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Before the
Homeland Security and Government Affairs Committee
U.S. Senate
on

"CHEMICAL SECURITY: ASSESSING PROGRESS AND CHARTING A PATH FORWARD"

Testimony of:
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HOMELAND SECURITY REGULATIONS (CFATS) ARE WHOLLY INADEQUATE

COMPREHENSIVE LEGISLATION IS ESSENTIAL TO SECURITY

INHERENTLY SAFER TECHNOLGIES WILL ELIMINATE THE CATASTROPHIC CONSEQUENCES OF AN ATTACK

March 3, 2010

"There are other ways to reduce risk that need to be part of the equation. Specifically, by employing safer technologies, we can reduce the attractiveness of chemical plants as a target."
--- Senator Barack Obama, March 30, 2006

"It's time for the big chemical companies to do their part to help protect America. They should stop manufacturing dangerous chemicals when safer substitutes are available. And if they won't do it, Congress should do it for them..."
--- Association of American Railroads, February 27, 2008

CONVENTIONAL SECURITY IS NOT ENOUGH

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 by then Senator Obama on the Senate floor as ***"stationary weapons of mass destruction."***

The recent domestic terrorist attack on an Internal Revenue Service (IRS) office building in Austin is a sobering reminder of the nearly nine 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 and in 2008 in Institute, West Virgina have been widely recognized. The potential magnitude of these risks far 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 Americans at risk. A December 2009 Congressional Research Service analysis of Environmental Protection Agency (EPA) data identified 91 chemical facilities that each put 1,000,000 or more Americans 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.

Following the 9/11 attacks it was reported that 9/11 ringleader, Mohamed Atta, visited a Tennessee chemical plant asking lots of questions (December 16, 2001 Washington Post). In the first six months of 2007 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 Department of Homeland Security (DHS) began briefing local bomb squads and chemical plants across the country. (April 24, 2007 USA Today) In February and April of 2007 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.

Stephen Flynn, Senior Fellow in National Security Studies at the Council on Foreign Relations warned in his 2007 book, The Edge of Disaster, " "...While attacks on the electric grid, oil and gas facilities, major ports, and the food-supply system have the potential to create the greatest cascading economic effects, it is chemical facilities near urban population centers that have the potential to inflict the greatest casualties. Placing them at the top of the list of priorities is obvious...In most cases, chemical plants that threaten nearby populations can switch to less dangerous substances. This practice is known as “inherently safer technology,” or IST…Without a strong mandate from the federal government, it’s unrealistic to think they ever will. Yet voluntary compliance is the premise of the legislation Congress passed last fall [2006]; the new rules rest on the assumption that companies will now suddenly begin taking steps they have so far refused to contemplate.”

The Result Could be Catastrophic:

--- 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 CURRENT REGULATIONS ARE FATALLY FLAWED:

The best that can be said for the 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. The Obama Administration subsequently asked for and received a subsequent extension until October 4, 2010 explicitly to allow Congress to enact comprehensive legislation that will “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.

Specifically, the interim chemical security law and DHS rules (CFATS):

--- 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 estimates. The DHS reports that they now have approximately 6,023 facilities in one of the four risk tiers with 793 in risk tiers 1 and 2. This leave approximately 5,230 in the lower two tiers with risk profiles that likely put 1,000 or more people at risk. Furthermore, Sec. 550 gives the Secretary of the DHS full discretion in determining which facilities will be considered to "present high levels of security risk." Clearly more guidance is needed in prioritizing high-risk facilities.

--- Fail to protect approximately 2,400 U.S. water treatment plants as well as several other exempted categories. Approximately 73 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. In June 2007 Secretary Chertoff spoke to water facilities operators warning them that even though they are exempt under the interim law they are "on the hook because you're going to have to do this yourselves because the consequences of ignoring risks…will be quite severe." Once again this gap needs to be closed with comprehensive legislation.

--- Fail to protect 400 to 600 facilities regulated under the Maritime Transportation Security Act of 2002 also exempted by Sec. 550 (a).

--- 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 overreach by going beyond protecting common sense security plans and vulnerabilities into undermining enforcement and covering up governmental incompetence or corporate liability.

--- Fail to require meaningful involvement of plant employees in developing Security Vulnerability Assessments and Site Security Plans. The DHS responded to comments saying "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. 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 regulated under CFATS, if they are in compliance. Both DHS and corporate credibility will be in jeopardy if communities cannot determine if local chemical plant that pose these risks are being made safe or if they are in violation or is resisting orders by the DHS. Nor will communities even 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.

S. 2996 is a Continuation of the Same Flawed Program:

On February 4th Senator Collins (R-ME) introduced a bill (S. 2996) that would do nothing but extend this flawed law for five more years. We strongly oppose this bill and any further delay in comprehensive chemical security legislation.

Until now, Senator Collins has consistently said, on the Senate floor and in public statements, that the 2006 law (Section 550 which authorized CFATS) was "NOT" a comprehensive statute.

For a full copy of Senator Collins' floor statement, please visit:
http://thomas.gov/cgi-bin/query/D?r109:10:./temp/~r109SJf200::
For a copy of Senator Collins' press release, please visit:
http://hsgac.senate.gov/public/index.cfm?FuseAction=Press.MinorityNews&ContentRecord_id=d621b3f6-62c9-4b63-985d-6a41bbeb00e4&Region_id=&Issue_id=

She elaborated extensively on this point in her formal February 7, 2007 comments to the DHS on CFATS in which she criticized the Bush administration for suggesting that they could extend the temporary law without approval by Congress. Below are few examples of her comments DHS about the interim nature of CFATS and the intent of Congress to revisit comprehensive legislation:

"In drafting Section 550, the intent of Congress was clear and unambiguous – this statutory provision provides the Department strong, interim authority for up to three years until permanent, comprehensive authority can be enacted.

"Section 550 was a streamline version of chemical security legislation; it was not the comprehensive authorizing legislation that Congress intended to be the final authority on this matter.

"This period also provides Congress an opportunity to oversee implementation of the Department's interim program, to examine what works under the program and what can be improved, and to revisit the complex issue of chemical facility security within three years to enact more comprehensive authorizing legislation based on the Department's experiences.

"The Department does not have broad discretion to regulate beyond the interim three-year period without a comprehensive authorization from Congress. Any contrary interpretation of the 'sunset' provision is plainly wrong."

For a full copy of Senator Collins' formal comments, please visit:
http://www.greenpeace.org/usa/assets/binaries/collins-letter

We agree with Senator Collins 2006 and 2007 statements that CFATS is "NOT" comprehensive and that the "interim" law was passed to give Congress time to enact comprehensive legislation. However, merely adopting an extension of the current law, as Senator Collins suggests with the introduction of S. 2996, without incorporating lessons learned and new authorities that DHS is requesting, as the House passed bill (H.R. 2868) does, would in no way be comprehensive or responsible legislation.

The interim law has already been extended for one year until October 4, 2010. It would be irresponsible to postpone action any longer on permanent, comprehensive legislation that would eliminate catastrophic risks and close the gap on thousands of exempted facilities such as ports and water treatment plants.

SMART SECURITY IS SAFER MANUFACTURING PROCESSES ELIMINATE THE CONSEQUENCES OF AN ATTACK AND THEY ARE IN WIDESPREAD USE

In February 2008, the CEO of Association of American Railroads said, ***"It's time for the big chemical companies to do their part to help protect America. They should stop manufacturing dangerous chemicals when safer substitutes are available. And if they won't do it, Congress should do it for them…."***

There are commercially available safer alternatives for virtually all of the poison gas or toxic-by-inhalation (TIH) substances that pose the greatest risks to hundreds of urban areas. 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. See full report at:
http://www.americanprogress.org/issues/2006/04/b681085_ct2556757.html

Examples of conversions from TIH chemicals and continuing threats include:

--- More than 550 water treatment facilities (including Washington, D.C.) converted to safer alternatives such as ultraviolet light, eliminating the use of **chlorine** and **sulfur dioxide** gas. At least 73 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.

--- The Blue Plains sewage treatment plant (like more than 550 other water treatment plants all over the US) 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.

--- In November 2009, the Clorox Company announced plans to convert all seven of its U.S. facilities. This conversion will eliminate Clorox's bulk use of chlorine gas and risks to more than 13 million people in nearby communities.

--- In December 2008 Dow Chemical and K2 Pure Solutions announced an agreement in which K2 Pure would supply Dow's Pittsburgh, California facility with small quantities of chlorine gas produced in just-in-time batches by K2 Pure, thus eliminating the risks associated with bulk on-site storage and transport of chlorine gas.

This CAP analysis shows that 87% of the converted facilities spent less than $1 million and one third expected to save money, particularly from reduced liability costs and reduced regulation compliance costs. 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.

While the CAP analysis also proves the 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. A 2008 CAP analysis identified 300 chemical facilities that together put 110 Million Americans at risk. The DHS needs the authority to prioritize the conversion of the highest risk plants first.

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.

The Benefits of Safer Technologies:

The use of safer technologies offers a more competitive and stable business plan with fewer regulations, potentially zero liability, sustainable profitability, better relationships with workers and neighboring communities and no threat of a catastrophic attack or accident. Specifically, the use of safer technologies will likely result in a facility no longer being subject to DHS's CFATS regulations.

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. 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.).

COMPREHENSIVE CHEMICAL SECURITY IS NEEDED

On June 21, 2006 then Senator Obama said, "But there is one thing we can all agree on: any chemical plant security legislation must be comprehensive and rational. It should balance the need to keep us safe with the need to continue producing chemical products that are essential to our economy. I believe the IST approach needs to be a part of rational comprehensive security legislation."

To truly protect employees and surrounding communities, a comprehensive law should:
1) Use "smart security" to prevent the catastrophic consequences of an attack by implementing cost-effective safer and more secure chemicals and processes at all of the highest risk facilities.
2) Include all categories of facilities such as port facilities and water treatment plants.
3) Involve plant employees in developing plant security programs, including participation in workplace inspections, and provide employees with both an appeals and a waiver procedure to protect against excessive background checks.
4) Allow citizen suits to enforce the law by chemical facilities and government agencies and require reporting measures that strengthen accountability.
5) Allow states to set more protective security standards.
6) Require collaboration between the DHS, EPA and other agencies to avoid regulatory redundancy or inconsistency.

To correct the flaws in the interim law and enact comprehensive legislation, we urge you to support companion legislation in the Senate to legislation passed in the House of Representatives on November 6, 2009, the "Chemical and Water Security Act of 2009" (H.R. 2868). H.R. 2868 is a compromise that builds seamlessly on CFATS. It maintains the DHS as the lead agency regulating privately owned chemical plants, including port facilities, and authorizes the EPA as the lead agency regulating publicly owned water and wastewater treatment facilities and provides funding for publicly owned water facilities to adopt the most protective security measures.

While H.R. 2868 exempts more than 90 percent of distributors of agricultural fertilizers, it also provides $3 million each year in compliance assistance grants to the very largest wholesalers. In addition it makes no changes to the indefinite exemption that the DHS has given to agricultural "end users." (e.g. all farms and growers) H.R. 2868 also requires the DHS to assess the regulatory impacts on small businesses.

In addition H.R. 2868:
--- Requires high risk facilities to "assess" safer chemical processes and conditionally

requires the highest risk plants that pose a catastrophic gas release scenario (approximately 107) to use safer chemical processes where feasible and commercially available and includes a technical appeals process to challenge DHS decisions;
--- Provides up to $100 million in the first year to assist privately owned plants to use safer and more secure processes, $125 million for drinking water facilities and an unspecified portion of $200 million for wastewater facilities to use safer more secure processes;
--- Involves plant employees in the development of security plans and provides protections for whistleblowers and limits background check abuses;
--- Preserves state's authority to establish stronger security standards;
--- Bars citizen suits against private facilities but allows suits against DHS to enforce non-discretionary duties.

Greenpeace believes H.R. 2868 is a valuable piece of compromise legislation, and looks forward to working with the members of this Committee and their staffs in passing legislation at least as strong.

Appendices:
A – March 2010 Blue-Green Coalition Letter
B – Clorox Press Release
C – History of Chemical Security Legislation
C – Q&A on Section 2111 of H.R. 2868 as passed by the House November 6, 2009
D – Biblio
E – December 11, 2009 RMP data update from CRS

Appendix A:

American Federation of State, County and Municipal Employees (AFSCME)
Communications Workers of America (CWA) – International Brotherhood of Teamsters
International Chemical Workers Union Council/UFCW – NJ Work Environment Council
Service Employees International Union (SEIU) – United Automobile Aerospace and Agricultural Implement Workers of America (UAW) – United Steelworkers (USW)
Clean Water Action – Earthjustice – Environment America – Friends of the Earth
Greenpeace – League of Conservation Voters – OMB Watch – Physicians for Social Responsibility – Sierra Club – U.S. Public Interest Research Group
Alaska Community Action on Toxics – Advocates for Environmental Human Rights
Beyond Pesticides – Breast Cancer Fund – Center for Health, Environment and Justice
Center for International Environmental Law – Citizens' Environmental Coalition – Clean New York – Connecticut Coalition for Environmental Justice – Connecticut Council on Occupational Safety and Health – Deep South Center for Environmental Justice – Ecology Center – Empire State Consumer Project – Environmental Health Strategy Center
Environmental Justice Action Group of WNY – Galveston Houston Association for Smog Prevention and Mothers for Clean Air (GHASP/MfCA) – Global Community Monitor – Green Education and Legal Fund, Inc. – Maine People's Alliance – MDPIRG – Natural Resources Council of Maine – Northwest Atlantic Marine Alliance – Oregon Toxics Alliance – Science and Environmental Health Network – Urban Semilas
Kristen Breitweiser, 9/11 Widow

March 1, 2010

Dear Senator,

On November 6, 2009, the House of Representatives passed the *Chemical and Water Security Act of 2009* (H.R.2868) a comprehensive chemical security bill. The undersigned organizations supported this legislation and would like to work with you to pass even more protective legislation in the U.S. Senate this year before the interim law expires on October 4, 2010.

Chemical plants and other chemical facilities remain one of the most vulnerable sectors of America's infrastructure to terrorist attacks. The Department of Homeland Security (DHS) has identified approximately 6,023 "high-risk" U.S. chemical facilities. In 2004, the Homeland Security Council planning scenario projected that an attack on a chemical facility would kill 17,500 people and send an additional 100,000 people to the hospital. A December 2009 Congressional Research Service review of EPA data shows that 91 chemical facilities each put 1 million or more people at risk.

The current interim statute enacted as a rider to the 2007 Homeland Security appropriations bill temporarily authorized the Chemical Facility Anti-Terrorism Standards (CFATS) to give Congress time to enact comprehensive legislation. As a security program CFATS was only an interim first step. It fails to protect the millions of Americans at risk by eliminating preventable catastrophic hazards.

The interim statute:

a. Prohibits the DHS from requiring any specific "security measure" whatsoever.
b. Fails to develop the commonsense use of safer and more secure chemical processes that can cost-effectively eliminate catastrophic hazards posed by poison gas.
c. Explicitly exempts thousands of chemical and port facilities, including approximately 2,400 water treatment facilities and 400-600 port facilities.

d. Fails to involve knowledgeable employees in the development of vulnerability assessments and security plans, or protect employees from excessive background checks.
e. Denies the public the information needed to ensure an effective, accountable program.

On February 4th Senator Collins (R-ME) introduced a bill (S. 2996) that would do nothing but extend this flawed law for five more years. We strongly oppose this bill and any further delay in comprehensive chemical security legislation. In fact, Senator Collins' own comments to the DHS in 2007 were clear. She said, *"The Department does not have broad discretion to regulate beyond the interim three-year period without a comprehensive authorization from Congress. Any contrary interpretation of the 'sunset' provision is plainly wrong."*

In their October 1st testimony before the House, both the DHS and the EPA called for comprehensive legislation to include water treatment plants and port facilities as well as conditional requirements to use safer available chemical processes where feasible at the highest risk facilities.

To correct the flaws in the interim law and enact comprehensive legislation, we urge you to support companion legislation in the Senate to H.R. 2868. H.R. 2868 is a compromise that *builds seamlessly on CFATS*. It maintains the DHS as the lead agency regulating privately owned chemical plants, including port facilities, and authorizes the EPA as the lead agency regulating publicly owned water and wastewater treatment facilities and provides funding for publicly owned water facilities to adopt the most protective security measures.

While H.R. 2868 exempts more than 90 percent of distributors of agricultural fertilizers, it also provides $3 million each year in compliance assistance grants to the very largest wholesalers. In addition it makes no changes to the indefinite exemption that the DHS has given to agricultural "end users." (e.g. all farms and growers) H.R. 2868 also requires the DHS to assess the regulatory impacts on small businesses.

In addition H.R. 2868:

- Requires high risk facilities to "assess" safer chemical processes and conditionally requires the highest risk plants (approximately 107) to use safer chemical processes where feasible and commercially available and includes a technical appeals process to challenge DHS decisions;
- Provides up to $100 million in the first year to assist privately owned plants to use safer and more secure processes, $125 million for drinking water facilities and an unspecified portion of $200 million for wastewater facilities to use safer more secure processes;
- Involves plant employees in the development of security plans and provides protections for whistleblowers and limits back ground check abuses;
- Preserves state's authority to establish stronger security standards;
- Bars citizen suits against private facilities but allows suits against DHS to enforce non-discretionary duties.

Passing comprehensive legislation this year is vital to our national security. Since 1999, more than 500 facilities have used "smart security" to eliminate these risks to more than 40 million Americans. In a March 2006 floor statement, then Senator Obama said, "by employing safer technologies, we can reduce the attractiveness of chemical plants as a target...Each one of these methods reduces the danger that chemical plants pose to our communities and makes them less appealing targets for terrorists." In November 2009, the Clorox Company announced plans to convert all seven of its U.S. facilities to eliminate the bulk use of chlorine gas and inherent risks to nearby communities.

The Association of American Railroads issued a statement in 2008 saying, *"It's time for the big chemical companies to do their part to help protect America. They should stop manufacturing dangerous chemicals when safer substitutes are available. And if they won't do it, Congress should do it for them..."*

To truly protect employees and surrounding communities, a comprehensive law should:

1) Use "smart security" to prevent the catastrophic consequences of an attack by implementing cost-effective safer and more secure chemicals and processes at all of the highest risk facilities.
2) Include all categories of facilities such as port facilities and water treatment plants.
3) Involve plant employees in developing plant security programs, including participation in workplace inspections, and provide employees with both an appeals and a waiver procedure to protect against excessive background checks.
4) Allow citizen suits to enforce the law by chemical facilities and government agencies and require reporting measures that strengthen accountability.
5) Allow states to set more protective security standards.
6) Require collaboration between the DHS, EPA and other agencies to avoid regulatory redundancy or inconsistency.

We look forward to working with you and your staff on this urgently needed legislation.

Sincerely,

John Morawetz
International Chemical Workers Union Council/UFCW

Liz Hitchcock
U.S. Public Interest Research Group

Rick Hind
Greenpeace

Holly Hart
United Steelworkers (USW)

Brian Turnbaugh
OMB Watch

Kristen Welker-Hood
Physicians for Social Responsibility

Alan Reuther
United Automobile Aerospace and Agricultural Implement Workers of America (UAW)

Ed Hopkins
Sierra Club

Pam Miller
Alaska Community Action on Toxics

Nathalie Walker & Monique Harden
Advocates for Environmental Human Rights

Charles Loveless
American Federation of State, County and Municipal Employees (AFSCME)

Jay Feldman
Beyond Pesticides

Jeanne Rizzo, R.N.
Breast Cancer Fund

Lois Gibbs, Executive Director
Center for Health, Environment and Justice

Daryl Ditz
Center for International Environmental Law

Barbara Warren
Citizens' Environmental Coalition

Kathy Curtis
Clean New York

Lynn Thorp
Clean Water Action

Dave LaGrande
Communications Workers of America (CWA)

Mark A. Mitchell
Connecticut Coalition for Environmental Justice
Mike Fitts
Connecticut Council on Occupational Safety and Health

Dr. Beverly H. Wright
Deep South Center for Environmental Justice

Emily Enderle
Earthjustice

Tracey Easthope
Ecology Center

Judy Braiman
Empire State Consumer Project

Anna Aurilio
Environment America

Michael Belliveau
Environmental Health Strategy Center

Judith M. Anderson
Environmental Justice Action Group of WNY

Erich Pica
Friends of the Earth

Matthew S. Tejada
Galveston Houston Association for Smog Prevention and Mothers for Clean Air (GHASP/MfCA)

Denny Larson
Global Community Monitor

Mark A. Dunlea
Green Education and Legal Fund, Inc.

LaMont Byrd
International Brotherhood of Teamsters

Kristen Breitweiser
9/11 Widow

Tiernan Sittenfeld
League of Conservation Voters

Ryan Tipping-Spitz
Maine People's Alliance

Johanna E. Neuman
MDPIRG

Denny Larsen
National Bucket Brigade Coalition

Matt Prindiville
Natural Resources Council of Maine

Rick Engler
NJ Work Environment Council
Niaz Dorry
Northwest Atlantic Marine Alliance

Dona Hippert
Oregon Toxics Alliance

Ted Schettler
Science and Environmental Health Network

Bill Borwegen
Service Employees International Union (SEIU)

Miguel Luna
Urban Semilias

Appendix B:

The Clorox Company **News Release**

Clorox Announces Plans to Begin Transitioning U.S. Operations to High-Strength Bleach

OAKLAND, Calif., Nov. 2, 2009 – The Clorox Company (NYSE: CLX) today announced that it plans to modify manufacturing processes in its U.S. bleach operations. The initiative calls for Clorox to begin transitioning from chlorine to high-strength bleach as a raw material for making its namesake bleach.

"This decision was driven by our commitment to strengthen our operations and add another layer of security," said Chairman and CEO Don Knauss.

Clorox will start with its Fairfield, Calif., plant. The company expects to complete the transition there within six months, followed by a phased, multiyear transition for six additional plants.

"This process requires significant expertise, training, and changes in infrastructure and equipment," Knauss said. "Our plant-by-plant approach will also enable us to apply what we learn along the way, ensure supply availability, minimize business disruptions and help make sure the transition is undertaken in the most effective manner possible."

"Clorox leads our industry in safety and security," Knauss said. "Our bleach plant employees are experts at handling chlorine, and we're proud of the fact that we've used it responsibly for our entire 96-year history. Even so, we're pleased to begin implementing this process change to make our products using high-strength bleach."

The Clorox Company

The Clorox Company is a leading manufacturer and marketer of consumer products with fiscal year 2009 revenues of $5.5 billion. Clorox markets some of consumers' most trusted and recognized brand names, including its namesake bleach and cleaning products, Green Works® natural cleaners, Armor All® and STP® auto-care products, Fresh Step® and Scoop Away® cat litter, Kingsford® charcoal, Hidden Valley® and K C Masterpiece® dressings and sauces, Brita® water-filtration systems, Glad® bags, wraps and containers, and Burt's Bees® natural personal care products. With approximately 8,300 employees worldwide, the company manufactures products in more than two dozen countries and markets them in more than 100 countries. Clorox is committed to making a positive difference in the communities where its employees work and live. Founded in 1980, The Clorox Company Foundation has awarded cash grants totaling more than $77 million to nonprofit organizations, schools and colleges. In fiscal 2009 alone, the foundation awarded $3.6 million in cash grants, and Clorox made product donations valued at $7.8 million. For more information about Clorox, visit www.TheCloroxCompany.com.

Forward-looking statements

This press release contains forward-looking statements, including statements relating to completion and effectiveness of modifying bleach manufacturing processes in U.S. Bleach operations, ensuring supply availability, minimizing business disruption, strengthening operations, reducing potential supply chain constraints, complexity and risks, increasing security, the company's costs, including volatility and increases in raw materials costs such as high-strength bleach, the financial condition of our suppliers; risks related to the handling and/or transportation of hazardous substances, including but not limited to chlorine; and the ability of the company to successfully manage legal

and regulatory matters. These forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those set forth herein, including the risks and uncertainties discussed under the caption “Risk Factors” and elsewhere in Clorox’s Form 10-K or Form 10-Q most recently filed with the Securities and Exchange Commission. These forward-looking statements speak only as of the date hereof and investors are cautioned not to place undue reliance on any such statements. Clorox disclaims any intent or obligation to update these forward-looking statements.

Media relations

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Appendix C:

Chronology of Legislation on Chemical Security

1999: Senator Frank Lautenberg (D-NJ) introduces S. 1470, The Chemical Security Act of 1999. In April 2000 he calls on Senator James Inhofe (R-OK) to hold hearings on the bill which was never adopted.

October 31, 2001: Senator Jon Corzine (D-NJ) introduces the "Chemical Security Act of 2001" (S. 1602), requiring chemical facilities to use safer available technologies where available to prevent catastrophic attacks.

May 16, 2002: An internal EPA briefing document entitled “Proposal for Chemical Security Legislation” says that new legislation is needed because security of industry cannot be assured under current law.

June 11, 2002: EPA proposes White House roll out of chemical security policy through new guidance and regulations saying, "EPA is not seeking legislation on chemical security at this time." Guidance was to be issued in July 2002 along with an inspection of 30 high-risk chemical facilities.

July 25, 2002: The Senate EPW Committee unanimously adopts a compromise version of Senator Jon Corzine’s (D-NJ) bill (S. 1602) to require safer technologies or chemicals where available to prevent catastrophic attacks.

October 23, 2003: The Senate EPW Committee adopts a flawed bill (S. 994) on a close party-line vote. The bill has no enforceable provision to prevent catastrophic attacks by requiring safer technologies or chemicals and rubber stamps industry’s voluntary programs and never makes it to the floor.

March 30, 2006: Senators Lautenberg (D-NJ), Obama (D-IL), Kerry (D-MA), Menendez (NJ), Durbin (D-IL), Biden (D-DE) introduces a broad chemical security bill (S. 2486) that requires safer technologies when feasible at chemical plants, protects state authority to adopt stronger protections, gives plant employees meaningful participation in security programs and ensures a role for the EPA in oversight of facilities.

May 18, 2006: Senators Biden (D-DE), Jeffords (I-VT) and Boxer (D-CA) introduce the Community Water Treatment Hazards Reduction Act of 2006 (S. 2855) which requires high risk water facilities to identify safer technologies to eliminate hazards posed by the use of chlorine gas. The bill also authorizes $125 million a year over five years in grants to the highest risk facilities for capital costs needed to convert plants to safer technologies, including ultra-violet light, ozone or bleach.

May 19, 2006: Senator Inhofe, chair of the Environment and Public Works Committee, schedules a Committee vote for May 23rd on his wastewater security bill (S. 2781). The bill will squander millions of dollars on outdated security measures instead of funding the elimination of hazards posed by chlorine gas through the use of safer technologies as recommended by a 2005 Government Accountability Office report.

June 14-15 2006: Senate Homeland Security and Governmental Affairs Committee votes out weak chemical security legislation (S. 2145). Senator Voinovich (R-OH)

proposes 14 weakening amendments. A Voinovich amendment to preempt states is rejected by a 9 to 7 vote. A Lieberman (D-CT) amendment to add cost-effective safer technology requirements is rejected 11 to 5.

July 28, 2006: House Homeland Security Committee completes mark up of H.R. 5695. The Committee embraces a compromise requiring the use of safer technologies at high priority facilities offered by Representative Markey (D-MA). An amendment by Representative James Langevin (D-RI) improves the right of state and local governments to set stronger security standards but falls short of a similar provision in S. 2145.

September 25, 2006: In a rush to show voters they have done "something" the Conference Committee on DHS Appropriations approved a 740 word unenforceable 3 year chemical security amendment supported by the chemical industry.

October 4, 2006: President Bush signs temporary chemical security statute which will expire in October 3, 2009.

June 12, 2007: President Bush threatened to veto a Department of Homeland Security (DHS) spending bill. Among their objections was "strong" opposition to a chemical plant security provision that would have restored the authority of states to set stronger security standards at chemical plants than the federal government. The chemical industry began lobbying for federal preemption to overrule state authority in 2005 when New Jersey announced stronger chemical security regulations. The bill was vetoed and the provision was eliminated in the final DHS spending bill.

December 27, 2007: President Bush signs $500 billion omnibus spending that includes an amendment by Senator Lautenberg (D-NJ) to the DHS funding bill that will allow states to set more stringent security standards.

March 6, 2008: House Homeland Security Committee adopts H.R. 5577 which requires high risk facilities to use safer more secure technologies as long as they are feasible, cost effective and do not shift risks to other facilities.

June 15, 2009: Representatives Bennie Thompson, (D-MS), Henry Waxman (D-CA), Sheila Jackson-Lee (D-TX), Ed Markey (D-MA) introduced H.R. 2868 which is even stronger than H.R. 5577.

June 23, 2009: House Homeland Security Committee rejects the most crippling amendments but adopts several weakening amendments to H.R. 2868.

October 1, 2009: Homeland Security Department and EPA officials testified before House Subcommittee on Energy and Environment calling for legislation that conditionally requires the use of safer chemical processes at the highest risk chemical plants where feasible and cost-effective.

October 21, 2009: House Energy & Commerce Committee rejects crippling amendments and adopts a stronger version of H.R. 2868 on chemical plant security and also adopts H.R. 3258 on drinking water plant security. Both bills conditionally require the use of safer chemical processes at the highest risk plants where feasible and cost-effective.

November 6, 2009: In a vote of 230 to 193, the House of Representatives passed a compromise bill, the Chemical and Water Security Act (H.R. 2868), which conditionally requires the use of safer chemical processes at some of the highest risk facilities where feasible and cost-effective. The bill also puts the EPA in charge similar regulations over publicly owned water treatment facilities.

Appendix D:

Q&A on the Inherently Safer Technology (IST) & Citizen Suits Provisions In "The Chemical and Water Security Act of 2009" (H.R. 2868)

Does H.R. 2868 require ALL chemical facilities to adopt "methods to reduce the consequences (MRC) of a terrorist attack" or inherently safer technology (IST)?

No. This requirement is conditional and covers a narrow universe of approximately 107 facilities in the highest-risk tiers (1&2) that pose a risk of catastrophic "release" to densely populated areas. It will NOT cover facilities in tiers 1&2 that pose a risk only from chemical "theft."

The conditions for implementing safer methods and technologies are:
*** They must significantly reduce the risk of death or injury in a terrorist attack
*** They must not shift risks to another location
*** They must be technically feasible
*** They must not impair the plant's ability to do business at that location
*** Water treatment systems must also meet state and federal safe drinking water standards

Can facilities challenge the requirement to implement safer chemical technologies?

Yes. All facilities must conduct a feasibility assessment of their ability to utilize safer chemical technologies. For those facilities subject to conditional requirements to implement safer technologies in risk tiers 1 & 2 because they pose a catastrophic "release" risk to nearby communities, they will also submit a feasibility assessment. If the DHS disagrees with a facility's assessment that they are NOT subject to the implementation requirements, the facility has 120 days to appeal. In making a ruling on the appeal, the DHS must consult a wide range of experts and must include those expert opinions in their ruling.

Will H.R. 2868 burden farms and agricultural facilities?

No. In January of 2008 the Department of Homeland Security (DHS) indefinitely exempted all "end-users" of regulated chemicals used in agriculture, including family farms, ranches and other crop, feed or livestock facilities from Chemical Facility Anti-terrorism Standards (CFATS).[1] The new legislation does nothing to change DHS's regulatory deferral of these facilities. In the agricultural sector, only manufacturers of agricultural chemicals and large wholesalers remain in CFATS and only 7 of these facilities are in risk tiers 1 or 2. The rest are in tiers 3 and 4 and are only responsible for assessing safer chemical processes. In addition, Representatives Ross (D-AR) and Space (D-OH) added an amendment to H.R. 2868 that requires the DHS to provide assistance to agricultural chemical wholesalers, including technical assistance grants to conduct assessments of safer technologies. It also requires the DHS to assess potential impacts on the agriculture sector for complying with the new statute.

[1] 73 FR 1640 (January 9, 2008).

Will this requirement hurt jobs or the economy?

No. Plants that invest in the safety and security of their infrastructure invest in American communities, reduce or eliminate their liability and regulatory costs, and improve workplace safety and long term job security. Major trade unions, such as the United Steelworkers, United Auto Workers, International Chemical Workers/UFCW, International Association of Fire Fighters, Teamsters, SEIU, AFSCME and Communication Workers of America support H.R. 2868.

Does H.R. 2868 allow citizens to sue private parties to enforce the law?

No. The compromise bill eliminates citizen enforcement suits against private parties. Only suits against government agencies except the Department of Defense are permitted. The bill does, however, allow for a citizen petition process that can trigger a government investigation into potential violations by a chemical facility.

Are water treatment facilities treated differently?

Yes. The EPA, not DHS, will have the lead authority in regulating drinking water AND waste facilities. Drinking water systems that serve more than 3,300 people are covered, smaller systems are exempt. Waste water systems serving approximately 25,000 or more people are covered. The States have the lead authority to require the use of safer chemical processes. Smaller water systems will also be eligible for technical assistance to conduct assessments of safer technologies. The highest risk systems will be eligible for assistance to implement safer technologies based on risk and need. The bill makes available $125 million a year for three years to assist implementation of safer technologies for drinking water systems and $200 million a year for waste water systems.

Can facilities save money by using safer and more secure chemical processes?

Yes, in some cases, and in other cases costs are manageable. Surveys 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 on the conversion. Additionally, 34% of facilities expected "*cost savings or improved profitability.*" Twenty large city water utilities adopted safer and more secure options at a maximum cost of $1.50 per customer per year – less than a bag of potato chips – and often much less. Washington, D.C. converted its sewage treatment plant within 90 days after the 9/11 attacks for less than $0.50 per water customer per year. H.R. 2868 provides up to $225 million and H.R. 3258 provides up to $375 million for assistance in implementing safer chemical processes over a three-year period.

Will requiring the use of safer chemical processes shift risks locally or nationally?

No. H.R. 2868 specifically prohibits requirements that shift these risks to other facilities in the U.S. or to facilities outside of the United States and prohibits EPA or states from requiring facilities to adopt changes that shift chemicals to interim storage off-site.

Does H.R. 2868 mandate the use of specific technologies or can facilities choose which safer and more secure technologies to use?

Each high-risk facility is free to choose the most appropriate "feasible" and cost-effective technology or process identified in the facility's own assessment.

Should government require safer design and technologies to be used in the private sector?

Yes. The Federal Aviation Administration (FAA) has required airplane security and safety standards for decades. The feasibility and cost-effectiveness are balanced against security and safety needs. After 9/11 all commercial airliners were required to harden cockpit doors and X-ray machines for airline baggage were installed at hundreds of airports.

Are safer design requirements appropriate for security legislation?

Yes. In 2006 the GAO (GAO-06-150), concluded that "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." And a June 2006 National Academy of Sciences study endorsed safer technologies as "the most desirable solution to preventing chemical releases" from a terrorist attack.

In a February 27, 2008 statement the Association of American Railroads said, "It's time for the big chemical companies to do their part to help protect America. They should stop manufacturing dangerous chemicals when safer substitutes are available. And if they won't do it, Congress should do it for them in the Chemical Facility Anti-Terrorism Act 2008."

Can different types of chemical facilities use safer methods to reduce the consequences of risks at more than 6,000 regulated facilities?

Yes. Many types of facilities are among the 284 facilities that have already converted since 1999. Most facilities (89%) are "users" of chemicals rather than chemical makers. These plants can often switch to safer methods even faster than chemical makers.

Types of facilities that are *already using* safer and more secure technologies include bleach manufacturers, water utilities, petroleum refineries, paper mills, power plants, and diverse manufacturers of products that include soaps and detergents, fuel additives, and polyurethane foam.

Four substances account for 55 percent of the processes that pose a catastrophic risk to communities according to the EPA. These substances are chlorine, ammonia, hydrogen fluoride and sulfur dioxide. They are also among the hazards eliminated at 284 plants that have converted since 1999.

Appendix E:

Bibliography and Quotations

Amnesty International:

Clouds of Injustice: Bhopal Disaster 20 Years On
November 29, 2004
http://www.amnesty.org/en/library/asset/ASA20/015/2004/en/dom-ASA200152004en.html

"Ensuring public participation and transparency in decisions relating to the location, operational safety and waste disposal of industries using hazardous materials and technology is an essential step to heighten risk awareness and responsible behavior as well as to ensure better preparedness to prevent and deal with disasters like Bhopal." p.6

In the Bhopal disaster "At least half a million people had been exposed to the toxic fumes."
p.10

Argonne National Laboratory

A National Risk Assessment for Selected Hazardous Materials Transportation
December 2000
http://projects.battelle.org/trbhazmat/Presentations/TRB2001-002217.doc

"…Releases of toxic chemicals can kill and injure people located relatively far from the accident…As a result, failure to identify and evaluate opportunities to reduce the risks from these types of relatively rare accidents could ultimately lead to thousands of fatalities, injuries, and evacuations."

Association of American Railroads
February 27, 2008

"It's time for the big chemical companies to do their part to help protect America. They should stop manufacturing dangerous chemicals when safer substitutes are available. And if they won't do it, Congress should do it for them in the Chemical Facility Anti-Terrorism Act of 2008."

The Brookings Institute:

Protecting the American Homeland; A Preliminary Analysis
2003
http://www.brookings.edu/press/Books/2003/protectingtheamericanhomelandoneyearon.aspx

Brookings estimate that a "successful attack on [a]… chemical plant [could result in] 10,000 fatalities." This estimate is modest.
p.6

"Prevention must be the highest priority (since it stops all attacks, large and small)."
p.8

"In most cases, government intervention should take the form of mandates on the private sector rather than through direct subsidies or tax incentives."
p.10

"…Preventive measures are likely to be particularly effective because they tend to reduce overall levels of risk, rather than just shifting it from one target to another."
p.35-6

"Shipping by rail poses certain concerns… Chlorine, for example, a toxic chemical that can enhance the combustion of other substances, is often stored and shipped in 90-ton rail tank cars. A release of 90 tons of chlorine could affect populations up to 14 miles away"
p.46

"Security at many chemical facilities has not been sufficient, as demonstrated even before September 11 by environmentalists from Greenpeace."
p.47

Center for American Progress:

Chemical Security 101
November 2008
http://www.americanprogress.org/issues/2008/11/chemical_security.html

"The only certain way to protect our communities is to remove the possibility of a toxic gas release by converting facilities to safer, more secure alternative technologies. This report identifies opportunities for conversions at the 101 most dangerous facilities, each of which threaten roughly 1 million people or more in surrounding areas. The chemicals most often posing the greatest danger at the top 101 facilities are chlorine—almost always in railcars—followed by hydrofluoric acid and sulfur chemicals.
p.1

"One insurance study found that a major chlorine rail spill in an urban area could cause 10,200 fatalities and over $7 billion in damages."
p.6

Toxic Trains and the Terrorist Threat
April 2, 2007
http://www.americanprogress.org/issues/2007/04/chemical_security_report.html

"Cost was a frequently cited reason for not converting. But the survey found such conversions are affordable even at large facilities, costing no more than $1.50 per person served each year--or the price of a bag of potato chips."
p.2

"Put another way, a single day's expenditures on the war in Iraq could cover construction costs of converting the remaining U.S. water utilities off chlorine gas railcars."
p.2

"A comprehensive solution can only come from the federal level. In fact, judges in the ongoing litigation over rerouting in Washington, D.C., have encouraged the Bush administration to develop a national strategy to address the security and safety dangers involved in the manufacture, use, and transportation of chlorine gas and other hazardous chemicals."
p.2

"A RAND Corp. database of worldwide terrorist incidents recorded over 250 attacks against rail targets from 1995 to 2005. Insurgents in Iraq have recently targeted trucks carrying chlorine gas with several deliberate attacks."
p.5

"Some facilities, however, identified important savings in preventative maintenance, emergency planning, employee training, regulatory compliance, future site security, and other factors.
p.10

"After all, there is little reason to believe that current security practices would be able to withstand a well-executed attack by an armed intruder. Nor does enhanced physical security do anything to protect railcars in transit to the facility."
p.10

"...Recently enacted interim chemical security legislation exempts water utilities, neglects transportation hazards, and ignores safer technologies. Millions of Americans remain unnecessarily at risk from a catastrophic chemical release."
p.14

"To address this threat, Congress, the administration, and industry must make chemical security an urgent national priority, with the goal of transitioning to safer, more secure technologies."
p.14

Preventing Toxic Terrorism: How Some Chemical Facilities are Removing Danger to American Communities
April 2006
http://www.crtk.org/library_files/ChemicalSurvey.pdf

Of the 238 chemical facilities that have already transitioned to safer chemicals or technologies, "of respondents that provided cost estimates, roughly half reported spending less than $100,000 to switch to safer alternatives and few spend over $1 million."
p.3

"Facilities cut a variety of costs and regulatory burdens by switching to less hazardous chemicals or processes. These facilities need fewer physical security and safety measures and can better focus on producing valuable products and services"
p.3

"Unfortunately, more than four years after the 9/11 terrorist attacks, the White House and Congress have failed to act. Currently, no federal law or regulation requires hazardous chemical facilities to review or use readily available alternatives. "
p.4

"Many chemical facilities have already taken this step thereby protecting millions of Americans. Millions more could be taken out of harm's way within a concerted national effort to convert other high-risk facilities to safer chemicals and processes."
p.4

"Numerous federal agencies and other observers have warned that terrorists could turn hazardous chemical facilities into improvised weapons of mass destruction. These agencies include the Department of Homeland Security, Department of Justice, Government Accountability Office, Environmental Protection Agency, Agency for Toxic Substances and Disease Registry, Army Surgeon General, and Naval Research Laboratory, among others."
p.6

"Some 284 respondents in 47 states reported they had switched to less acutely hazardous chemicals or processes or moved to safer locations. As a result, more than 38 million Americans no longer live under the threat of a harmful toxic gas release from these facilities."
p.7

"...Approximately 1,150 wastewater facilities and 1,700 drinking water plants remain in the RMP program for extremely hazardous chemicals, primarily chlorine gas."
p.10

"Ultraviolet light and other options such as ozone are more effective than chlorine against certain biological agents such as anthrax that could contaminate drinking water."
p.11

"Some 18 manufacturing facilities reported process changes that reduced the danger of an off-site gas release...These manufactures represent diverse industries and made an array of changes... Notably, the majority of these facilities reported neutral costs or anticipated cost savings from their changes."
p.12

"A catastrophic chemical release at just one of the nation's most dangerous facilities could kill, injure or sicken tens of thousands. Adopting less acutely hazardous chemicals or processes is the only *certain* way to protect the public from a toxic gas cloud."
p.20

"Many facilities achieved significant safety and security improvements... Nonetheless, many other facilities that could make similar improvements remain potential terrorist targets. Accordingly, the chemical industry and government should make conversion of high-hazard facilities to safer available technologies a national strategic priority."
p.20

Charles River Associates

"Assessment of the Economic Benefits of Chlor-Alkali Chemicals to the United States and Canadian Economies"
April 1993
http://yosemite.epa.gov/ee/epalib/eelib.nsf/73bc8d7fb6d3644385256a290076d16f/56978f7fc30046d3852566b70051f917!OpenDocument

"…Any situation where chlorine-dependent processes or chlorine-containing compounds create unacceptable health and environmental risks should be corrected."
p.1

"At some cost, alternatives exist for *all* uses of chlorine and chlorine-derived compounds."
p.5

Chemical and Engineering News

"Simply Safer," by Jeff Johnson
February 3, 2003
http://pubs.acs.org/cen/government/8105/8105gov1.html

"Coined 'inherently safer design' by British chemical engineer Trevor Kletz in the late 1970s, the concept seems simple: It is better to design processes that eliminate chemical plant hazards at the beginning than to engineer 'add-on' technologies later to try to control them."
p.1/9

"Kletz, who is retired after 38 years with ICI [Imperial Chemical Industries], puts it like this, '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.'"
p.1/9

The concept was seized upon during the terrorism debate as a hazard reduction solution with safety benefits…"
p.1/9

"In the end, the result [of ISTs] could be a new world of smaller and highly efficient chemical plants."
p. 4/9

“[Trevor] Kletz, [Dennis C.] Hendershot, and others with long time chemical industry experience say industry, academia, and government should do much more to encourage the spread of what may ultimately be the safest, cheapest way to make chemicals.”
p. 4-5/9

“’In many companies, the gut reaction to an accident is to reroute procedures,’ he [Kletz] says. ‘They are starting at the wrong end of the hierarchy.’”
p. 9/9

“’There are far, far more opportunities for inherently safer designs than we are making use of today,’” Kletz adds.”
p. 9/9

The Chlorine Institute:

Estimating the Area Affected by a Chlorine Release—Pamphlet 74
February 2006
http://www.chlorineinstitute.org/Bookstore/ProductDetail.cfm?ItemNumber=2303

"**90-Ton Rail Tank Car**

- Total mass release = 180,000 pounds
- 10 minute release
- 300 pounds/second steady rate release
- Release occurs on concrete surface
- Maximum downwind distance to 3ppm = 41.5 miles
- Maximum crosswind distance to 3ppm = 2.3 miles
- Maximum downwind distance to 20ppm = 14.8 miles
- Maximum crosswind distance to 20ppm =1.9 miles" “Even a 150 lb cylinder could be catastrophic for over 1.5 miles.”

p.20

“Even a 150 lb cylinder could be catastrophic for over 1.5 miles”
p.20

Recommended Practices for Handling Chlorine Tank Cars—Pamphlet 66
December 4, 2007
http://www.chlorineinstitute.org/Bookstore/ProductDetail.cfm?ItemNumber=2247

"Tank cars for chlorine use are permitted by regulation to have a maximum capacity of 90 tons (81648 kg) of chlorine. Chlorine tank cars have 55, 85 or 90 ton capacities. Tanks may not be loaded with chlorine in excess of the load limit stenciled on the side of the car."
p.8

"The weight of chlorine must not exceed 90 tons... Gross rail load must not exceed 263,000 pounds."
p.21

Congressional Budget Office:

Homeland Security and the Private Sector
December 2004
https://www.cbo.gov/doc.cfm?index=6042

"The security of the chemical industry--which includes oil and gas production, processing, and transportation--was a concern before September 11, but after that date, the increased national threat... amplified the expected losses...that many people already deemed vulnerable...."
p.21

"...September 11 indicated that the scope of potential attacks is now larger."
p.21

"EPA reported in 2000 that nearly 15,000 facilities were handling at least one hazardous substance in a quantity greater than threshold limits..., a subset of a much larger number of businesses handling a 'significant' quantity."
p.22

"Much of the overall government effort for chemical safety occurs at the state and local level and is oriented toward emergency preparedness. The federal effort (as of Dec. 2004) includes worker-safety, environmental, and information programs that are intended to support local activities."
p.27

The CBO recommends: "Better informing the public on where dangerous chemicals are, either by regulation or through public/private partnerships to disseminate information."
p.27

Congressional Research Service

Chemical Facility Security
August 2, 2006
http://www.fas.org/sgp/crs/homesec/RL31530.pdf

“Facilities handling large amounts of potentially hazardous chemicals (i.e., chemical facilities) might be of interest to terrorists… [and] the risks may be increasing—with potentially severe consequences for human health and the environment. Available evidence indicates that many chemical facilities may lack adequate safeguards.”
Summary Page (first page)

“Congress might enact legislation to reduce risks, either by ‘hardening’ defenses against terrorists… or by requiring industries to consider use of safer chemicals, procedures, or processes.”
Summary Page (first page)

Council on Foreign Relations

America the Vulnerable: How Our Government is Failing to Protect Us from Terrorism
Stephen Flynn, Senior Fellow in National Security Studies
2004
http://www.foreignaffairs.org/20020101faessay6557/stephen-e-flynn/america-the-vulnerable.html

"Congress should reconsider Senator Corzine's proposed provision to end the use of some especially deadly chemicals at plants near high population areas."
p.121

CRO Corporate Responsibility Office

"Complex Chemistry"
by Abby Schultz
June/July 2007
http://www.thecro.com/node/510

"Heather Langsner, Director of Research at Innovest Strategic Value Advisors… says Dow is right to develop green chemistries, which she notes Dow's competitors have been doing. However, Langsner is concerned with Dow's reliance on chlorine based products, such as polyvinyl chloride (PVC)."
p.20

"Observers of the company question whether Dow will ever overcome its legacy as a maker of Dursban and Agent Orange, as well as the legacy it inherited when it bought Union Carbide Corp. in 2001 On Dec. 3, 1984 a leak of methyl isocyanate (MIC) from an agricultural pesticide plant in Bhopal, India—a company in which Union Carbide held just more than half the stock—killed several thousand people. It is estimated that another 15,000 to 20,000 more people have died of complications since then, and the region is still contaminated 23 years later."
p.18

Dupont Chairman Charles Holliday

Security tops DuPont chief's concerns
News Journal Washington Bureau
By Nicole Gaudiano
June 26, 2007 and July 25, 2007
http://seclists.org/isn/2007/Jun/0120.html

In a presentation on industry risks, Mr. Holliday told the National Press Club: "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."

Falkenrath, Richard, Deputy Homeland Security Adviser to President Bush

Statement before US Senate Committee on Homeland Security and Governmental Affairs,
January 26, 2005
http://www.brookings.edu/testimony/2005/0126defense_falkenrath.aspx

"Of all the various remaining civilian vulnerabilities in America today, one stands alone as uniquely deadly, pervasive and susceptible to terrorist attack: toxic- inhalation-hazard industrial chemicals."

Federal Register
December 28, 2006

Proposed Rules

"The key difference is that they may involve effects that are more severe than expected with accidental risk."
Vol. 71, No. 249, p.78317

The Gardian

"Chemical Infrastructure Security: Good News and Bad News"
By P. J. Crowley
2006
http://www.infragardconferences.com/thegardian/ChemicaclInfra.html

"But the security dilemma is that… facilities that manufacture or use the most hazardous chemicals… are not moving fast enough to adopt safer alternatives that have been proven to be effective and economical."
p.4

"Entities that use specific chemicals should be required to study inherently safer technology or other alternatives. This analysis should be conducted annually and made available to the public and investors through annual reports or corporate filings with the Securities and Exchange Commission."
p.8

International Joint Commission:

Seventh Biennial Report
February 7, 1997
http://www.ijc.org/php/publications/html/7bre.html

"Recommendations:
....7) the Parties, in consultation with industry and other affected interests, develop timetables to sunset the use of chlorine and chlorine-containing compounds as industrial feedstocks and that the means of reducing or eliminating other uses be examined."
p.54

Sixth Biennial Report
February 10, 1997
http://www.ijc.org/php/publications/html/6bre.html

"...In many cases, alternative production processes do exist... We know that when chlorine is used as a feedstock in a manufacturing process, one cannot necessarily predict or control which chlorinated organics will result, and in what quantity. Accordingly, the Commission concludes that the use of chlorine and its compounds should be avoided in the manufacturing process. We recognize that socio-economic and other consequences of banning the use of chlorine--and subsequent use of alternative chemicals or processes--must be considered in determining the timetable."
p.29

"The Commission also recognizes that certain other uses of chlorine are of special concern because of the overwhelming public health benefits from their use. Disinfection of drinking water and sewage (as well as production of certain pharmaceuticals) are uses for which public health has been protected and for which, it is claimed, there are limited or no alternatives. Yet, there is evidence that chlorinated organics are created in water treatment processes and that, in other parts of the world, alternative processes have long been in use. Again, the issue seems to be cost rather than technology."
p.29-30

K2 Pure Solutions
2007-2009
http://www.k2pure.com/

“Utilizing our new, Inherently Safe Technology (IST), K2 Pure produces exceptionally pure, high-quality bleach with nothing but water, inert salt and electricity in a vertically integrated process that eliminates the need to transport chlorine.”

Ketchum/Clorox

“Crisis Management Plan for the Clorox Company”
1991
http://www.sourcewatch.org/index.php?title=Clorox

“Defining a ‘crisis’ is less important than knowing one when you see one.”
p.33

National Research Council:
Terrorism and the Chemical Infrastructure; Protecting People and Reducing Vulnerabilities
2006
http://www.nap.edu/catalog.php?record_id=11597

"According to a 2004 U.S. Fire Administration survey, fewer than 16 percent of fire departments in this country have hazmat units."
p.53

National Journal

"Security Leak"
August 2, 2003
by Margaret Kriz

"'These chemical plants have a vulnerability which has a catastrophic characteristic… that could approximate the World Trade Center,' Rand Beers, a White House counter-terrorism adviser for 30 years, told *National Journal.*"
p.2477

"'EPA initially said that one of the things facilities ought to at least look at as part of a comprehensive vulnerability assessment is whether there are steps they can take to reduce hazards that are present at the site,' recalls a former EPA official."
p.2478

"'Chemical companies make dangerous things,' added Greg Lebedev, president of the American Chemistry Council, which represents 180 giants of the chemical manufacturing industry. 'Getting into the technology of what you make and how you make it is a subject for an environmental or technology context, not security. I don't want us to wander down an exotic path here.'"
p.2479

"Corzine describes that defeat and industry's continuing effort to water down his bill as 'a classic case of the special interest trumping the public interest.'"
p.2480

"But the battle continues over Corzine's desire to encourage industry to use inherently safer technology at the chemical facilities."
p.2480

"'The problem you have in an open society is that it's physically impossible to make any large industrial site terrorist-proof,' Barton said in an interview. 'If there are enough terrorists who are dedicated enough and equipped well enough, they're going to overwhelm everything that you put up short of some sort of Fort Knox—which doesn't make much sense, given the cost and the relatively remote possibility that any specific site is going to be targeted.'"
p.2481

National Security Advisor to the President

Richard Clarke *UPI*
August 31, 2005

"Clarke criticized the administration and the Republican-controlled Congress for not giving priority to pushing through legislation yet. 'Congress has diddled for three years on a Chemical Security Act.'"

New Jersey Work Environment Council

Safety and Security First: Protecting Our Jobs, Families, and Hometowns from Toxic Chemical Disasters
May 2006
http://inquirer.philly.com/pdfs/2006/safety.pdf

In the likely case of a terrorist attack, not to mention the "far more frequent and continuing 'routine' accidents, spills, fires, and explosions
p.16

New York City Comptroller

One Year Later: The Fiscal Impact of 9/11 On New York City
September 4, 2002
http://www.comptroller.nyc.gov/bureaus/bud/reports/impact-9-11-year-later.pdf

Palm Beach Post

"Hijacking Suspect Cased Targets, Experts Say Mohammed Atta Called a 'Little Bomb Walking Around"
by Joel Engelhardt
October, 2001
http://www.greenpeace.org/usa/assets/binaries/falkenrath-testimony

"On October 28, 2001, Danny Whitener reported Mohammed Atta's (terrorist involved in 9/11 attacks) interest in the status of a chemical storage facility—the Palm Beach Post: "According to Whitener the man asked 'So tell me about this factory I just flew over,' referring to a former copper processing plant nearby, with dozens of round steel tanks and flanked by towering smokestacks. At the time, hundreds of rail tanker cars were parked near the plant, Whitener said… 'He was just persistent about the chemical company,' Whitener said. 'I told him the tanks were empty. He came back and said 'Don't tell me that. What about all the… [rail] tanker cars?'"

Paper, Allied-Industrial, Chemical and Energy Workers International Union (PACE):

PACE International Union Survey: Workplace Incident Prevention and Response Since 9/11
October 2004
http://www.google.com/search?hl=en&client=firefox-a&rls=org.mozilla%3Aen-US%3Aofficial&hs=8f7&q=PACE+International+Union+Survey%3A+Workplace+Incident+Prevention+and+Response+Since+9%2F11+PACE&btnG=Search

"PACE-represented industries… [namely] chemical manufacturing… facilities may be targets. The communities surrounding these facilities are also at-risk."
p.ii

Of PACE workers surveyed at 133 high-risk chemical facilities…

"Less than half (44%) of the respondents indicated that their company's preventative actions, including security efforts, were effective (…*very effective, moderately effective, …[or] slightly effective)* in reducing the vulnerabilities of their site to a catastrophic event caused by a **terrorist attack.** Over one-third (36%) were *neutral* about the effectiveness, and one-fifth (21%) said the actions were ineffective."
p.*v*

"When considering responding to an event caused by a **terrorist attack**, 44% of respondents who characterized their sites as *high* risk found their company's actions ineffective."
p.*vi*

"A strong majority of respondents reported no action had been initiated by the companies at their sites to involve the local union or hourly workers in company plans or actions to *prevent* or *respond* to a catastrophic event caused by a possible **terrorist attack**…. Involvement of the community regarding company plans or actions was even lower.
p.*vi*

"It is especially sobering for those who work at or live near refineries… chemical plants.

"On February 12, [2003, the DHS sounded] another alert… warning of possible 'conventional attacks against the U.S. nuclear/chemical-industrial infrastructure… Based on information, …industrial chemical plants remain viable targets."
p.3

"This adds up to nearly 4,000 sites and tens of millions of people at risk.
p.4

Pittsburgh Tribune-Review

"Chemicals pose risks nationwide"
June 11, 2002
By Carl Prine

http://www.pittsburghlive.com/x/pittsburghtrib/news/specialreports/potentialfordisaster/s_69664.html

"A month-long probe by the Pittsburgh Tribune-Review into chemical plant security in Baltimore, Chicago and Houston found safeguards so lax that a potential terrorist can easily reach massive tanks of toxins that endanger millions of residents."

Risk Management Solutions, Inc.

http://www.rms.com/NewsPress/PR_042904_CasualtyStudy.asp

"The chlorine spill scenario results in 42,600 total casualties, over 10,000 of which are fatal. Insurance claims covering these casualties would exceed $7 billion."
p.56

"Explosions, transportation accidents, and chemical releases all pose a threat to people living, working, or traveling in the vicinity of the accident."
p.54

"Chlorine is one of many industrial agents that are harmful, yet used extensively in processing and transported in bulk. Chlorine gas is so deadly that it was used as a chemical weapon in the trenches of World War I."
p.56

Securities Exchange Commission

10K Report submitted by The Dow Chemical Company December 31, 2008
http://ccbn.tenkwizard.com/filing.php?repo=tenk&ipage=5477624&doc=1&total=&attach=ON&TK=DOW&CK=0000029915&FG=0&CK2=29915&FC=000000&BK=FFFFFF&SC=ON&TC=FFFFFF&TC1=FFFFFF&TC2=FFFFFF&LK=0000FF&AL=FF0000&VL=800080

"Local, state and federal governments have begun a regulatory process that could lead to new regulations impacting the security of chemical plant locations and the transportation of hazardous chemicals.

"Growing public and political attention has been placed on protecting critical infrastructure, including the chemical industry, from security threats. Terrorist attacks and natural disasters have increased concern regarding the security of chemical production and distribution. In addition, local, state and federal governments have begun a regulatory process that could lead to new regulations impacting the security of chemical plant locations and the transportation of hazardous chemicals, which could result in higher operating costs and interruptions in normal business operations."
p. 10

Teamsters Rail Conference:

High Alert: Workers Warn of Security Gaps on Nation's Railroads
September 2005

http://www.ble.org/pr/news/newsflash.asp?id=4185

"Engineers report that there's no distress code or signal... to alert authorities of a crisis, even as they pass through or work in rail yards close to schools, government buildings and densely populated areas."
p1

"In short, workers say, America's rail lines appear one step shy of disaster."
p1

"As Americans debate and examine the nation's post-9/11security... serious questions regarding the safety and security of the U.S. rail system remain unanswered and serious flaws go uncorrected--leaving the American public vulnerable."
p1

"...Hazardous materials, says the Department of Transportation, are potentially weapons of mass destruction, and as such, are likely targets for terrorism."
p1

"Fatigue was the focus of the NTSB investigation into the deadly June 28, 2004 train crash in Macdona... in which three people including a train conductor, died from a chlorine gas release."
p.6

"More than half the workers surveyed who saw running, unattended locomotives... said the trains were hauling hazardous materials--deadly agents like chlorine that, if released, could kill people as far as 15 miles away, according to the pamphlet 'Estimating the Area Affected by a Chlorine Release,' issued by the Chlorine Institute."
p.8

“The FBI’s words were chilling: al Qaeda cells could be targeting trains carrying hazardous materials. The Bureau had captured al Qaeda photographs of railroad engines, cars and crossings, and officials said that terrorists could choose a number of strategies, ‘such as destroying key rail bridges and sections of track to cause derailments or targeting hazardous material containers.’”
p.15

“Weapons of mass destruction, the workers knew, had become part of their daily lives.”
p.16

“Nearly 85% of the world’s chlorine… is shipped by rail, according to the International Labour Organization (ILO).”
p.16

“By the time the green, gaseous cloud had passed over Graniteville on January 6, 2005, nine people were dead… Thousands of people were evacuated from their homes. Hundreds were injured. The full extent of environmental damage is still unknown.”
p.16-17

“…Since 9/11, the nation’s rail carriers have, by virtually all accounts, failed to provide significant, measurable safety and security improvements to deter or respond to a

terrorist attack on the U.S. rail network."
p.18

"Restrict remote control use to non-hazmat shipments."
p.18

U.S. Army

Draft Medical NBC Hazard Analysis of Chemical-Biological-Radiological-Nuclear-High Explosive Threat, Possible Scenarios & Planning Requirements
By, **Army Office of the Surgeon General**
October 2006
http://www.fas.org/irp/doddir/dod/jp3_41.pdf

As summarized by the Washington Post (http://www.washingtonpost.com/ac2/wp-dyn/A10616-2002Mar11):

"A previously undisclosed study by the Army surgeon general concludes that as many as 2.4 million people could be killed or injured in a terrorist attack against a U.S. toxic chemical plant in a densely populated area."

U.S. Chemical Safety and Hazard Investigation Board

CSB Board Member John Bresland
February 28, 2007
http://www.chemsafety.gov/index.cfm?folder=news_releases&page=news&NEWS_ID=343

"Chlorine is a highly toxic substance that needs appropriate safeguards to prevent releases and protect the public, facility personnel, and emergency responders."

U.S. Environmental Protection Agency

Lessons Learned in the Aftermath of September 11, 2001
February 1, 2002

"General authority exists under the Safe Drinking Water Act (SDWA)/Clean Water Act (CWA) to perform vulnerability assessments, but EPA has only limited Authority to require corrective actions."
p.2-1

"Two specific incidents where security was a specific concern were identified: (1)railroads did not want to ship chlorine in tankers after attacks, but chlorine is needed to guarantee the safety of water supplies, and (2) EPA received requests to reroute chemical tankers and trucks away from the population centers."
p.D-14

Chemical Accident Risks in U.S. Industry
By James C. Belke
September 25, 2000
http://www.epa.gov/ceppo/pubs/stockholmpaper.pdf

"A chemical plant could effectively be converted into a weapon of mass destruction (WMD) relatively easily."
p.5
"Toxic chemicals… particularly ammonia and chlorine… account for the majority of RMP processes."
(with table)
p.13

"The median [negatively impacted] population for… toxic worst case scenarios is 1500 people."
p.25

"The high number of facilities in both class intervals is primarily due to the prevalent use of 90-ton rail tank cars for chlorine storage in the United States."
p.26

Letter from William H. Sanders III, Dr., P.H., P.E., Director, Office of Pollution Prevention and Toxics, to Rick Hind, Legislative Director of Greenpeace USA

"All chemical companies have a fundamental responsibility and a general duty to design, operate, and maintain a safe plant, prevent accidents, and to mitigate the consequences of those releases that do occur under section 112(r) of the Clean Air Act Amendments of 1990."

President Clinton's Clean Water Initiative
February 1994

"…The Administration will develop a national strategy for substituting, reducing, or prohibiting the use of chlorine and chlorinated compounds:
Within 6 months following enactment, the Administrator should convene a task force… to comprehensively assess the use, environmental and health impacts of chlorine and chlorinated compounds, and availability and relative efficacy and safety of substitutes for these substances as used in… solvents, PVC and other plastics…"
p.22

U.S. Government Accountability Office

Protection of Chemical and Water Infrastructure
March 2005
http://www.gao.gov/new.items/d05327.pdf

"In March, 2003, we recommended that Secretary of Homeland Security and the Administrator of EPA jointly develop, in consultation with the Office of Homeland Security a comprehensive national chemical security strategy to include... legislative

proposal to require chemical facilities to expeditiously assess their vulnerabilities... and... require these facilities to take corrective action."
p.6

"The nation's drinking water systems are not required to implement any risk reduction actions based on their vulnerability assessments."
p.7

"The majority of officials at the community water systems we visited reported that the federal government should provide technical support and guidance to help the water sector in developing and implementing security enhancements."
p.7

"The majority of officials we interviewed also supported the need for the federal government to expand financial support for the security enhancements in the water sector by providing funding designated for community water systems."
p.7

"According to a 1999 study by the Agency for Toxic Substances and Disease Registry (ATSDR), security at chemical plants in two communities was fair to poor." – ***General Accounting Office (GAO-03-439)***, March 2003

Homeland Security: DHS Is Taking Steps to Enhance Security at Chemical Facilities but Additional Authority Is Needed
January 27, 2006
http://www.gao.gov/products/GAO-06-150

"...Industry officials told us that they face a number of challenges in preparing facilities against a terrorist attack. They reported that the cost of security improvements can be a burden, particularly for smaller companies that may lack the resources larger chemical companies have to devote to security."
p.6

"Because chemical facilities pose significant risks to millions of Americans, additional legislation is needed to give DHS the authority to require security improvements at these facilities."
p.6

"...Stakeholders had mixed views, however, on the specific contents of any legislation, such as requirements that facilities substitute safer chemicals and processes--referred to as "inherently safer technologies"--that could lessen the potential consequences of an attack by reducing the risks present at these facilities, but could be costly or infeasible for some plants."
p.6

"We are also recommending that DHS... work with EPA to study the advantages and disadvantages of substituting safer chemicals and processes at some chemical facilities."
p.7

Homeland Security: Voluntary Initiatives Are Under Way at Chemical Facilities, but the Extent of Security Preparedness is Unknown
March 2003
http://www.gao.gov/new.items/d03439.pdf

“Chemical facilities may be attractive targets for terrorists intent on causing massive damage. The risk of an attack varies among facilities, depending upon several factors, including their location and the types of chemicals they use, store, or manufacture.”
p.3

“Many facilities are located in populated areas, where a chemical release could result in injuries or death as well as economic harm.”
p.3-4

“Furthermore, both the Secretary of Homeland Security and the Administrator of EPA have stated that voluntary efforts alone are not sufficient to assure the public of the industry’s preparedness.”
p.5

“The Army has also estimated the high potential damage to the population from a toxic gas release… The Army Office of The Surgeon General propose, based on generic estimates, that it was conceivable that as many as 2.4 million people could request medical treatment if a terrorist caused a release of a toxic chemical.”
p.11

“ACC’s security code generally requires that third parties… verify that [stated] improvements were implemented. The code does not require, however, that third parties verify that the vulnerability assessment is conducted appropriately or that the actions taken by the facility adequately address security risks.”
p.26

“While industry recognizes the contribution that inherently safer technologies can make to reducing the risk of a terrorist attack, industry officials noted that decisions about inherently safer technologies require thorough analysis.”
p.29

"Chemical facilities may be attractive targets for terrorists intent on causing economic harm and loss of life. Many facilities exist in populated areas where a chemical release could threaten thousands. EPA reports that 123 chemical facilities located throughout the nation have toxic 'worst-case' scenarios where more than a million people in the surrounding area could be at risk of exposure to a cloud of toxic gas if a release occurred."

U.S. Homeland Security Council:

Planning Scenarios: *Executive Summaries*
Scenario 8: Chemical Attack—Chlorine Tank Explosion
Copyright valid through 2009
http://www.globalsecurity.org/security/ops/hsc-scen-8.htm

"Assuming a high-density area, as many as 700,000 people may be in the actual downwind area, which could extend as far as 25 miles. Of these, 5% (35,000) will receive potentially lethal exposures… An additional 15% (105,000 people) will require hospitalization… However, approximately 450,000 "worried well" will seek treatment at local medical facilities…. Most of the injured will recover in 7 to 14 days, except for those with severe lung damage. These individuals will require long-term monitoring and treatment."
Section 8, p.2

"There will be significant damage to the plant as a direct result of the attack. Decontamination of waterways may present a significant challenge as well. Environmental impacts especially public safety concerns, are likely to significantly delay rebuilding efforts.
Section p.8-3

Casualties - 17,500 fatalities; 10,000 sever injuries; 100,000 hospitalizations
Infrastructure Damage - In immediate explosions areas, and metal corrosion in areas of heavy exposure
Evacuations/Displaced Persons - Up to 70,000 (self evacuate)
Contamination - Primarily at explosion site, and if waterways are impacted
Economic Impact - Millions of dollars
Potential for Multiple Events - Yes
Recovery Timeline - Weeks
Section 8, p.1

U.S. Justice Department: Federal Bureau of Investigation
Troy Morgan FBI Agent and expert on weapons of mass destruction
June 2003

"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."

U.S. Nuclear Regulatory Commission

Edward McGaffigan, Commissioner
November 2001

"There is no chemical regulatory commission that looks at the petrochemical plants and has requirements for security that are inspected by chemical regulatory agency staff, and there are no on-force exercises, and none of the apparatus that we have in place is in place for much of the rest of the infrastructure. It is quite clear that you can get catastrophic consequences in industries other than the nuclear industry…"

U.S. Naval Research Laboratory

Dr. Jay Boris, Testimony before the Committee on Pubic Works and the Environment of the Council of the District of Columbia
January 23, 2004
http://www.greenpeace.org/usa/assets/binaries/analysis-by-us-naval-research

"Terrorist attacks in an urban environment can put 100,000 people or more at risk in a 15 to 30-minute time span…lethally exposed people can die at the rate of 100 per second."

U.S. Public Interest Group Education Fund

Protecting Our Hometowns; Preventing Chemical Terrorism in America
2002
http://www.environmentillinois.org/uploads/vX/g5/vXg5bctEDlM08AzFaZHlxg/Protecting_our_Hometowns.pdf

"The threat of terrorism require eliminating or reducing hazards through the use of inherently safer technologies wherever feasible."
p.1

"The use of airplanes on September 11th and the use of truck bombs in previous attacks show that terrorists need not penetrate a site's perimeter to cause destruction, and security alone is inadequate to prevent a terrorist attack."
p.5

"While some attention has focused on the potential for terrorists to use chemicals to build chemical weapons, national security experts have asserted that the enormous complexity of creating a chemical weapon makes such a scenario less likely than an intentionally triggered chemical release from an industrial facility. Industrial facilities provide relatively easy access to chemicals at locations from which a significant chemical release could harm large numbers of people. Amy Smithson, director of the Chemical and Biological Weapons Non-Proliferation Project at the Henry L. Stimson Center, testified in a House of Representatives committee hearing:

'Although assembling from scratch an unconventional weapons capability that could cause mass casualties is not that elementary, there are tangible routes whereby terrorists could inflict considerable harm with chemical and biological substances. One

shortcut involves foul play with industrial chemicals…. Logic dictates that if the same result [mass casualties from a chemical release] can be achieved through a less arduous route, terrorists intent on causing mass casualties with chemicals would probably engineer the intentional release of industrial chemicals rather than wrestle with the complexities of making large quantities of the classic chemical warfare agents.'"
p.6

U.S. Senator (former), Garry Hart, D-CO

Washington Post, op-ed
August 11, 2003
http://www.washingtonpost.com/ac2/wp-dyn/A42185-2003Aug10?language=printer

"As hard as it is to believe, the chemical industry has refused to take adequate precautions to safeguard its facilities and surrounding communities. Some plants have strengthened on-site security by adding guards, building fences or installing surveillance cameras. Others have committed to reducing or phasing out their use of highly hazardous processes or chemicals in favor of safer ones. Unfortunately, however, it is still business as usual at most plants. They continue to deal with high volumes of dangerous chemicals -- even when safer materials or processes are readily available. That is why the government must require industry cooperation in homeland security."

U.S. Senator (former) Barack Obama, D-IL

Senate Floor Statement
March 30, 2006
http://frwebgate.access.gpo.gov/cgi-bin/getpage.cgi?position=all&page=S2611&dbname=2006_record

"These plants are basically stationary weapons of mass destruction."
pS2612, CONGRESSIONAL RECORD—SENATE, *March 30, 2006*

"While plant owners would not be able to substitute their own security standards, they would be able to come up with security plans that are tailored to each facility."
pS2612, CONGRESSIONAL RECORD—SENATE, *March 30, 2006*

"The Lautenberg-Obama bill also protects state and local rights to establish security standards that match their local needs."
pS2612, CONGRESSIONAL RECORD—SENATE, *March 30, 2006*

"The legislation also gives employees a seat at the table…"
pS2612, CONGRESSIONAL RECORD—SENATE, *March 30, 2006*

"But there are other ways to reduce risk that need to be part of the equation. Specifically, by employing safer technologies, we can reduce the attractiveness of chemical plants as a target.
This concept, known as Inherently Safer Technology, involves methods such as changing the flow of chemical processes to avoid dangerous chemical byproducts,

reducing the pressures or temperatures of chemical reactions to minimize the risk of explosions, reducing inventories of dangerous chemicals and replacing dangerous chemicals with benign ones. Each of these methods reduces the danger that chemical plants pose to our communities and make them less appealing targets for terrorists."
pS2612, CONGRESSIONAL RECORD—SENATE, *March 30, 2006*

"Even the chemical industry itself has embraced IST, and many facilities across the country have already employed safer technologies."
pS2612, CONGRESSIONAL RECORD—SENATE, *March 30, 2006*

"So far, because the industry wields so much influence in Washington, it's been getting its way."
pS2612, CONGRESSIONAL RECORD—SENATE, *March 30, 2006*

"We cannot allow our security to be hijacked by corporate interests."
pS2612, CONGRESSIONAL RECORD—SENATE, *March 30, 2006*

Statement at Senate Environment and Public Works Committee hearing
June 21, 2006

"For instance, we've heard that IST is in "the early stages of development," even though it's been used in the chemical industry for nearly 30 years. Saying IST is in its infancy is a little like saying the personal computer is in its infancy."

"We've heard that IST is an environmental issue, not a security one, even though the Departments of Justice and Homeland Security, and even the American Chemistry Council have embraced IST as part of chemical plant security in the past. And most recently, a National Academy of Sciences study, commissioned by DHS, endorsed the adoption of IST as "the most desirable solution to preventing chemical releases" from terrorist attack. Time and again, experts have agreed that IST is the most effective approach to eliminating terrorist threats at chemical facilities."

"…But there is one thing we can all agree on: any chemical plant security legislation must be comprehensive and rational. It should balance the need to keep us safe with the need to continue producing chemical products that are essential to our economy. I believe the IST approach needs to be a part of rational comprehensive security legislation."

U.S. Senator (former), Warren Rudman, R-NH

CBS 60 Minutes
November 16, 2003
http://www.cbsnews.com/stories/2003/11/13/60minutes/main583528.shtml

"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," says Rudman. "People will say, 'Well, didn't we know that this existed?' Of course, we knew."

Washington Post

Study Assesses Risk of Attack on Chemical Plant
By Eric Pianin
March 12, 2002
http://www.highbeam.com/doc/1P2-326046.html

"A previously undisclosed study by the Army surgeon general concludes that as many as 2.4 million people could be killed or injured in a terrorist attack against a U.S. toxic chemical plant in a densely populated area."

Toxic Chemicals' Security Worries Officials
By Eric Pianin
November 12, 2001
http://www.mapcruzin.com/news/rtk111201a.htm

"'No one needed to convince us that we could be-and indeed would be-a target at some future date,' said Frederick L. Webber, president of the American Chemistry Council, an industry group representing 180 major companies including Dupont, Dow, and BP Chemical."

Working Group on Community Right-to-Know:

Unnecessary Dangers: Emergency Chemical Release Hazards at Power Plants
July 2004
http://www.crtk.org/library_files/PowerPlantsReport.pdf

"The data in this report also show that… just two-dozen power plants account for two-thirds of the people in danger. By using readily available safer chemicals these two-dozen plants could all but eliminate the danger to 2.4 million people."
p.3

"Some 166 power plants report using anhydrous ammonia, endangering an average of 21,506 people around each facility."
p.3

"Forty power plants report chlorine gas as their greatest emergency release hazard, endangering an average of 4,618 nearby residents."
p.3

"National data show frequent ammonia and chlorine spills at industrial facilities. The National Response Center received reports of… 2,200 releases involving chlorine gas. Spills reported… range from minor to very large."
p.6

Congressional Research Service

MEMORANDUM December 11, 2009

To: Honorable Edward Markey
Attention: Michal Freedhoff

From: Dana A. Shea, Specialist in Science and Technology Policy, x7-6844

Subject: **RMP Facilities in the United States as of December 2009**

This memorandum responds to your request regarding facilities submitting risk management plans (RMPs) to the U.S. Environmental Protection Agency (EPA). You requested an analysis of RMP facilities within the United States by potentially affected population. You also requested an analysis of facilities that were required by regulation to resubmit their information to the EPA but had not done so.

Under the Clean Air Act, Section 112(r), the EPA established a program requiring facilities possessing greater than certain threshold quantities of 140 chemicals to provide risk management plans to the EPA.[1] As part of this reporting requirement, facilities are required to determine the worst-case scenario release from a single chemical process, using EPA criteria and guidelines.[2] Facilities are also required to estimate the population potentially at risk from this worst-case scenario release by calculating the population that resides within a circle surrounding the facility. The distance the worst-case scenario release might travel determines the radius of the circle.[3]

The population potentially affected under an EPA worst-case scenario release is calculated in a circle around the facility. In the event of an actual catastrophic chemical release, meteorological effects would determine the direction of the release and therefore those potentially affected. Furthermore, how such a release would affect those exposed would vary depending on many factors, such as the demographics of the population and the surrounding geography and weather. In addition, worst-case scenarios do not take into account emergency response measures that facility operators or others might take to mitigate harm. Therefore, it is unlikely that this entire population would be affected by any single chemical release, even if it is a result of a worst-case accident.

Facilities may register and deregister from the RMP program as their chemical processes and the amounts of chemicals they store and use change. If a facility no longer possesses a regulated chemical above the

[1] The list of 140 chemicals, including 77 toxic and 63 flammable chemicals, and their threshold quantities is found at 40 CFR 68.130.

[2] The criteria and guidelines for determining the worst-case scenario release are found at 40 CFR 68.25. Some facilities have submitted information on multiple worst-case scenario releases.

[3] This requirement is found at 40 CFR 68.30. The criteria for determining the distance a worst-case scenario release might travel are found at 40 CFR 68.22.

threshold quantity, it is required to inform the EPA and deregister from the program.[4] Facilities are required to review and update their RMP plans filed with the EPA at least once every five years.[5] For the purposes of this memorandum, facilities that have not reviewed and updated their RMP plan within five years of their submission will be termed facilities with overdue updates. The deadline for submissions under the RMP program was June 21, 1999.[6] The EPA maintains this information in the RMP*National Database.

In 1999, Congress passed the Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (CSISSFRRA).[7] This act removes from RMP program coverage any flammable fuel used as fuel or held for sale as fuel by a retail facility. In implementing this act, the EPA allowed facilities that had previously filed under the RMP program the options of withdrawing from the program, which would delete the information from the EPA database, or taking no further action, which would leave the information in the EPA database as a voluntary submission.[8] Facilities exempted under CSISSFRRA that voluntarily submitted information are not required to update these submissions.

The data available in the RMP*National Database is not sufficient to determine the full scope of actual compliance or noncompliance with the RMP program. Facilities that were required to, but did not, submit an RMP plan to the EPA would not be present in the RMP*National Database, but would be out of compliance with the RMP program. As a result of the EPA's implementation of CSISSFRRA, some entries in the EPA database that have not been updated within the five year requirement are likely to be facilities falling under CSISSFRRA that opted to take no action. These facilities are not identified as such in the RMP*National Database.[9] Thus, the number of facilities identified in this memorandum as having overdue updates is likely not equal to the total number of facilities not complying with the RMP program.

At your request, CRS has searched the December 2009 update of the EPA RMP*National Database (with off-site consequence analysis (OCA) data) for facilities that have registered under the RMP program. Facilities that have deregistered from the RMP program were excluded. You requested that the facilities be classified by state according to the population potentially affected by a worst-case release, according to the EPA worst-case scenario criteria, using thresholds of 1,000 people, 10,000 people, 100,000 people, and 1,000,000 people. Additionally, you requested that facilities with overdue RMP updates be identified for each population category. Facilities with an RMP filing due to be updated by December 1, 2009, that had not been updated were considered overdue for the purposes of this analysis. These facilities include CSISSFRRA-exempted facilities as well as facilities that are covered by the regulation. All of the information in this memorandum is drawn from the EPA RMP*National Database (with off-site consequence analysis (OCA) data). This information is presented in **Table 1**.

Since facilities may register and deregister from the RMP program as chemical processes and amounts of chemicals stored and used change, the number of facilities listed in **Table 1** should be considered as illustrative of the current industry profile, rather than absolute.

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[4] This requirement is found at 40 CFR 68.190. Facilities must deregister from the program within six months.

[5] This requirement is found at 40 CFR 68.36. Facilities not excluded by the Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (P.L. 106-40) that do not review and update the RMP plan are not in compliance with the RMP regulation. They may be subject to enforcement actions by the EPA under the Clean Air Act, Section 113.

[6] 61 *Federal Register* 31,668 (June 20, 1996).

[7] P.L. 106-40.

[8] See 65 *Federal Register* March 13, 2000, p. 13,247.

[9] Personal communication with EPA staff, September 25, 2007.

Table 1. Compliant, Update Overdue, and Total RMP Facilities in Each State, by Potentially Affected Population in EPA Defined "Worst Case" Scenarios (Parameters Designated by Requester)

State	0 - 999			1,000 - 9,999			10,000 - 99,999			100,000 - 999,999			1,000,000+		
	Compliant	Update Overdue	Total	Compliant	Update Overdue	Total	Compliant	Update Overdue	Total	Compliant	Update Overdue	Total	Compliant	Update Overdue	Total
AK	17	1	18	13	0	13	0	0	0	0	0	0	0	0	0
AL	78	6	84	88	3	91	36	0	36	9	0	9	0	0	0
AR	34	6	40	68	5	73	52	3	55	2	0	2	0	0	0
AS	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
AZ	24	2	26	42	7	49	32	6	38	0	0	0	2	0	2
CA	288	34	322	285	25	310	248	29	277	49	4	53	9	1	10
CO	106	11	117	53	3	56	24	2	26	0	0	0	2	0	2
CT	9	0	9	11	2	13	10	1	11	1	0	1	0	0	0
DC	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0
DE	10	0	10	12	0	12	3	0	3	2	0	2	1	0	1
FL	71	4	75	109	11	120	89	5	94	19	2	21	4	1	5
GA	113	7	120	117	10	127	39	4	43	6	0	6	1	0	1
GU	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
HI	5	0	5	8	1	9	2	0	2	0	0	0	0	0	0
IA	428	10	438	397	13	410	48	7	55	3	0	3	0	0	0
ID	25	2	27	23	1	24	16	2	18	0	0	0	0	0	0
IL	527	49	576	302	19	321	73	4	77	17	0	17	11	1	12
IN	181	26	207	160	13	173	71	9	80	11	0	11	3	0	3
KS	442	6	448	189	4	193	35	0	35	5	0	5	0	0	0
KY	75	4	79	72	11	83	38	2	40	13	0	13	0	0	0
LA	111	21	132	88	10	98	62	3	65	39	4	43	2	0	2
MA	14	5	19	23	3	26	21	3	24	1	0	1	0	0	0
MD	33	0	33	26	1	27	36	0	36	1	0	1	1	0	1
ME	8	2	10	8	3	11	5	0	5	1	0	1	0	0	0
MI	67	12	79	65	21	86	42	4	46	8	2	10	3	1	4
MN	153	50	203	182	36	218	47	7	54	6	0	6	1	1	2
MO	185	21	206	136	6	142	39	1	40	5	0	5	1	0	1
MS	44	4	48	60	9	69	22	7	29	1	1	2	0	0	0
MT	34	3	37	15	1	16	7	0	7	1	0	1	0	0	0
NC	101	13	114	88	14	102	38	5	43	4	0	4	0	0	0

State	0 - 999			1,000 - 9,999			10,000 - 99,999			100,000 - 999,999			1,000,000+		
	Compliant	Update Overdue	Total	Compliant	Update Overdue	Total	Compliant	Update Overdue	Total	Compliant	Update Overdue	Total	Compliant	Update Overdue	Total
ND	173	69	242	57	15	72	13	1	14	0	0	0	0	0	0
NE	286	3	289	173	2	175	40	0	40	2	0	2	0	0	0
NH	6	0	6	4	0	4	1	0	1	1	0	1	0	0	0
NJ	37	0	37	18	0	18	10	0	10	6	0	6	5	0	5
NM	49	3	52	7	1	8	6	0	6	2	0	2	0	0	0
NV	22	6	28	6	1	7	5	0	5	1	0	1	2	0	2
NY	44	2	46	65	2	67	36	0	36	18	0	18	1	0	1
OH	124	20	144	168	17	185	71	14	85	11	3	14	5	0	5
OK	173	25	198	68	16	84	36	1	37	8	0	8	0	0	0
OR	44	3	47	42	1	43	25	1	26	4	0	4	0	0	0
PA	116	1	117	145	4	149	79	0	79	9	0	9	2	0	2
PR	6	0	6	39	1	40	46	0	46	1	0	1	0	0	0
RI	1	0	1	5	0	5	6	0	6	3	0	3	0	0	0
SC	63	2	65	91	2	93	18	0	18	7	0	7	0	0	0
SD	46	6	52	27	4	31	4	0	4	0	0	0	0	0	0
TN	57	7	64	72	7	79	38	5	43	16	1	17	1	0	1
TX	474	91	565	333	57	390	291	22	313	69	5	74	31	1	32
UT	40	6	46	22	1	23	9	3	12	4	0	4	3	0	3
VA	56	1	57	63	0	63	23	1	24	7	0	7	0	0	0
VI	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
VT	2	0	2	3	1	4	0	0	0	0	0	0	0	0	0
WA	118	6	124	88	4	92	29	2	31	10	0	10	0	0	0
WI	88	21	109	91	25	116	47	5	52	3	0	3	0	0	0
WV	28	0	28	26	1	27	15	0	15	7	0	7	0	0	0
WY	55	1	56	6	1	7	4	0	4	0	0	0	0	0	0
Total	5295	572	5867	4259	395	4654	1991	159	2150	393	22	415	91	6	97

Source: CRS analysis of the EPA RMP*National Database (with off-site consequence analysis (OCA) data), updated December 1, 2009.

Notes: Facilities due to update their RMP filing by December 1, 2009, that had not done so are categorized as "update overdue." Some of those facilities may be exempted from regulation by CSISSFRRA. In cases where facilities report multiple worst-case scenario releases, the worst-case scenario potentially affecting the most people has been considered. The column labeled State also includes American Samoa (AS), Guam (GU), Puerto Rico (PR), and the District of Columbia (DC).

You also requested that facilities with overdue RMP updates be classified by EPA region according to the population criteria described above. The EPA has ten regional offices, each of which is responsible for several states and, in some cases, territories.[10] This information is provided in **Table 2**.

Table 2. RMP Facilities with Overdue Updates in Each EPA Region, by Potentially Affected Population in EPA Defined "Worst Case" Scenarios (Parameters Designated by Requester)

EPA Region	0 - 999	1,000 - 9,999	10,000 - 99,999	100,000 - 999,999	1,000,000+	Total
1	7	9	4	0	0	20
2	2	3	0	0	0	5
3	2	6	1	0	0	9
4	47	67	28	4	1	147
5	178	131	43	5	3	360
6	146	89	29	9	1	274
7	40	25	8	0	0	73
8	96	25	6	0	0	127
9	42	34	35	4	1	116
10	12	6	5	0	0	23
Total	572	395	159	22	6	1,154

Source: CRS analysis of the EPA RMP*National Database (with off-site consequence analysis (OCA) data), updated December 1, 2009.

Notes: Facilities due to update their RMP filing by December 1, 2009, that had not done so were considered as "update overdue." Some of those facilities may be exempted from regulation by CSISSFRRA. In cases where facilities report multiple worst-case scenario releases, the worst-case scenario potentially affecting the most people has been considered.

Facilities might not review and update their filed RMP plans for several reasons: the facility is out of regulatory compliance; the facility is no longer in business; the facility has reduced the amount of reportable chemical to below threshold levels, but neglected to inform the EPA; or the facility falls under CSISSFRRA and is no longer covered by the RMP requirement. Any user of this data should use caution when drawing further conclusions from this analysis.

If you have any further questions regarding this topic or questions regarding the information in this memorandum, please contact me at 7-6844.

[10] For a description of the various EPA regions, including the states located in each region, see online at http://www.epa.gov/epahome/locate2.htm.

“By switching to readily available and inherently safer pollution control options these power plants could eliminate or significantly reduce dangers that accidents or acts of terrorism pose to surrounding communities.”
p.7

“Agencies that have issued such warnings include the Department of Homeland Security, Department of Justice, Environmental Protection Agency, General Accounting Office, Congressional Research Service, Agency for Toxic Substances an Disease Registry, Naval Research Laboratory, and Army Surgeon General.” … (list continues)
p.12

“The power industry should curtail unnecessary dangers by: converting high hazard power plants in populated areas to readily available safer alternatives to anhydrous ammonia and chlorine gas.”
p.15