th, Department Homeland Security (DHS) Secretary Michael Chertoff told the media that he had a "gut feeling" that "we are entering a period this summer of increased risk."

Following the 9/11 attacks it was reported that 9/11 ring leader, Mohamed Atta, visited a Tennessee chemical plant asking lots of questions (December 16, 2001 Washington Post). Over the last six months at least five successful terrorist attacks in Iraq used relatively small (150 to 250 pound) cylinders of chlorine gas to kill dozens of people. As a result the DHS began briefing local bomb squads and chemical plants across the country. (April 24, 2007 USA Today)

In February and April thefts of 150 pound cylinders of chlorine gas occurred in California prompting questions by members of this Committee to the DHS about their response to these thefts, any other thefts and plans to eliminate these vulnerabilities by using inherently safer technologies.

U.S. chemical facilities were not built or designed to defend against terrorist attacks. And predicting where an attack will take place is a fool's errand. No one predicted that Timothy McVeigh would attack the Federal Building in Oklahoma City in 1995, killing 168 innocent people.

On June 25, 2007, DuPont Chairman Charles O. Holliday Jr. told the media that he worries most about a computer system failure or a security breach at one of the company's chemical plants around the world. "I feel very comfortable that we've taken all the reasonable steps, but

obviously if someone wants to fly an airplane into a plant, it's very hard to guard against it," said Holliday.

The nation's most infamous example of this threat is the Kuehne Chemical Company in South Kearny, New Jersey. According to Kuehne's own reports to the U.S. Environmental Protection Agency (EPA), their plant puts 12 million people in the Newark-New York City region at risk in the event of a catastrophic release of chlorine gas stored on site. This is the largest single chemical plant risk in the nation but according to the DHS more than 3,000 other plants each put 1,000 or more people at risk. More than 100 U.S. plants each put a million or more people at risk, according to their reports to EPA.

What makes the Kuehne plant inherently dangerous is the use of large quantities of chlorine gas to produce relatively harmless liquid bleach (sodium hypochlorite). While Kuehne's largest business is water disinfection, there are many safer alternatives to chlorine, including ultra-violet light, ozone and liquid bleach. A competitor of Kuehne, KIK Custom Products, wrote Representative Edward Markey (D-MA) a member of the House Homeland Security Committee on July 26, 2006. In their letter KIK committed to converting to a safer technology that produces "high strength liquid bleach in one continuous operation thereby eliminating the need to ship or store chlorine" on site and therefore eliminating the risks posed by large quantities of chlorine gas. KIK is the second largest producer of household bleach in North America.

What Happens When Perimeter Security Fails?

Continuing negligence by industry or government will not be judged kindly by posterity. Stephen Flynn, Senior Fellow in National Security Studies at the Council on Foreign Relations wrote in his book, America the Vulnerable, *"The morning after the first terrorist strike on this sector, Americans will look around their neighborhoods and suddenly discover that potentially lethal chemicals are everywhere, and be aghast to learn that the U.S. government has still not developed a plan to secure them. The subsequent political pressure to shut down the industry until some minimal new safeguards can be put in place -- as we did with commercial aviation following the 9/11 attacks -- will be overwhelming."*

--- In July, 2004, the Homeland Security Council estimated that **an attack on a single chlorine facility could kill 17,500 people, severely injure an additional 10,000 and result in 100,000 hospitalizations and 70,000 evacuations.**

--- In January, 2004, the U.S. Naval Research Laboratory testified before the Washington, D.C. City Council warning that **100,000 people could be killed or injured in the first 30 minutes** of a catastrophic release of a tank car of chlorine or similar chemical within blocks of Capitol Hill. They further estimated that people could **"die at rate of 100 per second."**

--- In June, 2003 FBI specialist on weapons of mass destruction, Troy Morgan, in a speech at a chemical industry conference warned, **"You've heard about sarin and other chemical weapons in the news. But it's far easier to attack a rail car full of toxic industrial chemicals than it is to compromise the security of a military base and obtain these materials."**

The 2006 Interim Chemical Security Law and Regulations Are Fatally Flawed

The best that can be said for the new Department of Homeland Security (DHS) chemical security regulations, "Chemical Facilities Anti-Terrorism Standards" (CFATS) is that they represent an official recognition of the widespread vulnerability of U.S. chemical plants to terrorism.

The new DHS rules are based on a 744 word “rider,” Sec. 550 of the Homeland Security Appropriations Act 2007. Sec. 550 authorizes “interim” regulations that will expire on October 4, 2009. It was enacted with the expectation that Congress would expeditiously enact permanent, comprehensive legislation to “supersede” Sec. 550’s regulations.

The DHS rules finalized on November 20, 2007 fail to provide adequate protection for the nation and communities living in the shadow of thousands of U.S. chemical plants.

The new chemical security law and DHS rules:

- Prohibit the DHS from requiring any “particular security measure” including safer technologies that can reduce or eliminate the magnitude of an attack at virtually any chemical facility.

To satisfy the chemical lobby, this was added to Sec. 550 (a) to prevent the use of safer technologies as a security measure but it also undermines the effectiveness of the entire statute by undercutting the DHS to credibly require ANY “particular security measure.”

- Fail to ensure priority protection of the 3,400 to 4,391 facilities each of which put 1,000 or more people at risk according to the DHS.

Sec. 550 gives the Secretary of the DHS discretion to determine which facilities will be considered to “present high levels of security risk.” With regard to high priority facilities, the DHS rules call for a Top Screen process that considers the consequences of an attack but the Security Vulnerability Assessment also factor in “threat assessments.” If the likelihood of an attack was considered small it could de-prioritize high risk facilities. Over the last four years, the DHS has never identified more than a few hundred (360 to 272) facilities as the sites of greatest concern (putting 50,000 or more people at risk). Given resource constraints and other anti-regulatory tendencies, the DHS’s record has been to focus on chemical plant risks that are an order of magnitude higher than the loss of life following the 9/11 attacks.

- Fail to protect approximately 3,000 U.S. water treatment plants as well as several other exempted categories. --- Approximately 100 water treatment plants each put 100,000 or more people at risk.

This exemption, also in Sec. 550 (a), covers public water systems regulated by the Safe Drinking Water Act and the Federal Water Pollution Control Act, the Maritime Transportation Security Act of 2002, facilities owned or operated by the Department of Defense, Department of Energy or regulated by the Nuclear Regulatory Commission.

- Assert the authority to prohibit states from establishing stronger security standards.

Without any explicit statutory authority, the DHS asserted the authority to preempt state programs that “frustrate” their regulations. Although no state has yet been cited, this policy could have a chilling effect on new programs and appears aimed at serving a chemical industry agenda to prevent states, such as New Jersey, from requiring safer more secure technologies. Given the DHS chemical security budget of only \$25 million (about 108 minutes of military spending in Iraq), the federal government should be encouraging states to step forward and add resources to this effort.

- Fail to protect the public's right-to-know by asserting authority to classify previously public information as secret, including information used in civil or criminal enforcement actions.

Sec. 550 (c) and resulting new DHS regulations over reach by going beyond protecting common sense security plans and vulnerabilities into undermining enforcement and covering up governmental incompetence or corporate liability.

- Assert the right to “displace” other federal right-to-know statutes including, the Emergency Planning and Community Right to Know Act, Clean Air Act of 1990, Clean Water Act and CERCLA.

This directly contradicts the savings clause in Sec. 550 (f) which says, “Nothing in this section shall be construed to supersede, amend, alter, or affect any Federal law that regulates the manufacture, distribution in commerce, use, sale, other treatment, or disposal of chemical substances or mixtures.”

- Fail to require meaningful involvement of plant employees in developing Security Vulnerability Assessments and Site Security Plans.

The DHS responded to comments saying that “there is nothing in the rule that prohibits chemical facilities from involving employees in their security efforts.” While we should be thankful for that, such a policy fails to tap the expertise of a workforce that is formally trained in chemical hazard protection, accident prevention and emergency response. Employees are the first line of defense and the eyes, ears and noses of chemical facilities. The failure to formally involve employees in developing vulnerability assessments and security plans is foolish from both a security and scarce resource perspective.

- Fail to include whistleblower protections that would enhance enforcement.

The DHS rules promise to set up an anonymous tip line but ignores the long history of whistleblowers who have exposed waste, fraud and abuse. And in this case they could save thousands of lives.

- Fail to enhance enforcement by allowing citizens to sue to enforce the law, while allowing companies liberal appeals procedures to challenge DHS orders and decisions.

Sec. 550 (d) prevents anyone but the DHS from suing a plant owner or operator to enforce any provision of this law. Once again, the law is balanced in favor of protecting the rights of recalcitrant facilities and/or violators and leaving innocent citizens facing overriding lethal risks with no legal recourse.

- Prohibit the public from knowing which facilities are “high-risk” or “Top Tier” plants.

Both DHS and corporate credibility will be in jeopardy if communities cannot determine if a local chemical plant that poses a threat is being dealt with or is in violation or is resisting orders by the DHS. Nor will communities have the peace of mind of knowing whether a plant has voluntarily converted to safer technologies and no longer poses a threat to their community.

In their Federal Register Notice of rule making, the DHS said, “The Department will continue to work with Congress on chemical security matters.” However, neither the President nor the Secretary of Homeland Security has asked for additional authority from the 110th Congress to fill in the huge gaps in Sec. 550 or to correct provisions that will undermine its effectiveness and enforcement. Meanwhile the chemical industry argues for waiting a few years even though Sec. 550 regulations will expire on October 4, 2009.

The failure of the Bush administration and DHS to ask Congress for broader permanent statutory authority to correct the deficiencies in the temporary law is irresponsible.

Prioritize the Most Dangerous Chemicals:

The largest category of hazardous substances that can be transformed into chemical weapons of mass destruction (WMDs) are toxic-by-inhalation (TIH) gases. According to the U.S. EPA just **four TIH gases account for 55 percent** of all chemical processes that threaten communities nationwide. These are:

anhydrous ammonia --- 32.5% (8,343 processes)

chlorine --- 18.3% (4,682 processes)

sulfur dioxide --- 3% (768 processes)

hydrogen fluoride --- 1.2% (315 processes)

Unfortunately, the DHS has set dangerously high threshold quantities for many of these substances such as:

Anhydrous Ammonia: 10,000 lbs.

Chlorine: 500 to 2,500 lbs.

Given the successful terrorist attacks in Iraq using small quantities of chlorine (approximately 150 lbs.) and recent thefts in the U.S., it would be prudent to establish lower threshold quantities for such ubiquitous hazardous substances. Lower thresholds won't necessarily trigger more regulations, they simply give the DHS a more complete picture of where hazards are. Regulations should be driven by populations at risk.

Safer Technologies Can Eliminate the Consequences of an Attack

While these chemical processes deserve high priority because of their prevalent use at thousands of facilities, especially at high threat facilities, there are widely available safer alternatives for each of them. For example, the Center for American Progress (CAP) conducted an analysis of EPA's Risk Management Program data and identified 284 facilities that have converted since 1999.

Examples of conversions from these chemicals and continuing threats include:

*** More than 200 water treatment facilities (including Washington, D.C.) converted to safer alternatives such as ultraviolet light, eliminating the use of **chlorine** and **sulfur dioxide** gas. But over 100 water treatment plants still threaten more than 100,000 people.

*** Ninety-eight petroleum refineries use safer alternatives to **hydrogen fluoride (HF)**. But 50 refineries still threaten millions of people with the use of HF.

*** At least 36 electric power plants use safer alternatives to **anhydrous ammonia** gas such as dry urea. But 166 power plants still use anhydrous ammonia gas each threatening an average of 21,506 people.

While the CAP analysis proves the technological feasibility of safer alternatives, CAP estimates that at this rate of conversion, without any new regulatory requirements, it will take 45 years to eliminate hazards that pose the highest risk to America's hometowns.

The CAP analysis shows that 87% of the converted facilities spent less than \$1 million and half spent less than \$100,000. Clearly these conversion costs pale in comparison to the cost of disaster response, relocating communities, defending against personal injury law suits or resolving environmental clean up liability or even conventional security costs.

A 2006 GAO report (GAO-06-150), Homeland Security DHS Is Taking Steps to Enhance Security at Chemical Facilities, But Additional Authority Is Needed, concluded, **"Implementing inherently safer technologies potentially could lessen the consequences of a terrorist attack by reducing the chemical risks present at facilities, thereby making facilities less attractive targets."**

A Government Accountability Office report (GAO-05-165) identified chlorine gas and 90-ton chlorine rail cars as **"among the top five terrorist-related wastewater system vulnerabilities."** Among the top three recommendations: **"Replacing gaseous chemicals used in wastewater treatment with less hazardous alternatives."** In addition, the largest majority of experts gave replacing these chlorine facilities the highest priority for federal funding.

For example, the Blue Plains sewage treatment plant in Washington, D.C. halted its use of chlorine and switched to safer chemicals just eight weeks after the 9/11 attacks due to fears of another attack. The plant had seven rail cars of chlorine on sight following the 9/11 attacks. The conversion only cost approximately \$0.50 per year for each water customer. In other words, by using safer technologies we can neutralize and eliminate targeting by terrorists and prevent catastrophic accidents as well at negligible costs.

Switching to safer **"drop-in"** chemicals, such as relatively harmless sodium hypochlorite (liquid bleach) without a long-term plan can leave lingering risks in communities where the bleach is produced. While switching to bleach at a sewage plant clearly eliminates the immediate hazard at that facility, the bleach formulators who use and store large quantities of chlorine gas to make bleach still pose serious risks to workers and surrounding communities. In July 2006, KIK Custom Products, which operates 23 plants in the U.S. and Canada, announced plans to commercialize a new process that will eliminate the need to receive large shipments of chlorine gas. These bleach and water disinfectant formulators are well positioned to guide their customers toward other safer alternatives such as ozone and ultra-violet light (UV) which are widely available and do not pose catastrophic hazards. UV is superior to chlorine or chlorine bleach in that it also kills deadly anthrax and the parasite cryptosporidium which chlorine does not. --- In 1993 more than 100 people were killed and 400,00 were made sick by cryptosporidium when it overwhelmed the chlorine treated drinking water system of Milwaukee, Wisconsin.

State Preemption:

As the DHS acknowledged in their proposed rule, "Sec. 550 was silent on preemption" of states' authority to set stronger security standards. However, the DHS chose to assert federal preemption without statutory authority in an apparent effort "to preserve chemical facilities flexibility to choose security measures."

While few would argue that the federal government should not preempt states' authority to establish **minimum** standards, it is self-defeating to bar states from setting stronger security standards by establishing a federal **limit or ceiling** on security protections.

The federal government should welcome every state pitching in to address the unique situation it faces. New Jersey was the first state to implement a chemical security program that requires an assessment of safer, more secure technologies. According to Governor Corzine, a federally mandated roll back of New Jersey's protections "*could have the effect of weakening chemical security and leaving New Jersey and its neighbors –including New York City—more vulnerable to devastation from a terrorist attack on our chemical facilities.*"

And while preemption may ultimately be decided in the courts, the DHS appears more concerned about protecting industry exposure to state tort liability when it asks; "**how could state tort law impose liability for actions specifically approved under a federal program?**" --- Is DHS attempting to shield chemical facilities from state tort suits? How does this contribute to the safe guarding of communities from existing and preventable threats?

Risk Based Performance Standards & Safer Technologies:

A safer technology provision was contained in the 2006 House Homeland Security Committee passed bill, H.R. 5695. That bill required priority chemical facilities to utilize safer, more secure technologies, where feasible and cost effective to reduce or eliminate the magnitude of an attack on a chemical facility. By substituting inherently dangerous chemicals or processes with inherently safer technologies (IST) the risk of a catastrophic release at a chemical plant can be eliminated or dramatically reduced. IST is the best tool available to completely mitigate facility vulnerabilities and safe guard communities.

The DHS has wide discretion to establish "risk-based performance standards." The DHS could have chosen to establish performance standards that deter an attack or mitigate the consequence of an attack by safeguarding, reducing or eliminating the risk or desirability of the facility as a target. This could have been achieved by issuing guidance to suggest that counter measures include the use of safer, more secure technologies to meet the performance standard or opt out of the regulations entirely.

In fact, the DHS mentioned in their Federal Register notice of proposed rule making, Annex B, page 78315, that a "security event may be larger than the typical EPA Risk Management Program (RMP) worst-case analysis." In a 2001 U.S. Army Surgeon General study estimated that 900,000 to 2.4 million people could be killed or injured in a terrorist attack on a U.S. chemical plant in a densely populated area. According to the Environmental Protection Agency (EPA), 106 chemical plants threaten a million or more people. Chlorine gas is the most common industrial chemical hazard at the 100 highest risk plants. According to the Chlorine Institute, a chlorine gas cloud can drift through a city and remain dangerous for at least 14 miles and 20 to 25 miles in rural areas.

These alternatives include a wide range of options such as process changes, chemical substitutions, smaller storage vessels or any other measures that will reduce or eliminate the inherent hazard posed by the facility's storage, use or production of an ultra-hazardous substance. This range of options is far from requiring any "particular security measure," it is up to the plant operator to choose which safer technology, process, chemical or storage vessel reduces or eliminates these risks.

Only about 13 percent of the universe of facilities in the EPA's Risk Management Program (RMP) are members of the chemical manufacturers trade association, the American Chemistry Council. Whereas the overwhelming majority of RMP facilities are chemical **users**, including: petroleum refineries that use hydrogen fluoride; power plants that use anhydrous ammonia and water treatment plants that use chlorine and sulfur dioxide gas. All of these have safer alternatives already widely in use at hundreds of facilities.

The use of safer technologies offers a more competitive and stable business plan with much fewer regulations, potentially zero liability, sustainable profitability, better relationships with workers and neighboring communities and no threat of a catastrophic attack or accident. Requiring safer technologies simply establishes a level playing field that will allow proven cost-effective systems to grow profitably while providing communities safety and security.

Obviously, chemical facilities located on site at nuclear power plants, water treatment works, iconic facilities such as Disney World, Camp David, etc. also need to be considered for priority protection. However, using safer technologies as a countermeasure at these facilities will lessen the lethality that an attack on them would pose. DHS will also be able to better utilize its limited resources (\$25 million for FY 2008) for more effective use of conventional security measures to defend against and respond to attacks on targets even where a chemical risk is removed.

Given DHS's finite resources and the late start the nation has in addressing chemical security it is urgent that we use safer technologies to mitigate the consequence of an attack. By doing so we eliminate risks, safeguard communities and save scarce money and resources to protect targets that cannot be so neutralized (airports, U.S. Capitol, etc.).

The Annex in the DHS proposed rule suggests that plant owners and operators should assume that "international terrorism" is possible at every facility. A better assumption would be to recognize that every plant could be the target of someone no one anticipated. The bombing of the Federal Building in Oklahoma City in 1995 was initially thought to be committed by "Middle Eastern terrorists." It turned out to be the insane act of a U.S. Army trained Gulf War veteran. How many more Americans have been trained in the art of war since then? Other incidents and threats ranging from Columbine, to international drug cartels and the spectacularly failed intelligence leading up to the 9/11 attacks, makes guessing where such an attack will come from nothing more than a fool's errand. The only prudent thing to do is attempt to remove unnecessary vulnerabilities as soon as technically feasible. Even without terrorist attacks, we will save countless lives in accident prevention.

Top Tier High Risk Facilities:

According to a June 2005 Congressional Research Service report examining EPA's RMP data base, the EPA has identified 6,883 facilities that each put 1,000 or more nearby residents at risk and 553 of these put 100,000 or more people at risk.

However, using a methodology that includes only 1/6th the area surrounding a plant, the Department of Homeland Security (DHS) has estimated at different times a range of 3,400 to 4,391 chemical facilities that each put 1,000 or more people at risk. Of these DHS identified 272 facilities that each put 50,000 or more people at risk. The DHS calculation looks at a 60 degree "kill zone" down wind from a facility. The EPA's RMP program uses a methodology that creates a 360 degree "vulnerability zone" around a facility. Under the RMP, chemical plant owners and operators submit worst-case disaster scenarios using U.S. Census data to calculate the number of people living in each "vulnerability zone." In Annex B of the DHS proposed rule

on FR page 78315 warns, “the security event may be larger than the typical EPA RMP worst-case analysis.”

At a minimum, any facility that endangers 1,000 or more people should be considered a “top tier” or “high-risk” facility.

Alternative Security Plans (ASPs):

The new DHS rule allows the high priority facilities in Tier 1 and 2 to use ASPs for their Site Security Plans. However, these same facilities cannot use ASPs for their Security Vulnerability Assessments.

ASPs were written by and for oil and chemical industry trade associations. All of them avoid requiring safer technologies and do not represent the best way to safe guard communities at risk. Congress should not allow the DHS to substitute ASPs for Site Security Plans for high priority facilities.

Consultation With Other Agencies:

As a new department with minimal resources, the DHS should routinely collaborate and consult with other more experienced government agencies. In their January 2006 report (GAO-06-150) the Government Accountability Office concluded, “By tapping EPA’s expertise on chemical facilities and general facility safety issues, DHS can enhance its efforts to identify high-priority facilities and assess facility vulnerabilities as well as better target government resources to those facilities posing the greatest risk.”

Congress should require the DHS to consult with the EPA as the GAO recommended and develop guidance documents to rapidly identify high risk facilities and promote the use of inherently safer technologies as a mitigation and countermeasure technique to reduce risks and safe guard communities. Similar consultation with the U.S. Chemical Safety and Hazard Investigation Board, which has enormous experience in diagnosing chemical accidents and recommending mitigation techniques, should be aggressively pursued.

Buffer Zones:

According to the EPA (Belke, 2000), the high number of facilities that put residents at risk as far as 14 to 25 miles away from a release “is primarily due to the prevalent use of 90-ton rail tank cars for chlorine storage.” The Chlorine Institute pamphlet 74, “Estimating the Area Affected by a Chlorine Release” (1998), shows a plume can be hazardous up to 41.5 miles.

The Bureau of Alcohol Tobacco, Firearms, and Explosives regulations (27 CFR 555.218) prohibits the storage of a similar quantity of explosives within 2,010 feet of inhabited buildings.

In 2006 the Netherlands and Akzo Nobel completed a \$270 million program to relocate chlorine production facilities within Holland to a location that will eliminate the transport of chlorine by rail in the Netherlands.

Given the large potential plume of toxic-by-inhalation substances and large quantities of some flammables such as propane, a much larger buffer zone is called for with regard to high risk TIH facilities.

Without the use of safer technologies to convert existing plants into safer functioning plants, relocating them to more remote areas should be an option, especially if an owner/operator insists that there is no safer alternative.

Short of relocation, the DHS should be required to issue guidance to mitigate these threats by using smaller storage vessels that would help reduce risks, deter and discourage potential attackers. In addition, the DHS should facilitate owner/operator collaboration with local government and emergency responders to conduct practice evacuation drills. If a plant cannot substantially reduce its risks, the owner/operators and government agencies have an obligation to ensure that at-risk citizens can reasonably be evacuated.

New facilities should be prohibited from locating in densely populated areas.

Brief History of Federal Inaction:

While the DHS proposed rule issued December 28, 2006 contained a "Brief History of Federal Pre-Existing Chemical Security and Safety Programs," it ignored the "general duty clause" in Section 112r of the 1990 Clean Air Act which gives the President and the Environmental Protection Agency (EPA) broad authority to require chemical facilities to prevent catastrophic releases of poison chemicals. After drafting legislation, guidance and regulations in June of 2002, the administration withdrew its proposals, in part, under pressure from the oil and chemical industry.

On July 22, 2004 "***The 9/11 Commission Report***" identified four failures in preventing an attack by the U.S. government the first of which was the failure of "***imagination.***" A continuing lack of imagination today exposes millions of Americans to Bhopal magnitude risks largely because new laws or regulations have not yet been adopted to clarify the chemical industry's obligation to prevent catastrophic releases at U.S. chemical plants. In June, 2002 a promising proposal drafted by the EPA could have completed the first phase of such a program by the middle of 2003 but it was derailed by the White House in the fall of 2002. It was not unlike a bill (S. 1602) authored in 2001 by Senator Jon Corzine (D-NJ) and based on a bill introduced by Senator Frank Lautenberg (D-NJ) in 1999.

The EPA's 2002 proposal included "***substituting less hazardous chemicals for extremely hazardous ones.***" The conversion of Washington, D.C.'s main sewage treatment plant from chlorine to safer chemicals, just eight weeks after 9/11, exemplifies the feasibility of such a strategy. At the time of the attacks they had 7 90-ton rail cars of chlorine stored on site.

Of the 15,000 facilities required to report their worst-case chemical disaster scenarios to the EPA's RMP, 7,728 plants pose an "***off site consequence***" (OSC) to more than 1,000 people. Approximately 100 facilities reported an OSC to the EPA putting one million or more people at risk. Approximately 65 percent of these facilities' "worst-case-scenarios" are chlorine disasters. Rather than address these risks through the new regulations suggested by the EPA, the DHS used a new methodology that downsized the priority list of chemical plants by forty-three percent to 3,400 facilities that put 1,000 or more people at risk.

EPA's 2002 chemical security proposal was slated for a media "***rollout***" at the White House. According to draft documents, "***higher priority chemical facilities should be able to complete a vulnerability assessment and address security vulnerabilities as described in the guidance in 12-18 months.***" --- In other words many facilities could already have eliminated or reduced their hazards by early 2004.

EPA's 2002 documents included a question and answer sheet for EPA Administrator Whitman which said, "***Using existing authority under the Clean Air Act, we believe that the guidance and regulation I have announced today are the quickest paths to improving***

chemical facility security...If we later find that there are legislative gaps, then we will consider seeking legislation."

Ultimately, the reversal by the Bush administration and the lobbying pressure by the industry (American Chemistry Council, American Petroleum Institute, etc.) paid off and chemical security legislation was excluded from the Homeland Security Act signed into law in November 2002.

In March, 2003 a report by the General Accounting Office (GAO) concluded ***"EPA has not attempted to use these Clean Air Act provisions [because] EPA is concerned that such an interpretation would pose significant litigation risk..."*** The GAO concluded that chemical facility security would be more effectively addressed by passage of specific legislation.

In December 2003 President Bush further undermined EPA's authority and issued a directive (Directive/Hspd-7) limiting EPA's role on chemical security to ***"drinking water and water treatment systems."*** Under questionable legal authority, this directive attempts to shift responsibility for 15,000 chemical plants to the DHS, which at the time had no legislative authority, experience or inclination to regulate this industry.

In January 2005, former White House homeland security deputy, Richard Falkenrath told the Senate Homeland Security and Governmental Affairs Committee, ***"the federal government has made no material reduction in the inherent vulnerability of hazardous chemical targets inside the United States. Doing so should be the highest critical infrastructure protection priority for the Department of Homeland Security in the next two years."***

In his book, --- "America the Vulnerable" Stephen Flynn, of the Council on Foreign Relations warned, ***"The chemical industry deserves urgent attention because the stakes are high, the opportunities for terrorists are rich, and no credible oversight process exists. It is the very ubiquity of the U.S. chemical industry that gives it potential to be a serious source of national alarm."***

In 2006 an intensive industry lobbying campaign successfully killed comprehensive chemical security legislation (H.R. 5695 & S. 2145) that was voted out of the authorizing committees in the House and Senate in 2006. Instead, the industry worked closely with Republican leaders to draft a 740 word "rider" to the 2007 DHS Appropriations bill. The only major concession they made was to keep it an "interim" three year statute until Congress enacts permanent legislation. In 2007, the industry is urging Congress NOT to change this temporary statute.

To better understand the lobbying resources the industry used to derail legislation in 2006 we surveyed the lobbying records of the relevant industries in the Office of the Secretary of the Senate at: <http://sopr.senate.gov>

Greenpeace identified **215 industry lobbyists that listed chemical security as part of their portfolio in 2006**. Based on their lobby reports we estimate that industry lobbyists spent between \$16.4 and \$74.5 million (less than half of their total reported spending) to lobby on chemical plant security legislation in 2006. Lobby organizations identified included 13 trade associations such as the American Chemistry Council (ACC), American Petroleum Institute (API), U.S. Chamber of Commerce (including CEO Thomas Donahue), Edison Electric Institute (EEI), 30 member companies such as Dow Chemical, ExxonMobil and Halliburton and 13 lobby firms such as Akin & Gump and Holland & Knight.

In comparison, the 2007 fiscal budget for chemical security at the DHS was only \$10 million. DHS is asking for an increase of \$15 million for a total of \$25 million for their 2008 fiscal budget on chemical security.

Our survey of lobbying records may have underestimated industry spending because we excluded lobbyists who did not specifically list chemical security legislation on their lobby reports. A notable example, the National Association of Manufacturers (NAM) was **not** included in the survey even though they registered to lobby on chemical security in 2005, signed on to industry letters in 2006, and formally commented on DHS proposed regulations in 2007. As a result, **none of NAM's 56 lobbyists and \$15 million budget were not counted as part of this lobbying campaign.** It is unclear whether this is a violation of the LDA or the result of a split within the NAM.

Alternatively, member companies of the Association of American Railroads (AAR), such as CSX, BNSF & Norfolk Southern, are also members of NAM. Yet the AAR testified in support of the use of safer chemicals as a way to eliminate industry vulnerability and liability to potential terrorist attacks on rail cars carrying hazardous chemicals.

Of the 215 chemical security lobbyists we identified, 90 directly represent the ACC (the trade association of major chemical manufacturers), or its member companies. However, the 2,000 chemical plants owned and run by ACC members account for only 13 percent of the 15,000 chemical facilities the EPA has identified as posing a risk to communities. Most of the rest are "users" of chemicals such as refineries, water treatment plants, power plants and paper mills. It is in these sectors where more than 200 plants have converted to safer chemicals or processes since 9/11.

Our survey also identified chemical front groups and allies such as the Agricultural Retailers Association (ARA), led by Dow and other large firms and the Farm Bureau. Every lobbyist registered with the ARA as well as the Farm Bureau also reported lobbying on chemical security in 2006 even though most high-risk plants are not located in rural areas.

Deadly Accidents

The 1984 Union Carbide's Bhopal, India plant had the worst industrial accident in history. Forty tons (half a rail car) of methylisocyanate (MIC) leaked into the community at midnight killing 8,000 people within days and claiming another 12,000 lives since.

In June, 2004, three people were killed in a train accident in a remote area southwest of San Antonio, Texas when a tank car carrying chlorine broke open in the 25 mph crash, releasing a portion of the tank car contents.

On January 6, 2005 ten people were killed, 58 hospitalized and hundreds sought treatment in Graniteville, South Carolina when chlorine was released again when one train slammed into a parked train in the middle of the night. The cars involved were allegedly state of the art construction.

Both of these tragedies could have resulted in a much higher number of fatalities and injuries if they had occurred in densely populated areas.

Comprehensive and Permanent Chemical Security Legislation Is Urgently Needed

We have lost over six years since the 9/11 attacks. Legislation in name only will not protect communities. Programs limited to fence-line or perimeter security will not prevent an attack or eliminate the consequence of a successful attack.

A key test of whether chemical facility security legislation will protect the millions of Americans still at risk is whether it contains minimum standards and truly protective provisions that:

- Require all plants to assess the feasibility of safer more secure technologies that can eliminate the consequences of an attack on a chemical plant.
- Require “high-risk” facilities to use safer technologies or chemicals.
- Insure that the 3,400 to 4,400 facilities that DHS identified as posing a risk to 1,000 or more people are included in the “high risk tier.”
- Includes protection of approximately 3,000 U.S. water treatment plants and other chemical facilities currently explicitly exempted by the temporary law.
- Expedite deadlines by when DHS will require and approve Site Security Plans.
- Require meaningful involvement of plant employees in developing Security Plans.
- Include whistle blower protections to enhance enforcement.
- Provide basic information to the public on facility compliance or non-compliance of the law.
- Ensure the right of all states to establish stronger security standards.
- Enhance enforcement by allowing citizen suits.

On July 28, 2006 the House Homeland Security Committee agreed on a bi-partisan compromise amendment offered by Representative Edward Markey (D-MA) that required the use of safer more secure technologies at “high-risk” tier facilities. However, if any facility can dramatically reduce or eliminate the consequences of a successful terrorist attack they should at least examine the feasibility of doing so.

Below is a brief Q & A on the original Markey amendment:

Are all facilities required to use or implement safer technologies?

No. Only facilities in the “high-risk” tier would be required to implement safer technologies.

What if it is not feasible or too costly to implement safer technologies?

No facility would be required to implement safer technologies if they are either infeasible or too costly.

Will converting high-risk plants to safer technologies financially burden chemical facilities?

No. A survey by the Center for American Progress identified 284 facilities that switched to safer methods since 1999. They found that 87 percent spent less than \$1 million, and one half reported spending less than \$100,000. Thirty-four percent of survey participants expected to save money or improve profitability because safer methods reduce the need for barriers, secondary containment, security training, and liability concerns. The Washington, D.C. sewage treatment plant converted 90 days following the 9/11 attacks for less than \$0.50 per water customer per year.

Will this regulation shift risks rather than eliminate them?

No. The safer technology must “significantly reduce” the consequences of an attack or it will not be required to replace an existing technology. In fact, there are now hundreds of real-world examples of water treatment, electric power plants and petroleum refineries that have switched without shifting risks. If anything, the DHS could play a positive role in encouraging the use of safer methods to ensure that individual facilities do not make short-sighted decisions that shift risks.

Will requiring high-risk facilities to use safer technologies put the DHS in the business of micromanaging chemical facilities?

No. Facilities are free to choose any of their own methods or opt out if they can show the DHS that there is no feasible, cost-effective or safer method for their facility (see list of examples from H.R. 5695 below).

Is it the role of government to require safer design and safer technologies to be used in the private sector?

The FAA has issued regulations on security and safety for decades. The feasibility and cost-effectiveness are routinely considered and balanced against security and safety needs. For example, after 9/11 detailed regulations to harden cockpit doors were sped into force for thousands of different jet liners and airplanes, and X-ray machines for all airline baggage were mandated at hundreds of airports.

Is this proposal more appropriate in environmental legislation than in a security bill?

No. The June 2006 National Academy of Sciences study, commissioned by the DHS, endorsed the adoption of safer technologies as "the most desirable solution to preventing chemical releases" from terrorist attack. The Association of American Railroads in testimony before Congress said, "Railroads agree, and strongly support efforts aimed at finding and utilizing 'inherently safer technologies' as substitutes for hazardous materials, especially TIH."

Examples of Safer Technologies Included But Not limited to in H.R. 5695:

"METHOD TO REDUCE THE CONSEQUENCES OF A TERRORIST ATTACK.—For purposes of this section, the term ‘method to reduce the consequences of a terrorist attack’ includes—

- (1) input substitution;*
- (2) catalyst or carrier substitution;*
- (3) process redesign (including reuse or recycling of a substance of concern);*
- (4) product reformulation;*
- (5) procedure simplification;*
- (6) technology modification;*
- (7) use of less hazardous substances or benign substances;*
- (8) use of smaller quantities of substances of concern;*
- (9) reduction of hazardous pressures or temperatures;*
- (10) reduction of the possibility and potential consequences of equipment failure and human error;*
- (11) improvement of inventory control and chemical use efficiency; and*
- (12) reduction or elimination of the storage, transportation, handling, disposal, and discharge of substances of concern."*

Additional Expert Opinions on Safer Technologies:

2006 GAO report (GAO-06-150), Homeland Security DHS Is Taking Steps to Enhance Security at Chemical Facilities, But Additional Authority Is Needed, concluded, **“Implementing inherently safer technologies potentially could lessen the consequences of a terrorist attack by reducing the chemical risks present at facilities, thereby making facilities less attractive targets.”**

May 2006 report by the National Academy of Sciences, “Terrorism and the Chemical Infrastructure: Protecting people and Reducing Vulnerabilities,” recommended more research on new technologies but stated, **“The most desirable solution to preventing chemical releases is to reduce or eliminate the hazard where possible, not to control it. This can be achieved by modifying processes where possible to minimize the amount of hazardous material used, lower the temperatures and pressures required, replace a hazardous substance with a less hazardous substitute, or minimize the complexity of a chemical process.”**

“Railroads agree, and strongly support efforts aimed at finding and utilizing 'inherently safer technologies' as substitutes for hazardous materials, especially TIH.” -- Association of American Railroads (AAR) President, and CEO Edward R. Hamberger in testimony before the House Transportation and Infrastructure Committee's Railroad Subcommittee.

Retired Rohm and Haas engineer, Dennis Hendershot advised, **“The first solution to a process safety problem should always be to get rid of the hazard, not control it.”**

Trever Kletz, formerly with Imperial Chemical Industries (ICI) said, **“The very best way to prevent an explosion is to simply replace the material that explodes with one that does not or at least keep the stock down so low that it hardly matters if it all leaks out.”**

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