

**H.R., THE CHEMICAL FACILITY ANTI-TERRORISM  
ACT OF 2008**

---

**HEARING**

BEFORE THE

**SUBCOMMITTEE ON TRANSPORTATION  
SECURITY AND INFRASTRUCTURE  
PROTECTION**

OF THE

**COMMITTEE ON HOMELAND SECURITY  
HOUSE OF REPRESENTATIVES**

**ONE HUNDRED TENTH CONGRESS**

**FIRST SESSION**

**DECEMBER 12, 2007**

**Serial No. 110-89**

Printed for the use of the Committee on Homeland Security



Available via the World Wide Web: <http://www.gpoaccess.gov/congress/index.html>

U.S. GOVERNMENT PRINTING OFFICE

48-984 PDF

WASHINGTON : 2009

---

For sale by the Superintendent of Documents, U.S. Government Printing Office  
Internet: [bookstore.gpo.gov](http://bookstore.gpo.gov) Phone: toll free (866) 512-1800; DC area (202) 512-1800  
Fax: (202) 512-2104 Mail: Stop IDCC, Washington, DC 20402-0001

## COMMITTEE ON HOMELAND SECURITY

BENNIE G. THOMPSON, Mississippi, *Chairman*

LORETTA SANCHEZ, California,	PETER T. KING, New York
EDWARD J. MARKEY, Massachusetts	LAMAR SMITH, Texas
NORMAN D. DICKS, Washington	CHRISTOPHER SHAYS, Connecticut
JANE HARMAN, California	MARK E. SOUDER, Indiana
PETER A. DeFAZIO, Oregon	TOM DAVIS, Virginia
NITA M. LOWEY, New York	DANIEL E. LUNGREN, California
ELEANOR HOLMES NORTON, District of Columbia	MIKE ROGERS, Alabama
ZOE LOFGREN, California	BOBBY JINDAL, Louisiana
SHEILA JACKSON LEE, Texas	DAVID G. REICHERT, Washington
DONNA M. CHRISTENSEN, U.S. Virgin Islands	MICHAEL T. McCAUL, Texas
BOB ETHERIDGE, North Carolina	CHARLES W. DENT, Pennsylvania
JAMES R. LANGEVIN, Rhode Island	GINNY BROWN-WAITE, Florida
HENRY CUELLAR, Texas	MARSHA BLACKBURN, Tennessee
CHRISTOPHER P. CARNEY, Pennsylvania	GUS M. BILIRAKIS, Florida
YVETTE D. CLARKE, New York	DAVID DAVIS, Tennessee
AL GREEN, Texas	
ED PERLMUTTER, Colorado	
VACANCY	

JESSICA HERRERA-FLANIGAN, *Staff Director & General Counsel*

ROSALINE COHEN, *Chief Counsel*

MICHAEL TWINCHEK, *Chief Clerk*

ROBERT O'CONNOR, *Minority Staff Director*

---

## SUBCOMMITTEE ON TRANSPORTATION SECURITY AND INFRASTRUCTURE PROTECTION

SHEILA JACKSON LEE, Texas, *Chairwoman*

EDWARD J. MARKEY, Massachusetts	DANIEL E. LUNGREN, California
PETER A. DeFAZIO, Oregon	GINNY BROWN-WAITE, Florida
ELEANOR HOLMES NORTON, District of Columbia	MARSHA BLACKBURN, Tennessee
YVETTE D. CLARKE, New York	GUS M. BILIRAKIS, Florida
ED PERLMUTTER, Colorado	PETER T. KING, New York ( <i>Ex Officio</i> )
BENNIE G. THOMPSON, Mississippi ( <i>Ex Officio</i> )	

MATHEW WASHINGTON, *Director*

ERIN DASTE, *Counsel*

NATALIE NIXON, *Deputy Chief Clerk*

COLEY O'BRIEN, *Minority Senior Counsel*

(II)

# CONTENTS

	Page
STATEMENTS	
The Honorable Sheila Jackson Lee, a Representative in Congress from the State of Texas, and Chairwoman, Subcommittee on Transportation Security and Infrastructure .....	1
The Honorable Daniel E. Lungren, a Representative in Congress from the State of Texas, and Ranking Member, Subcommittee on Transportation Security and Infrastructure .....	3
The Honorable Bennie G. Thompson, a Representative in Congress from the State of Mississippi, and Chairman, Committee on Homeland Security ..	5
The Honorable Yvette D. Clarke, a Representative in Congress from the State of New York .....	48
The Honorable Bill Pascrell, Jr., a Representative in Congress from the State of New Jersey .....	45
WITNESSES	
Dr. M. Sam Mannan, PE, CSP, Professor and Director, Mary Kay O'Connor Process Safety Center, Artie McFerrin Department of Chemical Engineering, Texas A&M University System:	
Oral Statement .....	30
Prepared Statement .....	32
Mr. Clyde Miller, Director, Corporate Security, BASF Corporation:	
Oral Statement .....	12
Prepared Statement .....	14
Mr. Gerald C. Setley, Vice President, Region 3 Director, International Chemical Workers Union Council, United Food and Commercial Workers Union:	
Oral Statement .....	20
Prepared Statement .....	21
Mr. Gary Sondermeyer, Director of Operations, New Jersey Department of Environmental Protection:	
Oral Statement .....	25
Prepared Statement .....	27
Colonel Bob Stephan, Assistant Secretary, Infrastructure Protection, U.S. Department of Homeland security:	
Oral Statement .....	6
Prepared Statement .....	9
FOR THE RECORD	
Mr. William E. Allmond, IV, Director, Government Relations, Synthetic Organic Chemical Manufactures Association (SOCMA) accompanied by, Mr. Jeffrey Gunnulfsen, Senior Manager, government Relations, Synthetic Organic Chemical Manufactures Association (SOCMA):	
Joint Prepared Statement .....	59



## **H.R., THE CHEMICAL FACILITY ANTI-TERRORISM ACT OF 2008**

---

**Wednesday, December 12, 2007**

U.S. HOUSE OF REPRESENTATIVES,  
COMMITTEE ON HOMELAND SECURITY,  
SUBCOMMITTEE ON TRANSPORTATION SECURITY AND  
INFRASTRUCTURE PROTECTION,  
*Washington, DC.*

The subcommittee met, pursuant to call, at 10:10 a.m., in Room 311, Cannon House Office Building, Hon. Sheila Jackson Lee [chairwoman of the subcommittee] presiding.

Present: Representatives Jackson Lee, Clarke, Thompson (ex officio) and Lungren.

Also present: Representatives Pascrell and Langevin.

Ms. JACKSON LEE. Good morning. The subcommittee will come to order.

The subcommittee is meeting today to receive testimony on the legislative draft of the Chemical Facility Antiterrorism Act of 2008. Importantly, this testimony will include insight into the current chemical security regulations and current efforts in the State of New Jersey.

Before I begin, however, I ask for unanimous consent that the Chairman of the Subcommittee on Emerging Threats, Cybersecurity, and Science and Technology Mr. Langevin, and Mr. Pascrell, a member of the full committee, sit and question the panel during today's hearing. Without objection, so ordered.

The Ranking Member wanted to smile his approval, and we thank him so very much. Let me also welcome Mr. Pascrell and thank him. We know how crucial these issues are to his region. And let me as well welcome the Chairman of the full committee, Mr. Thompson of Mississippi.

I would like to take this opportunity to thank you all for joining us this morning. As we all know, the Congress, and specifically the full committee and this subcommittee are very concerned with chemical security and ensuring there are effective and robust chemical security regulations when the current regulations expire in October 2009.

Chemical security is a topic that is very important to this committee, my constituents, and me. The Houston area is home to several chemical facilities and petroleum refineries. As a result, the issue of chemical facility security is one that is right in my backyard, as well as many, many backyards of many, many Americans.

This subcommittee held a previous hearing on the topic of chemical facilities in July of this year. At the time of that hearing, the

Department of Homeland Security was preparing to implement the Chemical Facility Antiterrorism Standards, all known as CFATS. Although the Department had moved aggressively in drafting the interim final rules and a list of chemicals covered under the regulation referred to here as Appendix A, which will be made part of the hearing record, the Office of Management and Budget took several months before finally releasing the list on November 20, less than a month ago.

Fortunately, the Department proactively reached out to roughly 100 companies that it was sure would be captured under the regulations and asked them to begin the regulatory process by completing a Top-Screen questionnaire that listed the chemicals held on site by these companies. This action by the Department helped to get these necessary regulations moving.

With the release of Appendix A, all companies, not just the initial 100, are filling out the Top-Screen. The results of the Top-Screen determine whether a facility will be regulated under CFATS. These facilities that have relatively small amounts of chemicals, or otherwise pose low risks, will not be regulated. If the facility is determined to have a sufficient amount of a chemical of concern, however, it will be regulated.

Under the regulation, the next step is for a facility to complete a Security Vulnerability Assessment and a Site Security Plan, which must be approved by the Department and implemented by the facility. We are fortunate to have before us today representatives from the Department and a regulated company to provide us with insight into the implementation of CFATS.

This committee is responsible for oversight of the Department, and also for enacting legislation to give permanence to CFATS regulation, which will sunset in October 2009. This hearing then gives us an opportunity to find out about what is working in CFATS and what could use improvement. Importantly, this committee does not want to reinvent the wheel, and we believe that the fundamental approach taken under CFATS is a correct one. We do, however, have some concerns regarding the protection of information and the introduction of a new class of protected information, chemical terrorism vulnerability information.

I, for one, have an open mind on this issue, and I understand the need to protect this sensitive information, but I am concerned that we might overprotect information. As a result, it may not be shared with the necessary stakeholders, such as with the facilities as well as State and local authorities who have the responsibility, along with the Federal Government, to protect the homeland.

We also would like to see more emphasis placed on employee training and the involvement of employees and their representatives in creating SCAs and SSPs. For that reason, we are happy to have a Chemical Workers Union representative here with us here today.

Clearly, inherently safer technologies has, of course, been a hot topic. This hearing will provide an opportunity to have a conversation about IST, and I am looking forward to it. We are fortunate to have a representative from New Jersey, a State with a chemical facility security law that requires an IST assessment. We are also joined by an academic expert who has studied IST, and a company

which has complied with New Jersey's law so that we can examine this issue from all sides.

Let me say how appreciative I am of our Chairman of the full committee Mr. Thompson for his recognition of the importance of the second half of the responsibilities of this subcommittee, infrastructure protection. As we go into 2008, we look forward to looking at some unique challenges that we have seen not necessarily dealing with terrorism, but certainly vulnerable: shopping malls, dams, hospitals, and schools. And this subcommittee expects to have enormous oversight in these areas in order to again ensure and protect the homeland.

In addition, I would be open to the whole idea of oversight and the question of whether there should be some outside contracting as relates to the audit and oversight of dealing with chemical companies and their compliance with a potential chemical security bill.

There is a lot to be done, but the work is done specifically to ensure that America is safe. We welcome these witnesses to be partners in that journey that we must take. The whole idea of homeland security is preventative and protective, and I hope this hearing today will be an important step toward protecting and securing America. The American people deserve our best. I am looking forward again to today's hearings, and I thank the witnesses for being here, and look forward, as I said previously, to their testimony.

Ms. JACKSON LEE. The Chair now recognizes the Ranking Member of the subcommittee, the gentleman from California, for an opening statement. Mr. Lungren, I yield.

Mr. LUNGREN. Thank you very much, Madam Chairwoman.

I felt it was most appropriate when our subcommittee met in July to review the Department of Homeland Security's efforts to implement our committee's bipartisan chemical security legislation, which we enacted last year. I think it is very appropriate for us to have this hearing today. I am constrained, however, by a requirement to be in the Judiciary Committee in a few minutes because I am the prime sponsor of the bill dealing with judicial pay, and we have been working on that for some time, and I have to be over there, and then I will try and get back as quickly as possible.

The authority to regulate the security of our Nation's chemical industry is not only historic, it is timely. Dangerous chemicals stored or processed in high volume at chemical facilities naturally would pose a serious threat to facility workers and neighboring populations if they became a subject or a target of terrorists. Chemical facilities seem to be at the top of every terrorist target list. It was this concern over the vulnerability of chemical facilities which prompted Congress last year to adopt a compromise national risk-based security plan for all chemical facilities.

As was stated by the Chairwoman, the Homeland Security Department is currently making progress, I would call it excellent progress, identifying our high-risk chemical facilities. DHS estimates that 40,000 facilities will eventually be assessed under their plan. They will be assessed or Top-Screened for potential consequences and assigned to risk-based tiers. And I mention risk-based tiers because that is in keeping with our idea of a layered approach, and also with an approach of giving greatest attention to the greatest danger. These facilities which qualify as Tier 1, 2, and

3 will be required to conduct a facility vulnerability assessment and submit a Site Security Plan to address those vulnerabilities.

So I hope that we all understand the need to address the sunset provision contained in last year's bipartisan chemical security legislation. We should recognize, however, that the chemical facilities are just beginning the assessment process under current regulations, and that assessment is a critical step and the first step in the Department's efforts to secure our chemical facilities. So I would be very reticent to make any substantial changes in the law before it has been fully implemented as long as I am satisfied that the Department is going forward full steam, and that the Department is receiving cooperation from the industry involved. If we don't allow the regulations to take effect, we won't be able to identify any gaps or legislative deficiencies.

I am concerned about proposals to grant third-party rights of action against chemical facilities. While I am a lawyer and have been involved in litigation my entire life, I am not always certain that that is the best way, the highest and best use of our time and efforts to make ourselves more secure.

I am intrigued once again by an effort to have inherently safer technology imposed. I think we learned much last year when we had hearings on that subject as to what it is and what it is not, what it can do and what it cannot do, what its promise is and what its mere hope is. And I would hope that we use some prudence as we approach that question.

My concern about legislative uncertainty arises also. I would suggest that legislative uncertainty would undermine our efforts to enlist the cooperation and support of the private sector in securing their chemical facilities. The entire Top-Screen assessment process relies on information supplied by the owners of the chemical facilities. I would hope that they would continue to work with us, and I would hope that we would engage them in a cooperative effort, and one of confidence that we have set certain rules, that they should abide by those rules, and we will then assess the results of those after we have completed the action.

So, once again, I hope that we will be able to achieve bipartisan ship as we have in the past, that we will learn from what has been done thus far. And I would just say this, that I have been impressed with the efforts organized under Colonel Stephan since he came to the Department. He has gained my confidence and, I believe, the confidence of the members of this panel. And so I would very much like to see the results of the activity that has been engaged in since we last passed the law for this area. And while I have to leave for a period of time, I have the written testimony here, and I hope to be back for the question-and-answer period. And I thank the Chairwoman.

Ms. JACKSON LEE. I thank the Ranking Member. I appreciate his scheduling conflict. And both of us are facing that same conflict, and particularly in case of a number of votes that may take place. So thank you very much for your testimony.

The Chair now is very pleased to recognize the distinguished gentleman from Mississippi, the Chairman of the full committee, Mr. Thompson. And again, my appreciation for his leadership on this issue and many issues dealing with the security of our Nation.



Mr. THOMPSON. I thank the Chairwoman Jackson Lee for holding this important hearing, and I look forward to the testimony of our witnesses. As has already been said, this is our second hearing this subcommittee has held on the subject of chemical facility security in this Congress. Both Chairwoman Jackson Lee and myself recognize the importance and significance of chemical security. Fortunately, we also share that sentiment with many committee members here also.

There has been a great deal of speculation from all sides about the current regulations and any legislation to be enacted in the future. I hope today's hearing will give us an opportunity to move away from speculation and move toward actual facts with those who have experience with chemical security regulations.

One of my goals as Chairman of the full committee is to ensure the American people that we are doing what we can to secure America. While dangerous chemicals do pose a real threat, we do not want to over exaggerate this issue. We also want to avoid creating fear and confusion for the American public. Instead, we want to ensure American freedom from fear of a chemical attack.

In order for our committee to provide that freedom, we must be effective in addressing any and all vulnerabilities. We can do this by implementing smart, aggressive measures to protect our chemical facilities and the populations surrounding them. While the CFATS regulations have been in place for a few weeks, it is important for us to receive feedback on the implementation of the regulations from all sides of the issue. In addition, the State of New Jersey has its own chemical security regulations in place, and this committee can learn a great deal from its experience. The CFATS regulations will sunset in October 2009, and I feel strongly that Congress and this committee should consider making these regulations permanent.

I look forward to this discussion and the road ahead. I thank the Chairwoman, and I yield back.

Ms. JACKSON LEE. I thank the distinguished Chairman.

Let me remind our colleagues and members of this committee, and other members of the subcommittee are reminded that under the committee rules, opening statements may be submitted for the record.

I welcome our panel of witnesses, and good morning to you again. Our first witness, Colonel Bob Stephan, is the Assistant Secretary For Infrastructure Protection at the Department of Homeland Security. And we are certainly pleased of his service and the approach to the commitment of protecting the Nation's infrastructure that he has taken.

Colonel Bob Stephan was appointed to serve as the Assistant Secretary of Homeland Security for Infrastructure Protection in April 2005. In this capacity he is responsible for the Department's efforts to catalogue our critical infrastructure and key resources, and to coordinate risk-based strategies and protective measures to secure them from terrorist attack. The Chemical Security Compliance Division, which oversees the implementation of CFATS, is within his office.

Our second witness, Mr. Clyde Miller, is the director of corporate security at BASF Corporation, where, among other activities, he

helps ensure BASF compliance with the CFATS regulations. Importantly, BASF has sites in the State of New Jersey and complies with other regulatory frameworks.

Our third witness is Mr. Gerald C. Setley. He is the vice president and Region 3 director for the International Chemical Workers Union Council of the United Food and Commercial Workers Union. Mr. Setley was hired in 1974 at what is now known as Cabot Corporation as a research and development technician. He spent the next 31 years working at various technical jobs at Cabot. Through these years he has held numerous elected positions in the local. Welcome.

Our fourth witness, Mr. Gary Sondermeyer, is the director of operations at the New Jersey Department of Environmental Protection. He will help to shed light on the regulation of IST, as he has been intimately involved in that endeavor in New Jersey. And our regards to Governor Corzine.

Our fifth witness is Dr. M. Sam Mannan, professor and director of the Mary Kay O'Connor Process Safety Center at the Artie McFerrin Department of Chemical Engineering at the Texas A&M University System. He has done a great deal of research on IST, and his thoughts are most welcome to the subcommittee. And proudly, let me celebrate and commend Texas A&M for its presence in the State of Texas and its leadership in educating young people for the 21st century. Welcome.

Without objection, the witnesses' full statements will be inserted in the record.

I now ask each witness to summarize his or her statement for 5 minutes, beginning with Colonel Stephan.

**STATEMENT OF BOB STEPHAN, ASSISTANT SECRETARY,  
INFRASTRUCTURE PROTECTION, DEPARTMENT OF  
HOMELAND SECURITY**

Colonel STEPHAN. Good morning, and thank you, Madam Chairwoman, Chairman Thompson, Ranking Member Lungren, and other distinguished members of this subcommittee. It is a pleasure to appear before you today to discuss progress on the Department's Chemical Facility Antiterrorism Standards regulation, or CFATS. The recent release of the final Appendix A, the chemicals of concern list, makes the discussion of this important topic all the more timely.

As you know, the fiscal year 2007 DHS Appropriations Act directed us to develop and implement a regulatory framework for high-risk chemical plants. The Department published the CFATS on April 9th, 2007. The following four principles guided the development of this regulatory framework, and are very important to take into account.

Number one is that integrated and effective partnerships among all stakeholders, Federal, State, local government, and private sector, are essential to securing our national critical infrastructures, including high-risk chemical facilities. Implementing this program means tackling a sophisticated and complex set of issues related to identifying and mitigating vulnerabilities, and putting security measures in place. Consultation with industry, academic specialists, engineering associations, and other organizations is fully nec-

essary to assist in the creation and implementation of this rule that meets security goals while preserving the economic integrity and vitality of the chemical sector, our largest export sector. We also, by working closely with public experts such as New York and New Jersey State government officials at various levels, has helped us leverage vital knowledge and insight to improve this regulation in its development and implementation.

Number two, the risk-based tiering approach ensures that resources are appropriately focused. Not all facilities, of course, present the same level of risk, and the greatest level of scrutiny should be focused on those facilities that, if attacked, could endanger the greatest number of lives.

Number three, reasonable, clear, and equitable performance standards lead to enhanced security. The rule includes enforceable risk-based performance standards based on the type of severity or potential risk posed by terrorist organizations. Facilities have the flexibility to select among appropriate site-specific security measures that will effectively address risk, subject to final Department approval, of course.

Recognition of the progress many companies have already made in improving facility security leverages these advancements, and is the fourth principle. Many responsible companies have made significant capital investments in security since 9/11, and building on that progress and implementing the CFATS is essential to its success.

In December of 2006, the Department released an Advance Notice of Rulemaking, seeking a comment on significant policy issues and draft regulatory text. We received more than 1,300 pages of comments from more than 106 separate submitters. We have carefully reviewed and considered these extensive comments within the Interim Final Rule that was published, and we have included a second public comment to the rule's Appendix A, the Chemicals of Interest list. Getting more specifics on Appendix A, the CFATS contains a list of chemicals of interest and their security screening threshold quantities.

The public comment period for Appendix A closed on May 9th of this year. We received more than 4,000 comments on a wide range of subjects, such as which chemicals and thresholds the Department should use, the treatment of chemical mixtures, and the potential impact of Appendix A on certain types of facilities not traditionally considered chemical facilities. We studied these comments carefully, and conducted extensive outreach with representatives of several stakeholder groups to better understand their specific concerns.

After follow-on consultation, additional consultation with a variety of technical experts, to include the FBI's Explosive Unit, and the DHS Science and Technology Directorate's Chemical Security Analysis Center, the Department published the final Appendix A on November 20th of this year. The final appendix lists approximately 300 chemicals of interest, and has included chemicals based upon the consequences to public health and safety associated with one or more of the following three security issues: release, theft and diversion, and sabotage/contamination.

Implementation and execution of this regulation requires us to identify which facilities we consider high-risk as a Department. To facilitate this, we developed a consequence-based screening tool called the CSAT Top-Screen, which the Chairwoman has very ably addressed. The Department requires facilities that possess a chemical of interest at or above the listed threshold screening quantity to complete the Top-Screen within 60 calendar days of publication of the appendix, or upon receipt of a chemical of concern beyond the publication of Appendix A. Through this process we hope to identify facilities that do and do not have a significant potential to be considered high-risk.

If a facility is not screened out, DHS will make a preliminary determination and place it in a risk-based tier. Through this process we will continue a follow-on sequence of site-specific vulnerability assessments, and finally Site Security Plans that will undergo a DHS approval process.

In the security plans themselves, we promulgate 19 risk-based performance standards through the rule. The standards themselves are broad and designed to promote a great deal of flexibility in this process. For example, a Tier 1 facility with a release security issue, the restricted area perimeter performance standards may involve establishing a clearly defined perimeter that cannot be breached by a wheeled vehicle. To meet this performance standard, the facility is able to consider a vast number of security measures, and might ultimately choose to install cable anchored in concrete block, along with movable bollards at all active gates. Alternatively, the facility might choose to landscape their perimeter with large boulders, steep berms, water barriers, or other obstacles that would thwart a wheeled vehicle. Again, as long as the proposed measures are sufficient and according to our standards, the Department would approve the plan.

Ma'am, as you mentioned, we have begun the implementation phase of CFATS, beginning with a series of release of documents to include the Interim Final Rule, now the Appendix A. We have additionally ramped up implementation for approximately 100 specifically targeted high-risk facilities, where we are now about to enter the Security Vulnerability Assessment phase with respect to those facilities.

In terms of the Top-Screen process, since November 20th, we have approximately 16,852 facilities that have registered in the on-line Top-Screen analysis process as we speak, and 1,818 facilities have actually completed the Top-Screen submission.

To conclude, the Department is collaborating extensively with the public to actively work toward achieving our collective goals under the CFATS framework. We are also working very collaboratively with a whole host and range of Federal, State, and local government partners, as well as industry.

I would like to on a final note thank you, Chairman Thompson, Ranking Member Lungren, and other members of this subcommittee, for your solid leadership and support in every step of this process, helping us push a success forward and helping us implement this program in the way you intended as quickly as possible. Thank you for your time.

Ms. JACKSON LEE. Colonel, thank you very much for your testimony.

[The statement of Colonel Stephan follows:]

PREPARED STATEMENT OF ROBERT B. STEPHAN, ASSISTANT SECRETARY,  
INFRASTRUCTURE PROTECTION NATIONAL PROTECTION AND PROGRAMS DIRECTORATE

Thank you, Chairwoman Jackson-Lee, Congressman Lungren, and distinguished Members of the Subcommittee. It is a pleasure to appear before you today to address progress on the implementation of the Department's authority over security at high-risk chemical facilities through CFATS, the Chemical Facility Anti-Terrorism Standards. The recent release of the final Appendix A to CFATS makes the discussion of this important topic all the more timely.

#### **Chemical Security Regulations**

The Fiscal Year 2007 Department of Homeland Security Appropriations Act directed the Department to develop and implement a regulatory framework for high-risk chemical facilities. The Department published the Chemical Facility Anti-Terrorism Standards on April 9, 2007. Specifically, Section 550(a) of the Act authorizes the Department to require high-risk chemical facilities to complete Security Vulnerability Assessments (SVAs), develop Site Security Plans (SSPs), and implement protective measures necessary to meet risk-based performance standards defined by the Department of Homeland Security.

The following core principles guided the development of this regulatory structure: previously

- (1) Securing high-risk chemical facilities represents an immense undertaking that involves a national effort, including all levels of government, industry, and the public. Integrated and effective partnerships among all stakeholders—Federal, State, local, and private sector—are essential to securing our national critical infrastructures, including high-risk chemical facilities. Implementing this program, which is focused on securing high-risk facilities, means tackling a sophisticated and complex set of issues related to identifying and mitigating vulnerabilities and setting security goals. This requires a broad spectrum of input. Consultation with industry experts, academic specialists, engineering associations, and non-government organizations was necessary to assist in creating and effectively implementing a rule that accomplishes necessary security goals while ensuring economic viability of the sector. By working closely with public experts, such as New York and New Jersey State officials, we leveraged vital knowledge and insight to improve the regulation.
- (2) Risk-based tiering ensures that resources are appropriately deployed. Not all facilities present the same level of risk, and the greatest level of scrutiny should be focused on those facilities that, if attacked, could endanger the greatest number of lives.
- (3) Reasonable, clear, and equitable performance standards lead to enhanced security. The rule includes enforceable risk-based performance standards based on the type and severity of potential risks posed by terrorists. Facilities have the flexibility to select among appropriate site-specific security measures that will effectively address risk. The Department will approve a facility's Site Security Plan if it satisfies the CFATS performance standards. If a Site Security Plan does not meet the CFATS performance standards, DHS will disapprove the plan and work with the facility to revise and resubmit an acceptable plan.
- (4) Recognition of the progress many companies have already made in improving facility security leverages those advancements. Many responsible companies have made significant capital investments in security since 9/11, and building on that progress in implementing the CFATS program raises the overall security baseline of high-risk chemical facilities.

Public and private stakeholder input was critical to success in developing the regulatory framework. In December 2006, the Department released an Advance Notice of Rulemaking, seeking comment on significant policy issues and draft regulatory text. We received more than 1,300 pages of comments from more than 106 separate submitters. We carefully reviewed and considered these extensive comments. Within the Interim Final Rule, we included a second public comment period specific to the rule's Appendix A, the Chemicals of Interest List.

#### **Appendix A: Chemicals of Interest List**

Appendix A to the CFATS contains a list of chemicals and their Screening Threshold Quantities. Possession of one or more of these chemicals of interest at or above the specified quantity triggers a requirement for the facility to complete and submit

an online consequence assessment tool known as a Top-Screen. The data gathered through the Top-Screen informs the Department's preliminary determination of the facility's level of risk and the potential need for the facility to comply with the substantive requirements of the CFATS.

The public comment period for Appendix A closed on May 9, 2007. We received more than 4,000 comments on a wide range of subjects, such as which chemicals and thresholds the Department should use, the treatment of chemical mixtures, and the potential impact of Appendix A on certain types of facilities not traditionally considered chemical facilities, such as farms and universities. We studied these comments carefully and conducted extensive outreach with representatives of several stakeholder groups to better understand their specific concerns.

After careful consideration of the comments and consultation with a variety of technical subject matter experts, including the Federal Bureau of Investigation's Explosives Unit and the DHS Science and Technology Directorate's Chemical Security Analysis Center, the Department published the final Appendix A in the Federal Register on November 20, 2007. The final Appendix A listed approximately 300 chemicals of interest, including common industrial chemicals such as chlorine, propane, and anhydrous ammonia, as well as specialty chemicals, such as arsine and phosphorus trichloride. The Department included chemicals based on the consequence associated with one or more of the following three security issues:

- (1) Release—toxic, flammable, or explosive chemicals that have the potential to create significant adverse consequences for human life or health if intentionally released or detonated;
- (2) Theft/Diversion—chemicals that have the potential, if stolen or diverted, to be used or converted into weapons; and
- (3) Sabotage/Contamination—chemicals that, if mixed with other readily available materials, have the potential to create significant adverse consequences for human life or health.

The Department established a Screening Threshold Quantity for each chemical based on its potential to create significant adverse consequences for human life or health.

#### **Chemical Security Assessment Tools**

Implementation and execution of the CFATS regulation requires the Department to identify which facilities it considers high-risk. To facilitate this, the Department developed a consequence-based screening tool called the Chemical Security Assessment Tool (CSAT) Top-Screen. The Top-Screen builds on the assessment tool referred to as the Risk Analysis and Management for Critical Asset Protection (RAMCAP), which the Department developed with industry input.

The Department requires facilities that possess a chemical of interest at or above the listed Screening Threshold Quantity to complete the Top-Screen within 60 calendar days of the publication of Appendix A (or within 60 calendar days of coming into possession of a chemical of interest at or above the applicable Screening Threshold Quantity after publication of Appendix A). Through the Top-Screen process, the Department can identify which facilities do not have a significant potential to be high risk and can then "screen out" those facilities.

If a facility is not screened out during the Top-Screen process, the Department will make a preliminary determination that a facility is high-risk and assign the facility to a preliminary risk-based tier. All high-risk facilities must then complete the CSAT Security Vulnerability Assessment (SVA). Results from this online tool inform the Department's final tier determination of a facility's risk level.

All high-risk facilities fall into one of four risk-based tiers. High-risk facilities will be required to develop Site Security Plans addressing their identified vulnerabilities. A high-risk facility's security measures must meet the performance standards. The higher a facility's risk tier, the more robust the measures it will need to incorporate and the more frequent and rigorous its inspections will be. Inspections will both validate the adequacy of a facility's Site Security Plan and verify the implementation of the plan's measures.

#### **Risk-Based Performance Standards**

CFATS promulgates nineteen risk-based performance standards for compliance. The standards themselves are broad and designed to promote a great deal of flexibility in how a facility approaches meeting standards applicable to it. Although all high-risk facilities must comply with the risk-based performance standards, each tier requires appropriate levels of security for each security issue. For example, a Tier 1 facility with a release hazard security issue would carry different expectations for perimeter control, personnel access, intrusion detection, and all other standards applicable to that security issue than lower tier facilities.

How the facility chooses to meet the required performance standard in its Site Security Plan is at the facility's discretion. In the example of the Tier 1 facility with a release hazard security issue, the "restrict area perimeter" performance standard at the Tier 1 level may involve, for example, the facility establishing a clearly defined perimeter that cannot be breached by a wheeled vehicle. To meet the performance standard, the facility is able to consider a vast number of security measures, and might ultimately choose to install cable anchored in concrete block along with movable bollards at all active gates. As long as the specific measures are sufficient to meet the performance standard, the Department would approve the plan. Alternatively, the facility might choose to "landscape" their perimeter with large boulders, steep berms, streams, or other obstacles that would thwart a wheeled vehicle. Again, as long as the proposed measures are sufficient, the Department would approve this plan.

#### **Phased Approach to CFATS Implementation**

The Department is using a phased approach for implementation of the CFATS regulation. In June of 2007, the Department began CFATS implementation at certain facilities deemed likely to present highest-risk. The release of Appendix A on November 20, 2007, triggered implementation at the Nation's remaining high-risk facilities in a fashion sequential to Phases 1(a) and (b) discussed below. The phased approach will also permit a time of learning, particularly for our inspectors, as well as for industry. What we learn in the earlier phases can then shape further implementation of the program and ensure consistency across the country. The following summarizes our current activities:

- On June 8, 2007 the Top-Screen became available online, and the CVI program went into effect. On June 11, we contacted the State Homeland Security Advisors and the Chemical and Oil and Natural Gas Government Coordinating Councils and Sector Coordinating Councils to brief them on program implementation.
- The week of June 11, 2007 marked the beginning of Phase 1(a), in which the Department asked select facilities it believed to be high-risk, given available information, to complete the Top-Screen. Following initial outreach at the corporate level, the Department sent letters to approximately 50 facilities, informing them of their selection for participation in Phase 1, and advising those facilities of the requirement to submit a Top-Screen. The facilities were to complete the Top-Screen in advance of the final Appendix A with technical assistance from Department inspectors. The Department, after receiving the final Phase 1(a) Top-Screens in prompt fashion, is currently reviewing these submissions for preliminary high-risk determinations. If those facilities are determined to be high-risk, the Department will provide written notification, and then engage these facilities directly on the CSAT Security Vulnerability Assessment (SVA).
- In October 2007, Phase 1(b) began, in which approximately 50 additional facilities believed to be high-risk were contacted with the request they begin their CFATS requirements in advance of the release of the final Appendix A. A number of the Phase 1(b) facilities have already submitted Top-Screens to the Department.
- November 20, 2007, the date of the publication of the final Appendix A, initiated Phase 2, the full implementation of CFATS. Publication of the final Appendix A officially started the program for all facilities that possess chemicals of interest at or above the listed Screening Threshold Quantities. During Phase 2, such facilities will complete the Top-Screen, and those facilities subsequently determined to be high-risk will receive preliminary tiering decisions and will then be instructed to complete SVAs. Upon receipt, the Department will review the submitted SVAs for purposes of final tiering determinations, and subject facilities will be asked to develop SSPs. DHS will subsequently review those SSPs, and conduct on-site facility inspections to ensure a facility's compliance with their submitted plan.

#### **Outreach and Partnership Efforts**

Since the release of the Interim Final Rule in April, the Department has made a concerted effort to publicize the rule and make sure that our security partners are aware of the CFATS and its requirements. As part of a dedicated outreach program, the Department has presented at numerous security and chemical industry conferences, participated in a variety of other meetings of relevant security partners, issued numerous press releases regarding the regulations, published and distributed full copies of the regulations as well as various facts sheets summarizing critical aspects of the regulations, and developed and continually updated a DHS.gov Chem-

ical Security website. We believe these efforts are definitely having an impact. As of November 25, 2007:

- 12,267 facilities have registered in the CSAT process;
- 2,079 facilities are in some phase of Top-Screen completion; and
- 1,197 facilities have submitted a completed Top-Screen.

Additionally, the Department intends to focus efforts on fostering solid working relationships with State and local officials and first responders in jurisdictions with high-risk facilities. To meet the risk-based performance elements under CFATS, facilities are likely to develop active, effective working relationships with local officials in the areas of delaying and responding to a potential attacks and a clear understanding of roles and responsibilities during an elevated threat situation. As stated in our guiding principles, our vision is that all stakeholders participate in the planning and implementation of protective security measures around high-risk chemical facilities.

### **Conclusion**

The Department is collaborating extensively with the public to actively work toward achieving our collective goals under the CFATS regulatory framework. In almost every case, industry has voluntarily done a tremendous amount to ensure the security and resiliency of its facilities and systems. As we begin to fully implement the chemical facility security regulations, we will continue to work as partners with industry, States and localities, and the Congress to get the job done.

Given the nature of the terrorist adversary we face, we simply cannot afford an "us-versus-them" stance toward the Chemical Sector but, instead, must work together to implement a risk-and performance-based approach to regulation and, in parallel fashion, continue to pursue the voluntary programs that have already borne considerable fruit. In doing so, we look forward to collaborating with the Congress to ensure that the chemical security regulatory effort achieves success by reducing risk throughout the chemical sector. In addition to our Federal Government partners, success is dependent upon continued cooperation with our industry and State and local government partners as we move towards a more secure future.

Thank you for holding this important and timely hearing. I would be happy to take any questions you might have.

Ms. JACKSON LEE. I now recognize Mr. Miller to summarize his statement for 5 minutes.

### **STATEMENT OF CLYDE D. MILLER, DIRECTOR, CORPORATE SECURITY, BASF CORPORATION**

Mr. MILLER. Good morning, Chairwoman Jackson Lee, Chairman Thompson, and members of the subcommittee. I am Clyde Miller, director of corporate security for BASF Corporation, and I am responsible for all security functions at our U.S. chemical facilities. For BASF there is no greater priority than the safety and security of our employees and the communities that surround our sites.

I am pleased to provide feedback on the DHS Chemical Facility Antiterrorism Standards, also known as CFATS, and to comment on possible legislative action. To that end, I will emphasize three points.

Number one, DHS has acted aggressively to create this groundbreaking program. Number two, there are several ways that Congress can help improve the implementation of the program. Number three, the discussion draft legislation does not appear to build on the significant progress being made, and may cause unnecessary duplication.

After 6 years of extensive debate, Congress authorized a comprehensive national chemical security program. The CFATS program shares elements with programs established by several States, most notably New Jersey, but is by far more comprehensive and demanding. In just over a year, DHS successfully issued demanding security regulations that would require over 50,000 facilities to complete a screening assessment, known as Top-Screen, by next



month. Throughout 2008, DHS will inspect every regulated facility and evaluate security enhancements against 19 stringent performance-based standards. Fines and facility shutdowns await those who do not comply.

While DHS has gotten off to an impressive start, the new CFATS program is not without its problems, and Congress can help in several ways. First, makes information protection more workable. Clearly, security-related information needs to be carefully protected from public release; however, under the current program it is difficult to share certain information even within our own company.

Second, Congress needs to provide adequate funding. DHS staff has demonstrated outstanding commitment and effort, but they need more resources. We urge Congress to provide DHS with the necessary resources to handle the workload.

And third and most importantly, allow DHS enough time to do the job Congress has given it. After 6 years, we finally have strong regulations in place. While the current law has a 3-year sunset, Congress should give DHS sufficient time to implement the program before making significant changes. We are concerned that if enacted, the draft would slow the ambitious timetable DHS has established and the facilities are racing to meet. Billions of dollars will likely be spent to comply with the new rule, and companies need to know the requirements are not going to change in mid-stream. Prematurely overhauling them will create massive uncertainty, and could delay security enhancements.

Congress should follow the Hippocratic oath in any new legislation: First, do no harm. The draft legislation does not recognize the progress made under CFATS, and would require companies like BASF to do everything all over again, and we just do not believe that is a wise use of public or private resources.

Turning to inherently safer approaches, Congress recognized last year that neither IST nor any other specific security measures are a silver bullet. Under CFATS, companies can lower their risk profile through process changes, and thus become subject to lower-level performance standards. IST is complex and full of risk trade-offs and unintended consequences. These choices shouldn't be made from an office in Washington. Rather BASF believes process safety experts at chemical facilities, working in conjunction with security experts, are in the best position to weigh all options and decide on the best approach to maximize safety and security.

The discussion draft, by contrast, would require all high-risk facilities to conduct an IST assessment and implement inherently safer methods when certain conditions are met. While these conditions might seem to protect companies from unwarranted or harmful mandates, we foresee long and complicated debates about what exactly is necessary and what is feasible.

In the short time since CFATS was finalized, there has been much criticism of the regulations from all sides. As one responsible for complying with these regulations, I can assure you these rules are placing considerable demand on regulated facilities.

To conclude, the discussion draft can serve a useful purpose by identifying issues with the current program. We look forward to working with you and your staff as the discussion moves forward. BASF shares Congress's desire for prompt action after so many

years of debate. Please support DHS with more resources so it can get the job done, and support us by backing implementation of CFATS and not changing course in midstream. Thank you again for the opportunity to appear before you. I look forward to answering any questions you may have.

Ms. JACKSON LEE. Mr. Miller, thank you very much for your testimony.

[The statement of Mr. Miller follows:]

PREPARED STATEMENT OF CLYDE D. MILLER

Good morning, Chairwoman Jackson-Lee, Ranking Member Lungren, and Members of the Subcommittee. My name is Clyde D. Miller, and I am the director of corporate security for BASF Corporation. At BASF, I am responsible for all security functions at our chemical facilities in the United States, a number of which fall under the Chemical Facility Anti-Terrorism Standards (CFATS) issued by the Department of Homeland Security (DHS). I appreciate the opportunity to appear before the Subcommittee this morning to provide feedback on DHS's performance thus far, and to ask that the current program be given a chance to work.

BASF Corporation is the North American affiliate of BASF AG, Ludwigshafen, Germany. BASF is the world's leading chemical company: *The Chemical Company*. Our portfolio ranges from chemicals, plastics, performance products, agricultural products and fine chemicals to crude oil and natural gas. As a reliable partner to virtually all industries, BASF's high-value products and intelligent system solutions help its customers to be more successful. BASF develops new technologies and uses them to meet the challenges of the future and open up additional market opportunities. We combine economic success with environmental protection and social responsibility, thus contributing to a better future. BASF presently operates facilities, including manufacturing sites, research facilities, and distribution centers, in more than half of the fifty states.

For BASF and the chemical industry as a whole, there is no greater priority than the safety and security of our employees and the communities that surround our sites. It is in this vein that we have striven to work within our trade associations<sup>1</sup> and government at all levels to safeguard our facilities from attack and to develop procedures that allow us to respond quickly and efficiently to emergencies should they occur. As my statement explains:

- Chemical facilities in the United States are moving quickly to implement the regulatory program authorized last year by Congress and subsequently created by DHS.
- There are ways to improve implementation of the program, and Congress can help by, for example, increasing funding for DHS and allowing enough time for the program to be implemented.
- The discussion draft legislation now under consideration would only hinder the progress made thus far and cause unnecessary duplication. We recommend that, before Congress proposes significant changes, it determine exactly what, if anything, is lacking in the existing program.
- We further recommend against mandating inherently safer technology, because process safety experts at chemical facilities—working in conjunction with security experts—are in the best position to weigh all options and decide on the best approach to maximize safety and security.

**I. DHS Has Acted Aggressively to Establish a Comprehensive Regulatory Program from Scratch. Facilities Are Now Moving Quickly to Comply.**

After six years of debate, last October Congress finally enacted Section 550 of the FY07 DHS Appropriations Act,<sup>2</sup> the law that authorized the new CFATS rules.<sup>3</sup> Under an intense spotlight of public scrutiny and Congressional oversight, DHS and chemical facilities are acting swiftly to implement a groundbreaking program—the first national chemical security regulatory program anywhere in the world. While this program shares elements with the programs established by several states—

<sup>1</sup> BASF is a member of a number of trade associations that consider site security to be a top priority, including the American Chemistry Council, the Consumer Specialty Products Association, CropLife America, the National Petrochemical and Refiners Association, and others. These groups have worked closely together and with government agencies in support of chemical plant security legislation and regulation.

<sup>2</sup> Pub. L. No. 109-295, § 550 (2006).

<sup>3</sup> 6 C.F.R. Part 27, 72 Fed. Reg. 17688 (April 9, 2007), 65396 (Nov. 20, 2007).

most notably New Jersey—the CFATS program is, by far, more comprehensive and demanding than any of them. So, even though BASF and the 2000 other American Chemistry Council (ACC) member company facilities have already invested more than \$5 billion to enhance security through the ACC Responsible Care® Security Code, the DHS rules leave little doubt that more action will be required of those facilities that are deemed to be high risk under those rules. In fact, DHS anticipates over \$8 billion of implementation costs during the first eight years of its program—costs we will certainly bear in addition to those we have already incurred. Keeping security measures innovative and staying a step ahead of terrorists is the right thing to do. Beyond ACC members, thousands of others facilities nationwide will also have to step up efforts to meet these stringent requirements.

In just over a year, DHS has successfully completed the issuance of comprehensive security regulations that will, by January 2008, require over 50,000 facilities nationwide to complete a DHS screening assessment known as “Top-Screen.” Using risk-based methods, DHS will then be able to quickly determine which of these facilities would pose a high risk if subjected to a terror attack, and thus warrant action. Through informed decisions based upon Top-Screen, DHS will designate thousands of facilities as being high-risk and thus subject to regulation under CFATS.

Throughout 2008, these thousands of high risk facilities will be required to assess their vulnerabilities, develop site security plans and, with close DHS scrutiny, minimize the risks they pose by implementing layered security measures. Layered security—based upon the site’s risk tier and the vulnerabilities its assessment has identified—will require consideration and implementation of varied measures that in combination will reduce the threat of an attack or mitigate an attack that might occur. These measures include: perimeter security enhancements; surveillance and monitoring; security officers; secured gates; restricted access; employee, contractor and visitor background checks; specific protection against both inside and outside threats of theft and diversion; cyber-security; inspections of incoming/outgoing shipments; customer screening; training; drills; and emergency response. DHS will inspect every regulated facility and evaluate these security enhancements against 19 stringent performance based standards. Fines and facility shutdowns will await those who do not comply.

## II. What Could DHS Do Better, and How Could Congress Help?

While DHS has gotten off to an impressive start, the new CFATS program is not without its problems. Congress could help in several ways.

### A. DHS Needs to Better Coordinate Its Own Programs

DHS’s eagerness to show progress has already clashed with the new CFATS program. Just this fall, as many of our companies were already working closely with the regulatory staff to accelerate implementation of CFATS, another component of DHS initiated the “Enhanced Critical Infrastructure Plan” (ECIP), an outreach effort to encourage facilities to voluntarily take additional security action. While well intended, the ECIP staff often are going to the same sites that are already implementing the regulatory program. Unfortunately, the ECIP program is based upon a different tiering system and uses a different vulnerability assessment methodology and different levels of information protection. This conflict has created significant confusion among, and placed competing demands on, facility security personnel. This is the sort of duplication scenario that must be avoided.

### B. Making Information Protection More Workable

Clearly, security-related information needs to be carefully protected from public release. And yet, company staffs have to be able to do their jobs, and security is part of the job description of an increasing number of our staff. Thus, information protection requires a careful balance.

Section 550(c) instructed DHS to give sensitive information protections “consistent with” the “Sensitive Security Information” or “SSI” rules that DHS uses now to protect information about transportation security.<sup>4</sup> DHS responded in CFATS by creating a new category of protected information that DHS has labeled “Chemical-terrorism Vulnerability Information” or “CVI.” In most respects, we think DHS got it right with CVI, at least in the rules. But this summer, DHS released a CVI Procedural Manual that goes far beyond what is necessary.<sup>5</sup> The manual requires company staff with access to CVI to go through web-based training and to sign a non-disclosure agreement (NDA) that is more restrictive even than the NDA that is required to have access to national security *classified* information. Chain of custody

<sup>4</sup> Pub. L. No. 109–295, § 550(c).

<sup>5</sup> DHS, *Procedural Manual: Safeguarding Information Designated as Chemical-Terrorism Vulnerability Information (CVI)* (June 2007), available at [http://www.dhs.gov/xlibrary/assets/chemsec\\_cvi\\_proceduresmanual.pdf](http://www.dhs.gov/xlibrary/assets/chemsec_cvi_proceduresmanual.pdf).

recordkeeping is also required. And all this applies even when people are only getting access to their own company's information. This means that if my CEO asks specific questions about security measures we have enacted at a particular facility, I cannot answer his questions without him having to take this training and sign the NDA, a totally unnecessary process. In its facility security program, the Coast Guard simply "assumed that the owner/operator's security interest in this information will be sufficient to prevent unauthorized disclosure."<sup>6</sup> DHS should adopt the same approach. It could do this by amending the SSI rules to apply to land-based security information. Congress could help here by revising Section 550(c) to speak of "identical" protections.

#### C. Congress Needs to Provide Adequate Funding to Support Full Implementation of the CFATS Requirements

While CFATS requires considerable action from chemical facilities in a short period of time, it also will place enormous burdens on DHS to implement the rules. DHS personnel will be required to conduct reviews of site-specific vulnerability information and site security plans, and to make site visits at each regulated facility. This will include assessing how each facility has addressed the applicable risk-based performance standards for facilities in its risk tier—a complex, site-specific, judgmental task.

With DHS's own estimates of at least 5,000 regulated facilities, its 30-person inspection staff will be sorely tested. We think implementation of CFATS requirements necessitates a significant increase of staffing resources—certainly well beyond what can be reasonably expected from the current situation. While DHS staff has demonstrated outstanding commitment and effort to date, they clearly will need more resources. We urge Congress to provide DHS with the necessary resources to handle the workload and to ensure that chemical facility security is properly implemented in a timely manner.

#### D. Allow DHS Enough Time to Do the Job Congress Has Given It

In the short period of time since CFATS was finalized, a steady stream of misguided criticism has been directed at the rule and our industry. Arguments have been wide ranging—some have said the rule does not go far enough, while other sectors have sought exemptions for themselves, arguing that the rule went too far.<sup>7</sup> Some say that few states have taken action, while others say the rule undermines states' rights. And the discussion draft seems to indicate that some believe wholesale replacement of the rule is needed even as it is being implemented. I can assure you that the program that is currently in place establishes considerable demands on companies to comply.

It is important to note that BASF and all ACC members did not hesitate to act, and we continue to lead by example. The business of chemistry has been implementing security measures for years. We have assessed our vulnerabilities, prioritized the risks and significantly tightened security at our facilities. We also asked Congress for legislation that empowered DHS to issue and implement tough regulations—and that has happened. Now, we respectfully ask that Congress give DHS sufficient time to put the program in place.

Within the next six months, thousands of facilities will be conducting detailed vulnerability assessments required by CFATS. These sites will use these assessments to draft site security plans that describe security enhancements, which very likely will require an increase in capital improvements. Those plans should all be submitted to DHS before the end of next year. The current requirements provide a clear path of action, the timing for completing the steps of the program, including inspections, and a review process that requires sites to revisit their situation and assess whether any changes to their security systems are needed.

I respect this Subcommittee's oversight responsibility and understand that the legislation enacted last year has a three year sunset provision. But I also hope Members will agree that our first priority should be to enhance security at sites nationwide as soon as practicable. CFATS is meeting this priority. Give DHS and the industry enough time to implement the program and then determine what gaps re-

<sup>6</sup> U.S. Coast Guard, *Navigation and Vessel Inspection Circular No. 10-04*, Encl. (3), § 4.b (Aug. 20, 2004), available at [http://www.uscg.mil/hq/gm/mp/pdf/NVIC\\_10-04.pdf](http://www.uscg.mil/hq/gm/mp/pdf/NVIC_10-04.pdf).

<sup>7</sup> While we cannot respond to every criticism of the rule, BASF would like to point out that critics of CFATS Appendix A are frequently wrong. For example, 1-ton chlorine canisters are not exempted; chlorine contained in transportation packaging (e.g., 1-ton canisters) is covered at 500 lbs—less than what DHS originally proposed and lower than the EPA RMP threshold. Also, DHS was right to use the RMP thresholds for release chemicals (not 75% of the thresholds, as proposed) because the consequences of a release are the same regardless of the cause. Coverage is still greater under CFATS than under the RMP rule because, unlike RMP, CFATS does not focus only on the single process with the greatest potential offsite consequences from a release.

main. Congress will have the assurance that nationwide, the security at chemical facilities will have been significantly upgraded during the process. Members will also have the benefit of seeing what works in the program and whether anything will need to be adjusted.

### III. The Discussion Draft Legislation Would Only Hinder Progress

#### A. Build on the Solid Accomplishments of the Past Year

BASF has had limited time to review the discussion draft, but we are concerned that it seems to make no reference to Section 550, except to repeal it on page 50. The draft appears not to acknowledge that the CFATS rules have been issued, or that tens of thousands of facilities are hard at work starting to comply. For example, while the bill refers to how DHS should evaluate the efforts of facilities under "other provisions of law" such as the Maritime Transportation Security Act (MTSA) or the Safe Drinking Water Act (SDWA) (pp. 19–20), that paragraph does not mention Section 550, even though that statute is more demanding than either the MTSA or SDWA.

As noted above, we would prefer Congress give more time for the existing program to be implemented before making changes. Certainly, though, any proposal must adequately acknowledge all that has happened over the past year. While it is unusually short by modern standards, Section 550 clearly meets the nation's security needs, and DHS has for the most part used its discretion appropriately to flesh it out. When considering surgery on the existing program, Congress should follow the Hippocratic Oath: *First, do no harm*. On that score, the discussion draft could, indeed, be harmful.

First, if enacted, the draft would slow down the ambitious timetable that DHS has established and that facilities are racing to meet. DHS estimates that billions of dollars will be spent to comply with the new rule as companies procure funding from management for significant capital improvement projects to meet CFATS's performance standards. This funding of projects will begin in 2008. Companies need to know that the requirements are not going to be changing in mid-stream. Completely rewriting those requirements will create massive uncertainty and could delay security enhancements.

Second, passing a wholly new law would also divert DHS from the focus it very much needs to meet its own deadlines. Passing a major new bill could paralyze DHS as the agency shifts what is already an overstretched staff to rewriting its rules to match the new law's terminology and definitions.

Third, and most frustrating, the draft would require companies like BASF to do everything all over again. Under the CFATS timetable established under Section 550 (which this bill would leave in place until October 2009), we expect to be submitting site security plans to DHS for approval by the end of 2008. We would then hear from DHS around February 2009, and would spend the rest of that year finishing implementation of any long-term security measures and being inspected. Under this bill, by October 2009, DHS would unveil its new regulations, and we would then have six short months to submit new vulnerability assessments and site security plans (for top-tier facilities). Once those documents were finalized, we could well start spending more money redoing all the work that had just been approved. This is not a fair or productive use of private or governmental resources.

Again, before Congress proposes significant changes, it should determine exactly what, if anything, is lacking in the CFATS program, and then fix those targeted areas. In doing so, it should, wherever possible, use the concepts and terminology already written into law by DHS, to retain the benefits of existing work and minimize any unnecessary transition problems.<sup>8</sup>

#### B. The Discussion Draft's IST Mandate Is Bad Policy

If considerations of inherent safety drove all Congressional action, this hearing would be held in a bunker or some other safe and undisclosed location outside Washington. Congress and the Capitol building are icons of America that remain attractive targets for terrorists. Yet six years after 9/11, Congress understandably continues to maintain a high profile in the nation's capital. Clearly removing that risk by relocating Congress out of Washington would be safer for Congress, and for

<sup>8</sup>Most important, Congress should use the same definitions of security measures and the same risk-based performance standards as CFATS, unless Congress has identified problems with them. In these and many other respects, CFATS is actually superior to the draft bill. For example, in CFATS (and under MTSA), DHS has recognized that personnel surety screens need to encompass contractors and visitors, not just employees. But the bill just repeats the phrase "employee background checks" used in previous legislation (p. 3). Also, CFATS recognizes that chemicals might be stolen or diverted to make chemical weapons or IEDs, not just be "released," yet the latter is the only basis for listing a chemical under the discussion draft (p. 4).

the surrounding DC community, but it would have serious public policy ramifications for the nation.

Yet we all agree that protective steps have been taken to lower the risk and improve the security of this body. Measures to prevent an attack have been stepped up and mitigation measures in the event of an attack have also been substantially improved. Ultimately, an attack could still be attempted, but risk-based measures have been implemented to reduce the probability of a successful attack, and these measures are constantly being reviewed and improved.

This is the same approach used every day in the chemical industry. Inherently safer approaches have long been a core element of process safety, plant design, continuous improvement and sound business practices. Like other leading chemical companies, BASF considers inherently safer approaches continuously, and has for years. Inherently safer approaches, somewhat misleadingly referred to as “inherently safer technology” (IST), involve designing processes that avoid hazards, rather than trying to control them. It has four elements:

- *Minimization/Intensification*—Using smaller quantities of hazardous substances;
- *Substitution*—Replacing a particular material with a less hazardous material;
- *Moderation/Attenuation*—Lowering operating temperatures or pressures that provide less hazardous conditions; and
- *Simplification/Error Tolerance*—System designs that eliminate or tolerate operating errors, making the plant more user-friendly and reliable.

While these statements are clear and straightforward, like most things in life, the devil is in the details. IST just is not that simple in actual application. For example, it is almost always easier to select an inherently safer approach when designing a process than to apply it to an existing process. In lay terms, you cannot simply begin using diesel fuel in a car that runs on gasoline, but you can design a car to run on diesel. As another example, reducing inventories of a chemical on site might appear to be inherently safer. Yet security protection is typically at its greatest within a facility, whereas reducing inventories may mean that more of the chemical has to be in transit, where securing it is more complex. Improving the layers of security where the products are made and stored may provide the best means of reducing potential risks.

The current regulations provide incentives to consider inherently safer approaches where feasible. CFATS will help drive implementation of inherent safety across the nation’s chemical sector, because a facility that lowers its risk profile through process changes can move itself to a lower risk tier, and then become subject to less demanding (and less expensive) security performance standards. I can assure you that BASF has made process changes to minimize its vulnerabilities.

But in Section 550, Congress wisely chose not to allow DHS to mandate IST—or any other specific security measure. No single security measure is the only right one and Congress recognized that fact. IST is complex and full of risk-risk tradeoffs and unintended consequences. Rather than making those decisions from an office in Washington, BASF believes process safety experts at chemical facilities—working in conjunction with security experts—are in the best position to weigh all options and decide on the best approach that will maximize safety and security.

The discussion draft, by contrast, would require all high-risk facilities to conduct an IST assessment and implement inherently safer methods when four conditions are met.<sup>9</sup> While those conditions might seem to protect companies from unwarranted or fiscally ruinous mandates, we foresee long and complicated debates about exactly what is “necessary for the facility to meet [its] security performance requirements,” what “can feasibly be incorporated into the operation of the facility,” and what “would not significantly and demonstrably impair [our] ability. . .to continue the business of the facility.”<sup>10</sup> And would any of these conditions apply if the proposed mandate would prevent BASF from making the particular product produced

<sup>9</sup>Facilities must implement IST if it:

- is “necessary for the facility to meet the security performance requirements for the facility’s risk tier”;
- “would significantly reduce the risk of death, injury, or serious adverse effects to human health or the environment” from a terrorist release;
- “can feasibly be incorporated into the operation of the facility”; and
- “would not significantly and demonstrably impair the ability of the owner or operator of the facility to continue the business of the facility.”

Discussion draft at 43–44 (new 6 U.S.C. § 2110(c)).

<sup>10</sup>*Id.*

at a facility? (The change might be feasibly incorporated, and might not shut down the plant, but yet might spell the end of a product.)<sup>11</sup>

Even a requirement to consider IST, as in New Jersey, could be problematic. BASF recognizes that New Jersey's Prescriptive Order requires covered facilities to consider IST as a means of reducing their vulnerability.<sup>12</sup> However, while BASF believes we have an effective, constructive relationship with the State of New Jersey, our experience with its process has shown that IST discussions regularly take up a vast majority of the total review time of the inspectors, who frequently barely look at security measures that have been implemented. Isolating a single type of security measure for such intense focus at the expense of all the others is not good security practice. Rather, facilities and DHS should be considering the full range of security measures. We are also concerned that a mandate to consider IST will convert the DHS security program into a largely, but intensive, paper exercise. Simply put, does Congress want DHS staff reviewing three-ring binders, or out in the field inspecting actual security measures being implemented at facilities?

#### C. The Discussion Draft Would Cause Unnecessary Duplication

BASF supports a risk-based program that applies even-handedly across the board. We did not seek or support any special carve-outs under CFATS for our facilities or our products, or anyone else's. Rather, we have consistently called on Congress, and DHS, to issue comprehensive security requirements that would apply nationwide and would raise the security protections across all high risk sites. We support the CFATS approach of screening over 50,000 individual facilities, from small research facilities to large state of the art chemical manufacturing facilities. This approach will minimize the chance that DHS has overlooked any potential high risk sites. This also meets our shared goal of focusing the resources where they are most needed.

We know some have questioned whether Congress was correct in Section 550 to exclude certain categories of facilities. A prime example from BASF's perspective is facilities currently regulated by the Coast Guard under the Maritime Transportation Security Act (MTSA)—since we have four such sites. While we believe the MTSA is effective, its application is dependent upon a facility's physical location and whether it conducts commerce on a navigable waterway, rather than the chemicals it has on site.

Congress will ultimately need to come to its own conclusion regarding the adequacy of the MTSA program vs. CFATS. Our overriding request is that, if Congress decides to apply CFATS to MTSA-regulated facilities, then it should clearly exempt those facilities from the MTSA. Congress should not impose, or allow DHS to impose, CFATS obligations *on top of* the MTSA program—which is exactly what we fear the discussion draft would do. Facilities cannot comply with two different, inconsistent, overlapping programs. In addition, the integration of the different programs under the draft would take place on a facility-by-facility basis, rather than on a programmatic basis. And, as noted earlier, no deference to prior work under CFATS is even mentioned in the draft.

Site security must not be regulated by multiple agencies or programs. Rather, a broad and comprehensive program for security, managed at the Federal level by a single agency component, has the best hope of providing the certainty facilities need about their obligations and the best protection for the nation.

#### D. Miscellaneous Issues

Based on our limited review of the draft, we invite the Subcommittee's attention to the following additional items:

- **Red-team exercises** (p. 15). While we would appreciate a clearer understanding of what the draft envisions, we are concerned that even if these exercises were single-day events, they necessarily would require weeks of advance planning, as well as subsequent work to distill any lessons learned. Requiring on-site exercises with DHS personnel at all high-risk sites—assuming there were 6,000 such facilities, and phasing that obligation in over 6 years—would require four exercises per business day, every day for the next six years.
- **Linkage of SSPs to VA approval.** In CFATS, DHS has made clear that the deadline to submit a site security plan is not triggered until the facility receives

<sup>11</sup> Speaking of protecting important products, we are also concerned that inherently safer approaches that also happen to be valuable trade secrets would have to be disclosed by DHS under the draft. Neither new Section 2110(d)(4) nor new Section 2108 identifies trade secrecy or business confidentiality as a basis for not providing information under new Section 2110(d).

<sup>12</sup> State of New Jersey *Domestic Security Preparedness Task Force, Domestic Security Preparedness Best Practices at TCPA/DPCC Chemical Sector Facilities*, ¶ 5 (Nov. 21, 2005), available at <http://www.acutech-consulting.com/acutech-news/2005/BestPracticesStandardsActonChemicalPlantSecurityNov212005.pdf>.

notice that DHS has approved its vulnerability assessment. If both the VA and SSP were due at the same time, the SSP would likely turn out to be inadequate, cause unapproved and costly measures to be implemented, and require further work. But the bill does not indicate any intent to stagger these submission requirements as CFATS has done.

#### **IV. Conclusion**

The discussion draft does contain a number of provisions that would be improvements over Section 550 and CFATS. Most important, it would confirm that the federal program would preempt state programs where the latter "conflicted with the purposes of this title" (p. 31). Such "conflict preemption" is very important to facilities, and yet gives state and local government broad leeway to craft non-conflicting programs. As an example of why this is needed, several states last year tried to prevent facility owners from restricting employees from bringing firearms onto company property. One state is currently considering language which would prohibit companies from conducting inspections of entering vehicles. Vehicle screening is a fundamental security measure that could not be implemented under that proposed statute. As you can see, therefore, preemption can be essential to assuring security.

Another valuable feature of the discussion draft is its requirement that DHS give a facility the reasons why it was assigned to a particular risk tier (p. 7). It is not clear that DHS will do this under CFATS.

If the discussion draft is merely a vehicle for identifying issues like these, then it will have served a useful purpose. But BASF is concerned that the Subcommittee intends to seek enactment of the bill or something close to it. We had understood that Congress wanted prompt action after so many years of delay. BASF certainly does. We ask you not to stop the progress that DHS has achieved in the last year. Instead, please support DHS with more resources so that it can get the job done, and support us by backing implementation of CFATS and not changing course in mid-stream.

Thank you again for the opportunity to appear before you. I look forward to answering any questions you may have.

Ms. JACKSON LEE. I now recognize Mr. Setley to summarize his statement for 5 minutes.

#### **STATEMENT OF GERALD C. SETLEY, VICE PRESIDENT, REGION 8 DIRECTOR, INTERNATIONAL CHEMICAL WORKERS UNION COUNCIL, UNITED FOOD AND COMMERCIAL WORKERS UNION**

Mr. SETLEY. Thank you, Chairwoman Jackson Lee and members of the subcommittee. We are especially pleased that Chairman Thompson is sitting in today.

I am here today representing the 20,000 members of the International Chemical Workers Union Council of the United Food and Commercial Workers Union. UFCW's chemical workers produce everything from petroleum-refining chemicals to over-the-counter pharmaceuticals. Every day our members work with extremely hazardous substances. We have a vital interest in their safe production, both for our own health and for that of neighboring communities. We believe we bring to the table meaningful involvement of the people who have the most experience and are the most endangered in any plan, the workers. It is therefore an honor for me to appear before you to address this national security concern on behalf of our members who work in chemical plants.

I think we can all agree chemical plants in the United States have great potential as terrorist targets. This possibility threatens the safety of workers in the plants, as well as people living in the surrounding communities. This subcommittee has taken some important steps to improve chemical security, and I would like to thank you for your work on this issue.



Comprehensive chemical security legislation is the next step in bringing control to this complex problem. Today I will discuss just a few of the issues we feel necessary for comprehensive chemical facility security legislation.

First would be worker involvement. In the control of occupational hazards, it has long been recognized that workers have the knowledge and experience on all operations in a plant. Chemical workers have unique institutional expertise and training that must be utilized in developing any security plans. The Chemical Council feels strongly that including workers in the process will enhance security and protect against terrorist attacks at chemical facilities. Legislation must not be silent on this subject, and must include a requirement for worker and union involvement in the development of security plans, safe operations, and secure shutdowns.

Whistleblower protection. Fear is a fact of life in all too many workplaces, and jeopardizing one's job by blowing the whistle is a risky thing to do. Workers who bravely come forward to protect themselves, their coworkers and the communities around the plant should not fear for their jobs when they speak out. Whistleblower protection must be included to protect the free exchange of ideas, to improve and enhance security, and to ensure that measures that are proposed on paper are actually implemented.

Safer technologies are also a key to any comprehensive plan, in our belief. The evaluation of safer technology in high-risk facilities is especially important to chemical workers. We understand that no system of plant perimeter security or background checks will ever assure complete plant security or end the possibility of a terrorist attack. So while we must do everything we can to assure chemical plant security, considering safer technology by substituting less dangerous formulations, stronger or smaller containers, or engineered improvements will minimize the consequences of an accident or attack at a chemical plant.

The evaluation of safer technology is a vital step to significantly reduce the risk of catastrophic release of chemicals from intentional attacks or unintentional disasters. Chemical workers also believe any chemical facility security legislation should not supersede the National Labor Relations Act protections.

The International Chemical Workers Union Council believes this subcommittee must act now to ensure the safety of our chemical workers and of all Americans. We urge the subcommittee to act to avoid a terrorist attack by passing legislation that includes meaningful worker involvement, whistleblower protections, and the use of safer technology. We look forward to working with every member of this committee, the full committee, and the whole House of Representatives to address this important issue. Again, thank you for your time, and I would be pleased to answer any questions you have.

Ms. JACKSON LEE. Thank you very much for your testimony.  
[The statement of Mr. Setley follows:]

PREPARED STATEMENT OF GERRY SETLEY

Thank you Chairman Thompson, Ranking Member King, and Members of the Committee for holding this important hearing and for the opportunity to testify. I am here today representing members of the International Chemical Workers Union Council of the United Food and Commercial Workers Union. The ICWUC, which

was founded in 1944, represents more than 20,000 chemical workers in 32 states. In 1996, we merged with the UFCW and this mutually beneficial partnership continues to serve our members well.

We strongly support improving chemical plant security policy that makes solid and substantial improvements in the security of the nation's chemical plants. UFCW chemical workers work in many different manufacturing industries including petroleum and coal products, fertilizers, pharmaceuticals, pesticides and other agricultural chemicals in smelters and refineries as well as natural gas distribution and power plants. Every day, in these facilities, our members work with extremely hazardous substances and are crucially interested in their safe production both for their own health as well as for the neighboring communities. Despite our small size, we have been active in a variety of health and safety issues for over 30 years.

We have supported effective standards and laws to protect both our members and the public. We believe strongly that we bring to the table the meaningful involvement of the people who have significant experience and are the most endangered in a plant—the workers. Workers have the institutional expertise and resources on occupational health and safety and need to be formally involved in developing vulnerability assessments and security plans.

It is therefore an honor for me to appear before you to address this national security concern on behalf of our members who work in chemical plants. In 1974, I was hired as a Research and Development Technician at Kawecki-Berylco Industries in Pennsylvania, which is now Cabot Corporation. I worked as an analytical technician for Cabot Corporation for 31 years and served the local union in various elected positions. In 2005, I was hired by the union as a General Organizer/ Representative and was elected Vice President in October 2007. At Cabot Corporation, we handled large quantities of many of the substances that this Committee has focused on in your discussions on chemical security. I have also toured many facilities that face the same potential dangers. I have seen situations where these hazards are well addressed and many where they are not.

I think we can all agree that chemical plants in the United States have a great potential to be terrorists' targets. This potentially threatens the safety of workers in the plants as well as people living in the surrounding communities. Security experts and numerous federal agencies, including the Department of Homeland Security (DHS) and the U.S. Army Surgeon General, have repeatedly warned of the terrorist vulnerability of U.S. chemical facilities and a Federal Interagency Task Force continues to meet on the dangers of Toxic Industrial Chemicals.

An accident or terrorist attack on a facility using hazardous chemicals would endanger thousands of lives. Workers and the public would face short and long term health threats as a result of such a disaster. A chemical disaster would also severely pollute our air and water sources. A 2001 U.S. Army Surgeon General study estimated that 900,000 to 2.4 million people could be killed or injured in a terrorist attack on a U.S. chemical plant in a densely populated area. The Environmental Protection Agency (EPA) calculated that at least 100 chemical plants threaten a million or more people. Clearly, we are talking about the potential of an enormous disaster.

This Committee has taken some important steps to improve chemical security and I would like to thank you for your work on this issue. Comprehensive chemical security legislation is the next step in bringing better control to a complex problem. It is also a necessary step to fix the significant and large problems associated with current DHS rules. We have serious concerns with the current DHS regulations and believe they will do little to enhance the security of chemical facilities or the safety of workers and the public.

The interim chemical security program enacted over your objections last year is woefully inadequate. April's final Department of Homeland Security regulations failed to improve upon the underlying flaws of last year's rider and were a large step backwards from legislation that was being considered by Congress. Current regulations pre-empt stronger, more protective state regulations; do not clearly define chemical worker involvement or consultation in the facility process, including inspections or their safety committees; and contain no whistleblower protections. In addition, there is growing evidence that some employers are using DHS' regulations to illegally limit union staff's entry into plants and to harass or fire members. Finally, there is no requirement to evaluate how safer and more secure technologies might reduce the risk from an attack. My testimony today will concentrate on these last five issues—denial of staff entry into chemical facilities, workers' contractual rights to due process, involvement of workers in security plans, strong whistleblower protection, and use of safer technology.

#### ***Denial of Staff Entry to Facilities***

The Chemical Workers Council believes that companies can easily abuse the DHS regulations to deny our union staff legitimate and legal entry into chemical facilities. Currently, under the National Labor Relations Act (NLRA), union officials have access to union members at plants. Yet, under the new rule, companies can deny access based on a 'perceived' security threat. The Subcommittee on Emerging Threats, Cybersecurity, Science and Technology has heard from labor representatives who were denied entry to investigate a worker killed on the job. While we have been fortunate that none of our employers have ever denied the union access when investigating a fatality, we have not had any occupational fatalities in the last year since the regulation came out. We do believe, however, that it is imperative that we consider what might happen if we are denied access, and we must ensure that any new security regulations protect labor union's rights if some employers take unlawful action in the name of security.

Given the NLRA and employers' requirement to provide union access to members, we ask, "What would be the harm in clearly stating that right in the legislation?" After all, ICWUC has witnessed management denying federal health officials their rights at a facility where there may be a potential health hazard. Current U.S. law clearly states that these public health officials have these rights yet they are denied. Although this is not due to the current rules, the reality is that some companies view their facilities as theirs and theirs alone and will find any excuse they can to deny health officials or labor representatives their rights. We simply cannot give these unscrupulous companies opportunity to deny access from union representatives. We must keep the doors open for legally recognized union visits in order to not hinder any investigation of plant hazards or other problems.

#### ***Workers' Contractual Rights to Due Process***

We are also very concerned about the harassment and firing of workers under the guise of "homeland security." As a union representative, I have spent many hours fighting for our members' jobs and for due process. Recently one of our companies' claimed that due to the Patriot Act, they had the right to fire ten workers who had not fully explained past criminal convictions. The company argued that the Patriot Act required a clean record and therefore they were required to re-examine all workers' original application forms and ask for current arrests and convictions. While we do not advocate criminal activity or hiring workers with criminal records, this company went well beyond the regulations on felony convictions to fire workers with misdemeanors regardless of their job performances. The union grieved the firings and was pleased to win three members their jobs back. Yet, they should never have been fired or have to fight for their jobs. There is no reason for companies to claim "their hands are tied" under the Patriot Act or Homeland Security regulations as hardworking Americans lose their jobs.

Clearly, there are other ways the government can handle true threats to our country and our national security—rather than weed out workers who made a mistake early in their lives and have since led lawful lives. Again, we are not saying that a criminal record should not be considered in hiring, but using the Patriot Act or DHS regulation to fire workers who pose no national risk is outrageous. Good chemical worker jobs are not easy to come by and we do not believe companies, in the name of national security, should be allowed to arbitrarily fire hard working wage earners. Workers rights and job security should be an important part of any future chemical security legislation.

In cooperation with other labor unions, including the International Association of Machinists, the United Automobile Workers of America and United Steel Workers, ICWUC sent a letter to the Department of Homeland Security in August asking for clarification of the application of these recent regulations with long established labor rights. We asked DHS to issue a statement that their current rules do not conflict or take precedence over the rights of workers or their bargaining representatives under the National Labor Relations Act. Despite the letter being sent months ago, we have yet to receive a response. We believe it is imperative that future legislation includes a clear statement to this affect.

#### ***Involvement of Workers in Security Plans***

In the control of occupational hazards, it has been long recognized that workers have the direct and current knowledge and experience of plant operations. This knowledge is invaluable in solving problems in the plant's operations. Certainly, chemical workers have unique institutional expertise and resources on occupational health, safety, and training that must be formally involved in developing any new security plans. It is simply illogical that workers' expertise—the same expertise that keeps the plants running everyday—would not be utilized on this critical security responsibility at chemical plants. ICWUC feels strongly that including chemical

workers in this process will enhance security and protect against terrorist attacks at chemical facilities. That is why employee consultation is so crucial.

After all, who better to know facilities' weaknesses than the workers who work in the plant? If you want to know if security guards are doing their job, ask the workers who go through the gates every day. If you want to know the exact location where hazardous materials are stored and how to protect them, ask the worker who loaded the chemicals. If you want to know if training is really effective, ask our members who had the training. And, if you want to know if backup systems will work in an emergency, just check with the chemical workers.

Chemical workers are responsible for all the raw materials coming into the plant as well as the final product that leave the plant. We are responsible for hooking up the rail cars to off-load the chemicals, transfer them in the plants and then work near the chemicals in the plants. These responsibilities make chemical workers the first line of defense. That is why any legislation must establish employee involvement in the drafting of each site's chemical security plan. Legislation must require companies to consult with employees on the plan and ensure that employees can join facility inspections. It should also allow appropriate chemical workers to be consulted in the course of such inspections and audits.

Workers and their unions can be vital participants in plant safety and security. Leaving workers and their representatives out of these discussions will make security plans less effective and leave our country more vulnerable. Legislation must not be silent on this subject and must include a requirement for worker and union involvement in all facets of the operations, including the security plans, top screen process, safe operations and emergency shutdowns.

#### ***Strong Whistleblower Protection***

Hand in hand with the involvement of site workers is the defense of their jobs if they face disciplinary procedures for reporting any significant security weaknesses at their facility. Fear is a fact of life at all too many workplaces and jeopardizing one's job by blowing the whistle is a risky thing to do. As mentioned earlier, the defense of members' jobs is regrettably a common activity unions are forced by necessity to do. Workers can find their jobs on the line as they try to protect their facility from potential attacks by reporting security problems.

Workers who bravely come forward to protect themselves, their co-workers, and communities around the plant, should not fear losing their jobs when they speak out. Whistleblower protection must be included to protect the free exchange of ideas, to improve and enhance security and to ensure that measures that are proposed on paper are actually implemented. We urge this Committee to include strong whistleblower protection in any legislation in order to protect our first line of defense—the workers. It is the only way any new law will be truly effective.

#### ***Use of Safer Technology***

Requiring the use of safer technology in high risk facilities, as in H.R. 5695, is especially important to chemical workers for a number of critical reasons. We understand that no system of plant perimeter security and background checks will ever assure complete plant security or end the possibility of a terrorist attack. To assume that security checks, cyclone fences and registering toxic chemicals will deter attacks, 100% of the time is unrealistic.

While we must do everything we can to build chemical plant security, considering safer technology—be it substituting less dangerous formulations, stronger or smaller containers, or various engineering steps—can minimize the consequences of an accident or attack at a chemical plant. The use of safer technology is a vital step to significantly reduce the risk of a catastrophic release of chemicals from intentional attacks or unintentional disasters.

The temporary chemical security statute, the "Department of Homeland Security Appropriations Act of 2007" actually prohibits the DHS from requiring any "particular security measure" such as IST. As a result, the DHS current rules do not require any technological evaluation. We understand that safer processes may not be feasible in all circumstances, either technologically or economically, but we believe that safer technology should always be considered in any security plan for all high risk facilities regardless. We know that safer solvents or formulations can be substituted for more dangerous ones. The quantities of these hazardous chemicals can be reduced, stronger containers may be used, vulnerable sections can be reinforced and maintenance schedules can be reviewed. It just does not make sense for a chemical security rule not to include an inherently safer technology component.

We believe that all high risk facilities should be required to include an analysis in their vulnerability assessment including substitution, engineering controls and administrative measures. The Department should have the power to implement those measures that it deems to be feasible and cost effective as required in H.R.

5695. These measures are critical to minimize the release of toxic substances and mitigate the catastrophic consequences.

We must not forget that we are not only addressing the prospect of a terrorist attack when discussing the use of safer technology. Every week chemicals are released in a wide range of accidental situations and natural disasters. As you address chemical security, Congress must take this opportunity to mandate steps that will simultaneously minimize the national threat of not only attacks, but releases which are not hypothetical but a reality that chemical workers and the public living around plants experience frequently. President George W. Bush stated in his 2003 Homeland Security Presidential Directive # 8 on National Preparedness, that we must "strengthen the preparedness of the United States to prevent and respond to threatened or actual domestic terrorist attacks, major disasters, and other emergencies by requiring a national domestic all-hazards preparedness goal." Your work can take a large step in fulfilling all of this Directive's elements.

Although I understand that this Committee's mandate is solely the protection of our facilities from terrorist attack, the measures that will minimize a hazardous release from an intentional attack will also minimize the release that is a direct result of a hurricane, earthquake, tornado or accident. The dangers we face in a chemical release come from a variety of directions, but the use of safer technology will minimize all these risks.

The International Chemical Workers Union Council believes this Committee must act now to ensure the safety of our chemical workers and all Americans. DHS's Regulations are flawed and it is imperative that Congress moves forward on true chemical security reform. We strongly support passage of legislation (H.R. 5695) that is similar to legislation that passed out of this Committee last year. We urge the Committee to act now, preemptively, to protect America from a terrorist attack by passing legislation that includes provisions to protect the rights of workers, site investigations, whistleblower protections, and the use of safer technology.

The ICWUC looks forward to working with every Member of this Committee and the House of Representatives to address this crucial problem. Again, I thank you for your time and would be pleased to answer any questions that you may have.

Ms. JACKSON LEE. I now recognize Mr. Sondermeyer to summarize his statement for 5 minutes.

**STATEMENT OF GARY SONDERMEYER, DIRECTOR OF OPERATIONS, NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION**

Mr. SONDERMEYER. Good morning, Chairwoman Jackson Lee, Chairman Thompson. Congressman Pascrell, great to see you again, sir. I really appreciate the opportunity to appear before you today.

I would like to briefly summarize New Jersey's experience over the past 6 years in implementing our homeland security program, and then specifically focus on our experiences with inherently safer technology evaluation. In very brief summary, in New Jersey, our homeland security statute was passed in October of 2001, 1 month after 9/11. We had chemical facility standards adopted in September of 2003, and then more stringent chemical standards put in place in November of 2005. At this point we do, in New Jersey, have 4 years of on-the-ground experience in implementing our homeland security program, which covers, in the context of chemical facilities, about 450 sites. All of these facilities at this point have addressed site-specific vulnerability assessment, target-hardening needs assessment, information and cybersecurity protocol development, badging and credentialing, worker training, emergency planning and response, and preparedness exercising. In addition, for a smaller universe of sites, which are referred to in New Jersey as Toxic Catastrophe Prevention Act sites, we had an additional requirement to perform an inherently safer technology evaluation.

More specifically, on the IST, each of the facilities was required to review reducing the amount of extraordinarily hazardous substances; substituting less hazardous materials; using extraordinarily hazardous substances in the least hazardous process, form or condition; and designing equipment and processes to minimize the potential for equipment or human error.

I am very happy to report that we are extremely pleased with the results of our inspections and our assessment. With respect to IST, all of the 45 facilities required to conduct the analysis did so. Each has documented that they have made changes to improve inherent safety based on the IST analysis or other process hazard consequence analysis they did previously. Thirty-two percent gave us a specific schedule for implementing additional inherent safety programs at their plants, and an additional 19 made commitments to make changes, but have yet to give us a schedule.

So, taking a step back, 50 percent of the universe of facilities required to do the IST analysis made commitments to go beyond where they are today to improve inherent safety.

It is very clear to us from our experiences that IST analysis is not overly burdensome on the chemical industry, and we feel that it is good business practice from an economic, worker safety, and a regulatory compliance standpoint.

If I may go a little bit beyond IST, the draft Chemical Facility Antiterrorism Act of 2008, New Jersey does continue to have serious concern with the issue of preemption, which Governor Corzine has gone on record to comment on previously. Section 2107 clearly allows States to retain the authority to adopt and enforce any regulation, requirement or standard of performance that relates to environmental protection, health, and safety.

We would respectfully urge Congress to equally be clear that States retain the unqualified authority to adopt enhanced security requirements based upon risk and consequence factors within their particular State. This could be accomplished by simply deleting the phrase at the end of section 2107A, in quotes, "unless the State regulation, requirement, or standard of performance would conflict with the purposes of this title."

If I may, just one final policy point I would like to respectfully make. We do strongly recommend consideration of permissive enabling language to allow delegating oversight responsibility to State governments by DHS. From our experiences in the environmental regulatory world, this has been standard practice for 20 or 30 years where the United States Environmental Protection Agency will be administering a Federal statute, Clean Air Act, Clean Water Act, RCRA, whatever that would be, but they have the authority to delegate to the States the day-to-day operational authority to implement the program.

We make this recommendation respectfully because at this point we are 6 years into implementing a program, and we think it would work very well if DHS, upon review and finding equivalency in our program and finding that it is suitable, to allow it to mesh together so that we can perform efficiently in government and dovetail and complement the Federal initiative without in any way jeopardizing what New Jersey has already put in place.

Thank you very, very much for this great opportunity, and I would be happy to answer any questions at the appropriate time. Thank you.

Ms. JACKSON LEE. Thank you very much for your testimony.  
[The statement of Mr. Sondermeyer follows:]

PREPARED STATEMENT OF GARY SONDERMEYER

Good morning Chairman Thompson, ranking member King and Members of the House Committee on Homeland Security. My name is Gary Sondermeyer and I serve as the Director of Operations for the New Jersey Department of Environmental Protection (DEP). With me is Paul Baldauf, Assistant Director of our Radiation Protection and Release Prevention Element. Paul and I have lead responsibility for implementation of New Jersey's homeland security program for chemical facilities under the direction of DEP Commissioner Lisa P. Jackson and Director Richard L. Canas of our Office of Homeland Security and Preparedness (OHSP). I would first like to sincerely thank the Committee for the opportunity to appear before you to discuss the Chemical Facility Anti-Terrorism Act of 2008 and specifically the ongoing inherently safer technology and chemical sector security initiatives within the State of New Jersey.

Chemical plant security is a subject that Governor Jon S. Corzine and every New Jersey resident regard with urgent concern. We view our Chemical Standards, including requirements for inherently safer technology evaluation, as vital to providing New Jersey with an accurate reflection of our current state of security preparedness, as I will further outline in my testimony.

In response to the risks posed by a possible terrorist attack on New Jersey's chemical facilities, New Jersey has taken significant steps to strengthen the security precautions at these plants. At this point we have four years of on the ground experience in implementing a homeland security program for all chemical facilities operating in our State. Best Security Practices were adopted for the Chemical Sector working cooperatively with industry leaders on September 18, 2003. Since November 2005, New Jersey went further and adopted enforceable plant security practices for its chemical facilities as well as facility security assessments to evaluate potential security threats and vulnerabilities. The facilities that pose the most significant risks are subject to the State's Toxic Catastrophe Prevention Act (TCPA) program, which incorporates EPA's Risk Management Program but is stricter and broader in scope than the 112 requirements. New Jersey's enforceable plant security practices are vital to providing the state with an accurate picture of the current state of preparedness within the Chemical Sector and provide a foundation to move forward with the appropriate actions to safeguard our citizens.

I shall begin with a brief overview of New Jersey's domestic security preparedness activities, and then turn to the specific reasons why the evaluation of inherently safer technologies in the chemical industry is of vital importance.

**Overview of New Jersey's Domestic Security Preparedness Effort**

New Jersey's unique vulnerabilities have made us a leader among states in initiating and implementing measures to counter potential terrorist operatives, to reduce the risk of attack at critical infrastructure facilities, and to reduce the potential impacts to public health and safety if any such attacks should occur in the future. New Jersey undertakes these efforts through our Domestic Security Preparedness Task Force (Task Force), chaired by Director Richard L. Canas of our OHSP.

As Director of Operations of the Department of Environmental Protection (DEP), I serve as the DEP Commissioner's Task Force representative and the liaison to the pharmaceutical and biotechnology, chemical, nuclear, petroleum, wastewater, and dam safety sectors of our critical infrastructure. DEP shares responsibility for the water sector as well in cooperation with the New Jersey Board of Public Utilities. Through the Task Force and the OHSP, I also participate in New Jersey's preparedness and response effort for other sectors.

The Task Force has undertaken a comprehensive program to reduce terror risk, to ensure preparedness at critical infrastructure facilities, and to test the efficacy of both public agencies and the private sector in responding to acts of terrorism. Every Task Force agency and every sector of our critical infrastructure has developed, through a public-private collaboration, a series of "Best Practices" for domestic security. Each set of Best Practices was reviewed and approved by the Task Force and the Governor. Every Task Force agency and every sector of our critical infrastructure has also participated in appropriate exercises to test the strengths and limits of terror detection and response capability.

New Jersey's current challenge is to ensure full implementation of security "Best Practices" across all sectors, consistent with a policy of "Zero Tolerance" for non-compliance, and to identify those additional regulatory and other measures that are appropriate to contend with emerging threats and challenges. Throughout this process, DEP is working with OHSP, our State Police, the Attorney General's Office and private companies within our sectors to reduce or eliminate specific threats that we have identified on a case-by-case basis.

#### New Jersey's Toxic Catastrophe Prevention Act (TCPA) Program

New Jersey has managed an oversight program to increase safety at chemical plants and other facilities that store or utilize extraordinarily hazardous materials for over 20 years. The Toxic Catastrophe Prevention Act (TCPA) program was created in 1986 as a result of a chemical accident in Bhopal, India that killed thousands of nearby residents. Several chemical facilities in New Jersey had experienced minor accidents prior to this time, clearly indicating that a similar risk existed in New Jersey. The TCPA requires facilities that handle extraordinarily hazardous substances above certain inventory thresholds to prepare and implement risk management plans. The plans must include detailed procedures for safety reviews of design and operation, operating procedures, maintenance procedures, training activities, emergency response, process hazard analysis with risk assessment and self-auditing procedures. An extraordinarily hazardous substance is defined as a substance, which if released into the environment would result in a significant likelihood of causing death or permanent disability.

In 1998 the program adopted USEPA's 112(r) Accidental Release Prevention Program (40 CFR 68) by reference. This program included additional toxic substances and highly flammable substances. It also required each facility to complete a worst case scenario analysis. The worst case scenario models the resultant toxic cloud to a predetermined concentration. The USEPA end point concentrations are approximately one-tenth of the concentration that would cause death to persons exposed.

On August 4, 2003, the re adoption of the TCPA rules added reactive hazards substances to the list of extraordinarily hazardous substances covered under the program. Industrial accidents in New Jersey resulting from reactive hazards demonstrated the need to include reactives under the TCPA program. Owners and operators having listed reactive hazard substances in quantities that meet or exceed thresholds are required to develop risk management plans to reduce the risk associated with these unstable substances. In addition, and the focus of this testimony, this re adoption included a requirement that owners and operators evaluate inherently safer technology for newly designed and constructed covered processes.

In April, 2007 the DEP proposed amendments to the TCPA rule to require all companies subject to the program to evaluate the potential of incorporating inherently safer technology at their facility. This proposal also covers many sectors such as food, water/wastewater, and energy which are outside the chemical industry but store threshold amounts of extraordinarily hazardous substances. The DEP is currently evaluating comments to the April proposal and expects to issue a final rule requiring the evaluation of inherently safer technology at all TCPA sites in early 2008.

#### Chemical Sector Best Practices Standards

New Jersey recognizes that facilities in the Chemical Sector are diverse in size, complexity, and potential for off site impacts to the community and therefore a blanket approach to addressing security concerns may not be practical. The Best Practices represent a risk-based approach to security consisting of a site-specific vulnerability assessment that evaluates threats to a facility's operation, its particular vulnerabilities and likely consequences of a chemical release, and the physical and procedural security measures already in place. The Chemical Sector Best Practices were predominantly derived from the Security Code of the American Chemistry Council's Responsible Care program.

Subsequently the Task Force determined that additional measures were necessary to ensure that appropriate prevention and response measures are implemented by the chemical sector to address emerging domestic security threats. As a result, Chemical Sector Best Practices Standards (Standards) were put in place on November 21, 2005.

The Standards require chemical sector facilities to, among other things:

- comply with the Chemical Sector Security Best Practices;
- conduct a terrorism-based security vulnerability assessment; and
- develop a prevention, preparedness, and response plan to minimize the risk of a terrorist attack.

In addition, chemical sector facilities subject to TCPA are required to conduct a review of the practicability and potential for adopting inherently safer technology.



### **Inherently Safer Technology**

Facilities required to conduct an inherently safer technology review must evaluate:

- reducing the amount of extraordinarily hazardous substances materials that potentially may be released;
- substituting less hazardous materials;
- using extraordinarily hazardous substances in the least hazardous process conditions or form;
- and, designing equipment and processes to minimize the potential for equipment failure and human error.

I must emphasize that the inherently safer technology requirement under the Standards represents a practicability test; it is not mandatory that a covered facility implement IST, only that they evaluate. The results of the evaluations are held at the facility site, and are made available to DEP inspectors during an on-site visit.

Compliance with the Standards was required within 120 days of the effective date, March 21, 2006. We have been extremely pleased with the compliance levels we have seen to our standards. Compliance of the New Jersey requirements exceeded 98 percent. The Standards applied to facilities that are subject to either the Toxic Catastrophe Prevention Act (TCPA) or the Discharge Prevention, Containment and Countermeasure (DPCC) program, and report under certain Standard Industrial Classification (SIC) or North American Industrial Classification System (NAICS) codes. Of the total 157 facilities covered under the Standards, 45 are regulated TCPA facilities required to perform IST analysis. In all cases, facilities required under the Standards to conduct IST review have done so. All of these facilities have documented that they have previously implemented IST or similar risk reduction measures. 32 percent of the facilities have provided a schedule to implement additional IST or other risk reduction measures, and 19 percent have identified additional IST or risk reduction measures but have not yet scheduled their completion. The remaining 49 percent of the facilities had no additional recommendations. It should be noted that these are facilities that have been regulated under the TCPA program for many years resulting in the past implementation of IST and risk reduction measures. 80 percent of the facilities concluded that at least some of the IST or risk reduction measures identified during their evaluation were infeasible for their operations. I believe that our compliance results clearly indicate that the evaluation of inherently safer technology is not overly burdensome on industry and is an effective tool for critically evaluating the risk reduction opportunities available at a specific facility. It is clear to us that IST analysis is simply good business practice for any facility storing or utilizing extraordinarily hazardous materials from an economic, worker safety and regulatory compliance standpoint.

But these measures alone are merely a starting point. Our knowledge of both the threat and the appropriate response is evolving daily. As we implement the "Best Practices" and work with facilities on site-by-site review of security vulnerabilities, we also have begun a public process to review what additional regulatory measures may be appropriate to harden potential targets, to reduce risk to surrounding communities, and to involve workers and communities in the process.

### **Chemical Facility Anti-Terrorism Act of 2008**

New Jersey has expressed serious concerns on a number of occasions about any language in federal regulations that has the potential to preempt existing state chemical security initiatives or limit future state actions to address unique vulnerabilities. Section 2107. Federal Preemption, clearly allows States to retain the authority to adopt and enforce any regulation, requirement, or standard of performance relating to environmental protection, health, or safety. We urge Congress to be equally clear that States retain the unqualified authority to adopt enhanced security requirements based upon risk and consequence factors within that State. This could be accomplished by deleting the phrase "unless the State regulation, requirement, or standard of performance would conflict with the purposes of this title" from Section 2107 (a).

The proposed Act would capture chemical facilities currently exempt from the existing Chemical Facility Anti-Terrorism Standards, 6 CFR Part 27, expand the universe of regulated sites, and require assessments of methods to reduce the consequences of a terrorist attack at high risk sites. Overall, the Act addresses many of the comments previously submitted by New Jersey on 6 CFR Part 27.

We strongly recommend consideration of permissive enabling language toward delegating oversight responsibility to State governments, along with appropriate levels of Federal funding to support homeland security efforts. This would include a petition process to DHS by interested State governments and granting of delegated authority on a discretionary basis. In the case of New Jersey, the actions taken in

chemical security preparedness since September 11 have left the State well qualified to undertake such delegated responsibilities. State security (Office of Homeland Security and Preparedness and New Jersey State Police) and the chemical process safety experts (Department of Environmental Protection) are intimately familiar with the chemical facilities in question and have conducted multiple security and safety inspection at each site over the last five years. Leveraging and augmenting State resources is vital to ensuring that our chemical facilities are adequately protected from acts of terrorism.

#### **Conclusion**

Although New Jersey took critical steps to address chemical facility security well over four years ago, we recognize that most states have not taken formal regulatory action and therefore, federal regulations to create minimum national chemical facility security standards are essential. At the same time, it is also important not to penalize those pro-active states and allow the states to retain the authority to adopt enhanced security requirements if states determine they are necessary. No two states are alike, and the risks posed by every facility present unique challenges based on location, population size, and other factors. Security standards that are appropriate to safeguard a facility in a rural area, for example, may not be sufficient for a facility located in one of the most densely populated and heavily traveled sections of the country. Simply put, one size does not fit all.

New Jersey's critical infrastructure concentration and high population density may have no comparison in the United States; our state needs to retain the ability to go beyond any Federal security baseline standard to ensure that our preparedness is measured in line with our potential vulnerabilities. We need federal standards, but they must be a floor ensuring a base level of protection, not a ceiling that constrains our ability to protect our citizens, as well as our neighbors. We must emphasize our vehement objection to any preemption language that would limit New Jersey's ability to maintain our current standards or if necessary impose additional requirements in the future to protect our citizens. Governor Corzine has gone on record previously to express his concern for the safety of New Jersey's residents. In serving Governor Corzine, it is our duty to protect the citizens of our State and it is imperative that federal legislation enhances, rather than undermines New Jersey's ability to protect our chemical sector critical infrastructure.

I once again would like to thank you Chairman Thompson, ranking member King and Members of the House Committee on Homeland Security. On behalf of DEP Commissioner Lisa P. Jackson and Director of Homeland Security and Preparedness Richard L. Canas, I sincerely want to thank you for the opportunity to share some of New Jersey's experience in implementing our chemical security and inherent safety program since the passage of the New Jersey Domestic Security Preparedness Act in October, 2001. We would be happy to entertain any questions you may have and are available at any time should additional information be valuable to the critical work of your Committee.

Ms. JACKSON LEE. And I now recognize Dr. Mannan to summarize his statement for 5 minutes.

#### **STATEMENT OF M. SAM MANNAN, PE, CSP, PROFESSOR AND DIRECTOR, MARY KAY O'CONNOR PROCESS SAFETY CENTER, TEXAS A&M UNIVERSITY SYSTEM**

Mr. MANNAN. Chairwoman Jackson Lee, Chairman Thompson, and members of the subcommittee, my name is Sam Mannan, and I am director of the Mary Kay O'Connor Process Safety Center and professor of chemical engineering at Texas A&M University. The center seeks to develop safer processes, equipment procedures, and management strategies that would minimize losses in the process industry.

I also want to take this opportunity to thank Chairwoman Jackson Lee for her kind comments about Texas A&M University and the role we play in educating Texans and the Nation.

First I want to thank this committee and the U.S. Congress for addressing chemical facility antiterrorism, and giving the Department of Homeland Security the necessary authority to regulate security in the chemical industry. I applaud the subcommittee for

holding today's hearing on chemical security regulations and their impact on the public and private sector. This is a subject that is of extreme importance to our Nation, and I am pleased to be able to share my experience and opinions, as well as continue to serve as a resource for the Federal Government on this important issue.

The U.S. Congress must give the Department of Homeland Security permanent and continuing authority to regulate chemical security in the United States. While many facilities are voluntarily taking appropriate measures, I am concerned that many are not. A regulation that creates a minimum and level playing field is very important. The inclusion of water-processing facilities in the act is very important and necessary. As the 9/11 events have shown, terrorists are more likely to use easily available materials to strike at us.

Although section 2110 of the act does not refer to the term "inherent safety" or the term "inherently safer technology," compliance with section 2110 deals exclusively with the implementation of inherently safer technologies and approaches. While there is no question that options with regard to inherent safety should be considered, we must understand and account for the challenges and difficulties in implementing inherently safer technologies and options.

In this context, the Mary Kay O'Connor Process Safety Center published a white paper outlining challenges faced in evaluating and implementing inherently safer designs. I have provided the white paper as an attachment to my testimony.

We believe that a coordinated, long-term effort involving government, industry, and academia is essential to develop and implement inherently safer technologies. A similar collaborative approach has shown success in related areas, such as green chemistry, energy conservation, and sustainable development. I believe that science should precede regulations. I do not believe that the science currently exists to quantify inherent safety.

This act and any actions taken as a result of this act should not create unintended and unwanted consequences. Instead of prescriptive requirements for inherently safer technology and approaches, facilities should be allowed the flexibility of achieving a manageable level of risk using a combination of safety and security options. The current language in the bill is far too prescriptive, and focused much too heavily on only one method of reducing the consequences of terrorist attack. All methods of reducing vulnerability should be considered on a case-by-case basis, and the implementation of any one particular method should not take or appear to take precedence over the others.

Whether national or man-made, disasters have continued to happen. However, as we have seen with the 9/11 events, Hurricanes Katrina and Rita, and the chemical incidents such as the Bhopal disaster, planning and response is crucial in being able to reduce the consequences and recover from the disaster more rapidly. In this regard, it is essential to conduct vulnerability analysis, response and recovery planning at the plant-specific level, the area—and region-specific level, and national level. The long-term goal is to develop technology and know-how with regard to resilient engineered systems and terrorism-resistant plants. In this respect, re-

search and technological advances are needed in many areas, such as biochemical detection, sensors, and self-healing materials. Protection of the chemical infrastructure, like many of the challenges, requires the commitment and effort of all stakeholders.

In closing, I again applaud the U.S. Congress for providing leadership in this important area of chemical security. It is clear that many companies are taking reasonable and responsible steps in chemical security; however, all facilities that handle, store, or transport hazardous materials should be required to take such steps. That is why government must develop and enforce good science-based regulation that sets the minimum and necessary standards for chemical security. These regulations should be based upon good science, aimed at making the industry secure, avoid overregulation, and create a level playing field. Only through a comprehensive, uniform, and risk-based approach can we protect the people and communities of our Nation, as well as protect our Nation's critical chemical infrastructure. I am encouraged by the leadership of Congress and the continued effort to seek expertise and opinion from all stakeholders.

Thank you for inviting me to present my opinions, and I would be happy to answer any questions.

Ms. JACKSON LEE. Thank you.

[The statement of Mr. Mannan follows:]

PREPARED STATEMENT OF M. SAM MANNAN, PhD, PE, CSP

#### Introduction

Chairwoman Jackson Lee, ranking member Lungren and members of the Subcommittee, my name is M. Sam Mannan and I hold a BS, MS, and PhD in chemical engineering. I am a registered professional engineer in the states of Louisiana and Texas and I am a certified safety professional. I am a Fellow of the American Institute of Chemical Engineers and a member of the American Society of Safety Engineers, the International Institute of Ammonia Refrigeration, and the National Fire Protection Association. I am Director of the Mary Kay O'Connor Process Safety Center, holder of the T. Michael O'Connor Chair I in Chemical Engineering, and Professor of Chemical Engineering at Texas A&M University. The Center seeks to develop safer processes, equipment, procedures, and management strategies that will minimize losses in the process industry. My area of expertise within the chemical engineering discipline is process safety. I teach process safety engineering both at the undergraduate and graduate level. I also teach continuing education courses on process safety and other specialty process safety courses in the United States and overseas. My research and practice is primarily in the area of process safety and related subjects. The opinions I present today both in my written statement and oral testimony represent my personal position on these issues. These opinions are based on my education, experience, and training.

First, I want to thank this Committee and the US Congress for addressing Chemical Facility Anti-Terrorism and giving the Department of Homeland Security the necessary authority to regulate security in the chemical industry. I applaud the Subcommittee for holding today's hearing on chemical security regulations and their impact on the public and private sector. This is a subject that is of extreme importance to our nation, and I am pleased to be able to share my experience and opinion as well as continue to serve as a resource to the federal government on this important issue.

#### Background

Hazardous materials can be grouped into three tiers of vulnerability categories. The first category includes the stationary facilities that are members of major industry associations. Even though these facilities have large inventories of hazardous materials and are quite visible, they are the best prepared against attack because of voluntary programs that have been developed and implemented. The second tier of vulnerability category includes smaller and medium-sized facilities that manufac-

ture or use chemicals but may or may not be members of any industry associations. These facilities are less visible, but are also, in general, less prepared and more widely distributed. Finally, the third category of vulnerability includes all hazardous materials that are in transit (by whatever means) throughout the United States. In addition to being present almost anywhere in the United States at any given time, this category also represents high visibility and the highest vulnerability. It could also be argued that this category is the least prepared to deal with intentionally caused catastrophic scenarios.

Some pertinent subjects of interest with regard to attacks on the chemical infrastructure are: active protection measures; passive protection measures; vulnerability analyses, response and recovery plans; and long-term needs and priorities. Active protection measures include increased security, limited access to facilities, and background checks. Examples of passive protection measures include development of exclusion areas and process and engineering measures.

Vulnerability analysis, response, and recovery plans are needed not only to help devise the prevention and protection plans, but also to develop the response and recovery plans. In this respect, it must be mentioned that most of the large, multinational facilities that are members of major industry associations have voluntarily conducted some form of vulnerability analysis. What is not clear is whether these analyses have been used to integrate planning for response and recovery efforts in coordination with local agencies and the public. One very stark lesson from the 9/11 events is that the "first" first-responders are usually members of the public. Additionally, area—and region-specific vulnerability analysis and assessment of infrastructure availability for response and recovery have not been conducted. Finally, a national vulnerability analysis and assessment of infrastructure availability for response and recovery is a critical need.

Whether natural or man-made, disasters will continue to happen. However, as we have seen with the 9/11 events, hurricanes Katrina and Rita, and chemical incidents such as the Bhopal disaster, planning and response is crucial in being able to reduce the consequences and to recover from the disaster more rapidly. In this regard, it is essential to conduct vulnerability analysis, response, and recovery planning at the following three levels:

- **Plant-specific vulnerability analysis** and assessment of infrastructure availability and preparedness for response and recovery is needed. As mentioned earlier, most of the large multi-national facilities that belong to prominent industry associations have voluntarily conducted some form of vulnerability analysis. What is not clear is whether these analyses have been used to integrate planning for response and recovery efforts in coordination with local agencies and the public.
- **Area—and region-specific vulnerability analysis** and assessment of infrastructure availability for response and recovery should be conducted. Each area- and region-specific analysis should include an assessment and planning for evacuation and shelters.
- **National vulnerability analysis** and assessment of infrastructure availability for response and recovery is critically needed. In doing this national analysis, impact on international issues and criteria should also be considered.

#### Long-term Goals and Priorities

Long-term goals and priorities to prevent and/or reduce the consequences of intentional catastrophic scenarios require clear thinking and hard work. While no one would argue that making hazardous materials less attractive as a target should be a goal that all stakeholders should accept, differences arise in how we realize that goal.

Inherent safety options can and should be considered; however, we must be aware of the differences in implementing inherent safety options for existing plants, as compared to new plants. Also, in some cases, a seemingly clear choice with regard to inherent safety may create some undesired and unintended consequences. Issues such as risk migration, reduction of overall risk, and practical risk reduction should be evaluated whenever an inherent safety option is considered.

Another long-term goal is to develop technology and know-how with regard to resilient engineered systems and terrorism-resistant plants. In this respect, research and technological advances are needed in many areas, such as bio-chemical detection, sensors, and self-healing materials. Protection of the chemical infrastructure, like many other challenges, requires the commitment and effort of all stakeholders.

I feel very strongly that science should precede regulations and standards. With regard to science and technology investments, many initiatives have been proposed

and are being implemented. However, some important additional initiatives that should also be considered are given below:

1. The fact is that the chemical infrastructure and all components including the individual sites, supply, and delivery systems were never built with terrorism in mind. Research must be conducted to determine how we might have designed and built the chemical plants and the infrastructure had we considered these threats. The ultimate goal for such research would be two-pronged. First, determine options for what can be feasibly implemented for existing plants. Second, if necessary, prescribe new standards and procedures for new plants.
2. Research investments should be made on advanced transportation risk assessment methods. Before transportation of any hazardous materials, a transportation risk assessment should be conducted using available information and methodology, as well as time-specific data that may be available.
3. Additional science and technology investments that should be considered are:
  - Development of incident databases and lessons learned. This knowledge base could then be used to improve planning, response capability, and infrastructure changes. Recent experience in this regard is the improvement in planning and response for the hurricane Rita from lessons learned from the hurricane Katrina.
  - Research should be conducted on decision-making, particularly under stress, and how management systems can be improved.
  - Research on inherent safety options and technologies. This type of research should be combined with systems life cycle analysis and review of practical risk reduction. In other words, implementation of inherent safety options should not be allowed to create other unintended consequences, risk migration, or risk accumulation. While transportation is outside the scope of the **Chemical Security Act of 2008**, it must be included in vulnerability assessments to avoid transfer of facility risks to transportation risks.
  - Basic and fundamental research is also needed on design of resilient engineered systems. For example, if the collapse of the World Trade Center towers could have been extended by any amount of time, additional lives could likely have been saved.
  - Basic and fundamental research is also needed on resilient and fail-safe control systems.
  - Long-term research is also needed in the area of self-healing materials and biomimetics.

#### **Specific Comments on the Chemical Security Act of 2008**

With regard to the **Chemical Security Act of 2008**, I have the following specific comments:

1. The US Congress must give the Department of Homeland Security permanent and continuing authority to regulate chemical security in the United States. While many facilities are voluntarily taking appropriate measures, I am concerned that many are not. A regulation that creates a minimum and level playing field is very important.
2. The inclusion of water processing facilities in the **Act** is important and necessary. As the 9/11 events have shown, terrorists are more likely to use easily available materials to strike at us.
3. The use of a risk-based approach and risk-tiering in evaluating the vulnerability of any facility is a good approach.
4. Although Section 2110 of the **Chemical Security Act of 2008** does not refer to the term "inherent safety" or "inherently safer technology," compliance with Section 2110 deals exclusively with the implementation of inherently safer technologies and approaches. I have several comments with regard to the proposed language in the **Act**.
  - a. It is not clear how the Secretary would determine what is an inherently safer technology or approach. More clarity is needed on this issue.
  - b. There are many methods available to the industry for potentially reducing risk and vulnerability. Vulnerability assessments should consider the feasibility of all methods for improving security to determine the method to achieve the optimum balance of cost effectiveness and vulnerability reduction.
  - c. As I stated earlier, science should precede regulations. I do not believe that the science currently exists to quantify inherent safety. This **Act** or any actions taken as a result of the **Act** should not create unintended and unwanted consequences. An example in this context is the substitution of hydrogen fluoride (HF) with sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) for refinery alkylation

processes. While it is true that HF is more toxic than H<sub>2</sub>SO<sub>4</sub>, the amount of H<sub>2</sub>SO<sub>4</sub> needed to do the same amount of processing is 25 times or more than HF. Thus changing from HF to H<sub>2</sub>SO<sub>4</sub> would require large storage facilities and more transportation. In fact, changing from HF to H<sub>2</sub>SO<sub>4</sub> may provide more opportunities for a terrorist attack. On the other hand, a well-managed plant with a smaller amount of HF and appropriate safety protective systems may represent a lower overall risk.

d. While there is no question that options with regard to inherent safety should be considered, we must understand and account for the challenges and difficulties in implementing inherently safer technology and options. In this context, the Mary Kay O'Connor Process Safety Center published a White Paper outlining challenges faced in evaluating and implementing inherently safer designs (the White Paper is provided as an attachment). The first challenge is simply to measure the degree of inherent safety in a way that allows comparisons of alternative designs, which may or may not increase safety or may simply redistribute the risk. The second is that because inherent safety is an intrinsic feature of the design, it is best implemented early in the design of a process plant, while the US has a huge base of installed process plants and little new construction. Finally, in developing inherently safer technologies, there are significant technical challenges that require research and development efforts. These challenges make regulation of inherent safety very difficult. We believe that a coordinated long-term effort involving government, industry, and academia is essential to develop and implement inherently safer technologies. A similar collaborative approach has shown success in related areas such as green chemistry, energy conservation, and sustainable development.

e. Instead of prescriptive requirements for inherently safer technology and approaches, facilities should be allowed the flexibility of achieving a manageable level of risk using a combination of safety and security options. For example, nuclear facilities have very high hazard materials, but they protect their site and the public with a combination of multiple layers of security and safety protective features. The current language in the bill is far too prescriptive and focused much too heavily on only one method of reducing the consequences of a terrorist attack. All methods of reducing vulnerability should be considered on a case-by-case basis, and the implementation of any one particular method should not take or appear to take precedence over the others.

f. Over the past 10–15 years, and more so after 9/11, consideration of Inherently Safer Technology (IST) options and approaches has effectively become part of industry standards, with the experts and persons with know-how assessing and implementing inherently safer options, without prescriptive regulations that carry risks (both as trumping other tools or potentially shifting risk). A better approach for applying IST in security is by allowing the companies to assess IST as part of their overall safety, security and environmental operations and therefore, cannot be prescriptive. The current DHS regulations allow for IST—but do not require it under the performance-based standards and the no “one-measure” language proposed in the **Chemical Security Act of 2008**. Any new law should adopt the current comprehensive regulatory scheme and build upon the great effort and momentum already established.

5. The section of the **Act** dealing with the formation of the **Panel on Methods to Reduce the Consequences of a Terrorist Attack** is in principle a good idea. However, an issue that needs to be given some thought is trade secrets. Even though the **Act** contains requirements with regard to protection of information and confidentiality of documents, it stands to reason that companies may feel restricted in providing certain trade secret information when they know that such information may be viewed by panelists who are employees of other companies and competitors. Another issue is that the panel could well be faced with a huge volume of work. There are thousands of different chemical processes in use in the US. What works at one facility is not necessarily appropriate at another facility, even if they have the same feedstock and product.

6. The numerous uses of the word “any” could create a huge amount of workload associated with the evaluations and documentation of site vulnerability assessments (SVA) with little benefit. For example, page 12, “The identification of any hazard that could result from a chemical facility terrorist incident at the facility.” Another example on page 12 is paragraph E, “Any vulnerability of the facility with respect to——.”

7. Paragraph B on page 12 requiring the quantification of consequences ("The number of individuals at risk of death, injury, or severe adverse effects to human health as a result of a chemical facility terrorist incident at the facility.") should be removed or modified. As was the case with the RMP "Population at Risk" values, the data are often taken out of context or used inappropriately. Furthermore, there will be significant variability in how these estimates are calculated if performed by each company. It would be much better to have these estimates generated by DHS based upon the inventories provided by the companies, as is the case with current DHS regulations.

8. Regarding SEC. 2110, section (a) METHODS TO REDUCE THE CONSEQUENCES OF A TERRORIST ATTACK, it is not clear how item (5) *'procedure simplification'*, or (10) *'reduction of the possibility and potential consequences of equipment failure and human error'*, would have an impact upon the consequences of a terrorist attack.

#### Concluding Thoughts

I applaud the US Congress for providing leadership in this important area of chemical security. It is clear that many companies are taking reasonable and responsible steps in chemical security. However, all facilities that handle, store, or transport hazardous materials should be required to take such steps. That is why government must develop and enforce good-science based regulations that set the minimum and necessary standards for chemical security. These regulations should be based upon good science aimed at making the industry secure, avoid over-regulation, and create a level playing field.

Terrorism should not only be expected from Al-Qaeda and its support organizations, but from other sources as well, both home-grown and foreign. In this respect, planning and response measures should be based upon considering not only the existing structure of Al-Qaeda and its support organizations, but also the looming threat of mutations of Al-Qaeda and other terrorist organizations. As the Oklahoma City bombing and the more recent London events have shown, the terrorists could very well be our own citizens. As the mutation keeps evolving, it is not unlikely that alliances would develop among Al-Qaeda type organizations and other organizations or individuals who are disaffected or anti-establishment for totally different reasons. In fact, these organizations may be at odds with each other ideologically, but may unite because they see the establishment as a common enemy.

Regardless of what steps are taken by government, industry and other stakeholders regarding chemical security, it stands to reason that a terrorist attack should be expected and will occur sooner or later. As we know now, the 9/11 attacks were in planning for several years. As the adage goes, the terrorists only have to be successful once. Thus, it is imperative that the approaches taken be based upon the triple-pronged philosophy: evaluation and assessment, prevention and planning, and response and recovery. Planning and preparedness is required for all three areas.

In closing, only through a comprehensive, uniform and risk-based approach can we protect the people and communities of our nation as well as protect our nation's critical chemical infrastructure. I am encouraged by the leadership of Congress and the continued effort to seek expertise and opinion from all stakeholders.

Thank you for inviting me to present my opinions and I will be happy to answer any questions.

Attachment: WHITE PAPER

#### Abstract

This paper defines inherent safety and contrasts it with more traditional approaches to safety. It illustrates through analogies with common household examples the challenges faced in evaluating and implementing inherently safer designs. The first challenge is simply to measure the degree of inherent safety in a way that allows comparisons of alternative designs, which may or may not increase safety or may simply redistribute the risk. The second is that because inherent safety is an intrinsic feature of the design, it is best implemented early in the design of a process plant, while the US has a huge base of installed process plants and little new construction. Thirdly, in developing inherently safer designs, there are significant technical challenges that require research and development efforts with limited economic incentives. These challenges make regulation of inherent safety very difficult. We believe that a coordinated long-term effort involving government, industry, and academia is essential to develop and implement inherently safer designs. A similar



approach has shown success in related areas such as green chemistry, energy conservation, and sustainable development.

#### White Paper

##### Challenges in Implementing Inherent Safety Principles in New and Existing Chemical Processes

#### What is Inherent Safety?

Inherent safety is based on the use of technologies and chemicals with intrinsic properties that reduce or eliminate hazards. Inherent safety is based on concepts known for more than 100 years (Kletz, 1998) and is an approach to chemical incident and pollution prevention that is in some ways contrary to traditional accident prevention and mitigation methods. Traditional safety practices typically reduce risk by lowering the probability of an incident and/or mitigating the consequences of an incident. This approach alone, although extremely important and generally effective, does not reduce the hazards of serious chemical incidents because it attempts to control hazards rather than eliminate them. Inherent safety is especially important in today's world where terrorists may cause a chemical release by methods that bypass or defeat normal safety systems.

The concepts of inherent safety as applied to chemical process plant design have been discussed elsewhere (Mannan et al., 2002) and are summarized below:

**Intensification or minimization** consists of reduction of quantities of hazardous chemicals in the plant. "What you don't have can't leak".

**Substitution** is the use of a safer material in place of a more hazardous one. It may be possible to replace flammable substances with non-flammable ones or toxic substances with non-toxic ones. However, it is necessary to evaluate not only the substance but also the volumes required.

**Attenuation** or moderation is the use of a hazardous chemical under less severe conditions such as lower pressure or temperature. Thus chlorine and ammonia are stored as refrigerated liquids at atmospheric pressure rather than at high pressure at ambient temperature. The lower pressure results in lower leak rates and the lower temperature lowers the vaporization rate.

**Limitation of effects**, by changing designs or process conditions rather than by adding on protective equipment that may fail. For example, it is better to prevent overheating by using a fluid at a lower temperature rather than use a hotter fluid and relying on a control system.

**Simplicity:** Simpler plants are safer than complex plants as they provide fewer opportunities for error and contain less equipment that can fail. Other principles such as, making assembly errors impossible, and avoiding knock-on effects are also inherently safer design concepts.

One of the most common accidents at home is falling on the stairs. A home without stairs, i.e. a onestory bungalow, is inherently safer with regard to falling on stairs than a two-story house. Even if the stairs are equipped with handrails, non-slip surfaces, good lighting, and gates for children, the hazard is still present (Kletz, 1998). Obviously the choice of an inherently safer house implies positive and negative consequences, which may include aesthetics, cost, and other types of hazards. An elevator could reduce the use of stairs but requires a large capital expense. During construction there would be significant hazards to the residents and construction workers and the stairs would still be necessary for emergency egress. Few families would conclude that installing an elevator is the best use of their resources.

#### Measuring Inherent Safety

While inherent safety is based on well-known principles, difficulties have been encountered in adopting the principles as a routine practice by industry. One of the first problems encountered during application of inherent safety principles is the subjectivity involved. The principles are descriptive rather than prescriptive, hence they are subject to interpretation based on previous experience, knowledge, and personal perception. A consequence of the subjectivity is that a systematic methodology to measure inherent safety does not exist, and it is not currently possible to know how inherently safe a plant or an equipment item is because it is not possible to evaluate how well the principles have been applied. If we cannot measure how inherently safer the one story condo is with respect the two-floor house, how can we choose the inherently safer option?

Several measurement and analysis tools have been proposed during the last few years, but in general they focus on specific aspects of the problem during a specific time in the plant lifecycle and are difficult to apply. Besides the lack of measurement methodology, inherent safety cannot be applied in the same way for existing productive plants as for new facilities during the design stage. Existing equipment and processes impose restrictions on changes towards inherently safer technologies that might be implemented in an operating facility. For instance it is not possible

to turn a two-story house into a bungalow without an extremely expensive modification. However, other smaller changes can be implemented to obtain an inherently safer house even if not so safe as the bungalow. Some types of staircases are safer than others, e.g., short high steps are inherently more hazardous than long low steps. Very low single steps are easy to be undetected and cause accidents. Thus the possible solutions could be to avoid single small steps and to use staircases with low and long steps or (as suggested by Kletz) with frequent landings to reduce the distance and height of a possible fall.

#### **Evaluating and Comparing Design Options**

The cost of applying inherent safety to existing facilities may require significant financial resources but may also unintentionally cause an increase in risk if it is implemented without a holistic view of the plant. A chemical plant is a complex collection of intricate and interconnected equipment, pipes, vessels, and instruments containing a variety of chemicals. When a modification is made in one part of the plant, other areas will be affected, requiring other changes in other parts of the plant. If the safety impact of this cascade of changes into other areas is not understood during the evaluation of the original change toward an inherently safer plant, the final result could be a less safe plant! A common example is the possible substitution of a hazardous chemical substance, used in small amounts, by another one that is more benign but is required in much larger amounts. In this case it is difficult to evaluate which chemical is actually the inherently safer option, because aspects such as transportation, storage, and modification of the plant to work with the new chemical must be included in the evaluation. There must be a systematic assessment and minimization of all hazards together rather than one at a time to avoid the appearance of unidentified hazards. Application of inherent safety principles to operating plants is possible (Hendershot, 1997) but implementation is subject to constraints dictated by technical and economic factors.

The implementation of inherent safety for new plants is simpler and cheaper because the design exists only on paper since nothing has been built yet. However, since many inherently safer options may be available and because a systematic analytical methodology is not available, application of the inherent safety principles is still restricted. Also, inherent safety is not absolute, it is site and plant specific. For instance a two-story house may be safer than a bungalow when located in an area threatened by frequent flooding. Therefore, a solution that can be inherently safer for one plant may not be the best option for the same plant in another location with a different environment.

The application of inherent safety requires subjective judgment and tradeoffs among several factors. Furthermore, the selection and use of inherently safer technology does not guarantee by itself that a plant will result in safer operation among its complex and interrelated systems. For instance, a sick person with lung, heart, and digestive problems can take the best medicine for each sickness, however the interaction of those drugs may have catastrophic results rather than a positive therapeutic effect.

The objective of inherent safety is to remove or reduce hazards. The inherently safest case is the one with zero hazards, but this is a limiting and unachievable case. Everyday life is plagued with hazards that are intrinsic to our society. Removing all the hazards is not possible. The situation of a chemical plant is very similar, and therefore we can only aspire to design inherently safer plants. It will be necessary to apply other methods to control the remaining hazards. Therefore, it is still possible for incidents to occur but their consequences are reduced.

It may also be true that it is really not possible to judge which of two options is inherently safer. For instance solvent A is toxic but not flammable, solvent B is flammable but not toxic. There may be no "right" answer. Also, the answer may depend on one's point of view. A plant can use chlorine from 1-ton cylinders or from a 90-ton rail car. To the operator who has to connect and disconnect cylinders several times a day the rail car is inherently safer. To a neighbor several miles away the cylinders are safer, they do not contain enough material to affect him.

When new knowledge about chemical hazards or new technology is available, our understanding of the inherent safety of a specific plant can change. An example of this change is the adoption of CFC refrigerant gases (Hendershot, 1995) that are not flammable or toxic compared with ammonia, which was previously used. It has been theorized (and widely accepted) that they destroy the earth's ozone layer and our judgment of the inherent safety of CFC refrigerants relative to other materials are radically changed. Inherent safety is therefore a dynamic, subjective, and holistic concept that requires specific measurement and analytical tools to evaluate. However, these tools are under development and at present are not available for

general use. Without these analytical tools it is very difficult if not impossible to impose restrictions, limits, and regulations to improve inherent safety.

Inherent Safety can also be misused when decisions are subjective and based on limited aspects without possibility of a methodical analysis. For instance, a plant requiring a specific raw material transported by rail can decide to improve the degree of inherent safety by reducing the inventory of that hazardous chemical. Changing the mode of transportation to truck results in a smaller shipment (and a smaller inventory) but it also triples the shipment frequency. Thus the total plant inventory is kept low but the remainder of the inventory is on wheels traveling from the supplier's plant to the user's plant. This example also shows an inherent safety complication that extends outside the plant boundaries and represents an incorrect application of inherent safety that cannot be detected without a measuring tool and without analyzing the plant as a global system. In this case it is inherently safer to maintain the large inventory inside the plant and, as suggested by Kletz (1998), keep it under control by using good design and operating practices that follow other concepts of inherent safety (e.g., keep the design simple to avoid errors).

#### Progress to Date

We believe that many chemical plants have adopted the easiest and most obvious improvements, such as reviewing chemical inventories and reducing them when it is practical. This improvement is a natural outcome of the Process Hazard Analysis that has been required of most major facilities for the last 10 years.

Less hazardous solvents have been developed and are in use in some processes (Crowl, 1996). Plants using hydrofluoric acid can now use an additive that reduces the dispersion of this chemical during a release. These developments however, required substantial time and cost to develop, test, and implement. Many significant advances are possible but they too will require research, development, and implementation over a long time period. As shown above, the development of methods to measure the inherent safety of various process options is an essential first step to the widespread implementation of inherently safer designs. The Mary Kay O'Connor Process Safety Center is currently developing a method to measure inherent safety using fuzzy logic mathematics.

#### Moving Forward

Regulation to improve inherent safety faces several difficulties. One, there is not presently a way to measure inherent safety. Two, the complexity of process plants essentially prevents any prescriptive rules that would be widely applicable. At most it would seem that legislation could explicitly require facilities to evaluate inherently safer design options as part of their process hazard analysis, but inherent safety would be almost impossible to enforce beyond evaluation because of unavoidable technical and economic issues.

Government programs now support the research and development of concepts such as "green chemistry", "solvent substitution", "waste reduction" and "sustainable growth", which are related to inherent safety. A similar approach involving industry, government, and academia can enhance the discovery, development, and implementation of inherently safer chemical processes.

#### References:

- Crowl, D, ed., *Inherently Safer Chemical Processes*, pp. 39—40, CCPS, New York (1996)
- Hendershot, D.C. "Conflicts and decisions in the search for inherently safer process options", *Process Safety Progress*, 1996, Vol. 14, 1, 52.
- Hendershot, D.C. "Inherently safer chemical process design", *Journal of Loss Prevention*, 1997, Vol. 14, 3, 151—157.
- Kletz, T.A., "Inherently Safer Design: The growth of an idea", *Process Safety Progress*, 1996, Vol.15, 1, 5.
- Kletz, T., *Process Plants: A Handbook for Inherently Safer Design*, p. 193, Taylor & Francis, Philadelphia (1998)
- Mannan, M.S., D. Hendershot and T.A. Kletz, "Fundamentals of Process Safety and Risk Management," *Encyclopedia of Chemical Processing and Design*, ed. R.G. Anthony, vol. 69, Supplement 1, pp. 49—94, Marcel Dekker, Inc., New York, 2002.

Ms. JACKSON LEE. I would like to thank all of the witnesses for their testimony. And I remind each Member that he or she will have 5 minutes to question the panel.

Let me also make note of the fact I think the point that was expressed by one of the witnesses regarding the potential overhaul of

the CFATS process and requiring industry to start all over again, but I think it is important to note we are having this hearing for the very reason to hear the broad perspective, but as well that the draft bill is envisioned to go into effect when CFATS sunsets. And frankly, we envision it to extend CFATS with minor changes, and not really a complete overhaul.

I think there are reasons to improve CFATS, and this legislative initiative will make that effort and will work toward that goal. That is why we are having this hearing, to ensure that we have the right approach.

I will now recognize myself for questions, and I would appreciate, since my questions are long, your brief answers, and brief and thorough if that is a good combination. I do want to, Colonel Stephan, start really with the comment that was made again by one of our witnesses, I believe Mr. Miller, giving you more resources, and I assume more personnel, which certainly is troubling and of great concern. And so my first question to you, and then I am going to follow it up—I am going to give the first question and the second question together, and then you can answer.

Appendix A, the list of covered chemicals and their amounts, was finally released on November 2nd and published in the Federal Register on November 20th. The regulations require facilities that contain chemicals on the list above a given threshold amount to complete a Top-Screen. Tell us how the Top-Screen works; how many Top-Screen submissions have you had to date, and how many do you expect; and how long does it take your office to process a Top-Screen submission and inform the submitter whether or not they fall under CFATS?

Start with the first question. Do you have enough resources, and do you have enough personnel? And convince us of that as we move toward the expanded responsibility that CFATS is giving your division.

Colonel STEPHAN. Yes, ma'am. Thank you. At least we will get one of the easy ones off the table as we start.

The resource piece has to involve, of course, a multiyear commitment on the part of this administration and the next administration, as well as this Congress and the Congress that will follow.

The problem that I have as the implementer of the CFATS regulation is that with the authority that was provided last year in the 2007 Appropriations Act, not a whole bunch of new additional resources was provided in concert with that new authority. Thankfully, through the appropriators, we received a \$12 million supplemental appropriation that I received access to at the end of August of this year. So a total of around \$22 million has been dedicated to this effort for fiscal year 2007.

Of course, the Department budget submission requests additional moneys for 2008, and we have just gone through the Department-level budget discussions for 2009. And the Department at the Secretary's level is very convinced that this program needs additional resources in terms of both personnel and people. I think—

Ms. JACKSON LEE. So, Colonel, what you are saying is you do not have enough resources. You would need more people and more money.

Colonel STEPHAN. I don't. I need resources to continue in the flow, to mean fiscal year 2008 and 2009 and beyond. Assuming we are going to continue this authority in some venue or some means beyond the sunset in October 2009, I need continued resources.

Ms. JACKSON LEE. You need resources now?

Colonel STEPHAN. Yes, ma'am, and I would love to get the continuing resolution situation resolved so that I can get complete access to my 2008 budget submission or whatever Congress is going to give me in terms of resources.

Ms. JACKSON LEE. And we look forward to the administration cooperating with the Congress so we could move the CR. But in essence you are saying that you don't have enough resources.

Let me jump you now to the explanation on the Top-Screen question. Thank you.

Colonel Stephan. Yes, ma'am. In terms of the issuing of the Appendix A on November 20th, together with the completion of the 100 or so Top-Screens that we received through the accelerated piece of this first part of the program, phased implementation, we have 16,852 facilities that have registered to complete the on-line process. And in hand now as of this morning, I have 1,818 complete Top-Screen analyses. This process will close out on the 22nd of January of 2008, and it will take us somewhere within 30 to 45 to 60 days to complete the analysis of the Top-Screen data as it has rolled in through that 60-day window.

Then we will begin a Site Vulnerability Assessment process, with the majority of the herd that kicked into motion with the November 20th Appendix A release. We are beginning with the 100 facilities that have begun implementation in an accelerated manner the SVA, or the Security Vulnerability Assessment process now, and that we expect to take about another 2 to 3 months before we have the first tranche of 100 ready for—

Ms. JACKSON LEE. Let me thank you. It looks as if I have some follow-up, but let me quickly go to Mr. Miller to tell me his experience in dealing with DHS, but in particular has his BASF facilities completed Top-Screen? Have you received a response from DHS telling you your facilities—whether or not they are covered? Was the Top-Screen process straightforward and understandable, and did you need assistance from DHS? You might want to expand. I think you raised a question about resources and personnel. Mr. Miller.

Mr. MILLER. Thank you, Chairwoman Jackson Lee.

The point of the comment about resources, clearly our experience with DHS, and we have been working with them back when it was a voluntary program and also leading up to the regulatory program, has been that we see very clearly that considering the size of the chemical industry in the United States, they do not have enough manpower, they do not have enough resources to do the job that needs to be done here.

Ms. JACKSON LEE. This is your perception now or when you were interacting with them?

Mr. MILLER. It has been continual. It is a situation much like private industry. We are always asked to do a lot with little resources, and we have seen that within DHS. They have done an ad-

mirable job of getting where they are now with the resources they have, but clearly they need more.

In response to the question regarding the Top-Screen process, we very deliberately waited until the final Appendix A came out. We initially thought we might go ahead and submit some Top-Screens with the first Appendix A, but we decided to wait. So we have now submitted Top-Screens, and I don't have a final count or a current count on the number of sites that I have had submit so far, but we are doing that on a daily basis. The Top-Screens are being submitted.

To my knowledge, we have not gotten any direct feedback yet on what tier we might wind up in, or whether we are regulated or not. I haven't seen that on a daily basis. But we are submitting those.

As far as the responses and so forth with DHS, when we do have questions, and we have had some questions come up, it has been very helpful to be able to call the help desk. And they have been very responsive in either saying, you know what, I don't have an answer to that, we will escalate it and get back to you on the question. And so that has happened a number of times for my project manager that I have got dealing with the Top-Screen submission. And we are getting the responses back from them, but sometimes it is taking some time to get it, and I think that is a resource issue with them.

Ms. JACKSON LEE. Thank you very much, Mr. Miller.

Quickly, Mr. Setley, I think it is important to involve workers, and my question is have your workers been involved in meaningful vulnerability assessments, and have they been involved and included in developing security plans since they are directly involved? In essence, they are the front-liners in this whole effort.

Mr. SETLEY. Thank you, Chairwoman.

It has been my experience, and we cover—the area I currently direct covers the entire Northeast, Mr. Sondermeyer's wonderful New Jersey, where I must say we have had marvelous experience with a lot of cooperative employers and involvement of the workers on all levels in the security plans as well as on the floor worker health and safety issues. So certainly New Jersey is a shining dime we point to, quite honestly.

But on the whole, we have not had the—I will call it the employer buy-in for worker involvement, because the employers are very reticent to acquiesce what they perceive as their power, if you will. Certainly the authority and the onus for providing the workplace is clearly regulatorily understood; however, any time an employer is asked by their workers or their workers' agent, the union, to share that responsibility, they are reticent.

Ms. JACKSON LEE. So any legislation should work hard to improve that relationship and clearly involve well-trained chemical security employees in the process.

Mr. SETLEY. Yes, ma'am. Yes.

Ms. JACKSON LEE. You think that would make for a safer approach?

Mr. SETLEY. Yes. It is my experience, and I can't say it as well as you did, but having the employer and the employees work as a team, that synergy is the most effective for security and worker health and safety.

Ms. JACKSON LEE. All right. My time has expired. And I am delighted to yield 5 minutes to the distinguished Chairman of the full committee Mr. Thompson.

Mr. THOMPSON. Thank you very much.

Following up on this line of questioning, Mr. Stephan, correct me if I am wrong. You say you have about 16,000 applications for Top-Screens.

Colonel Stephan. Sir, we have about 16,000 folks that have registered through the on-line process to begin the process, and we have gotten approximately 1,800 completed assessment products in hand now from those facilities.

Mr. THOMPSON. Okay. Given your deadline for—you have a deadline, I think, of about a year out?

Colonel Stephan. Sir, we have a deadline for submission of the Top-Screen data to us that is January 22nd, 2008. So in less than 60 days from now.

Mr. THOMPSON. But you don't have a deadline on completing the applications, approving the applications?

Colonel Stephan. We expect it is around the October/November time frame next year, 2008. We will be able—outside the hundred or so facilities that we have parsed out in a very special focused accelerated effort to begin the process of inspecting the Tier I facilities and Tier II facilities associated with this program. About a year from now we will have the consequence assessments done, the site vulnerability assessments done, the security plans done and approved by DHS, and we will begin the first round of significant inspection activity.

Mr. THOMPSON. What can we assure companies like BASF Corporation that the experience they received for this process won't be the standard operating procedure going forward?

Colonel Stephan. So that it won't be?

Mr. THOMPSON. Mr. Miller talked about how cumbersome, how inflexible and the communication and some other things associated with the application.

Colonel Stephan. Sir, I heard him say exactly the opposite. I heard him say it was a very flexible process where we have been responsive to his concerns as well as the concerns of the industry. We established a 1-800 number help line. We get immediate feedback to industry. I think we have attempted to make this as user friendly as possible. I will let my colleague explain further.

Mr. THOMPSON. Mr. Miller, can you help me out? You described the process based on the chairwoman's questions.

Mr. MILLER. Yeah, let me try to clarify that. We went through the registration process with all of the sites that we felt would fall under the new Appendix A and we began our top-screen process. And I think where I may have been less than clear is that when we did run into issues, when we ran into some questions, we used the help desk at the 800 line to call in and the response generally was very quick. Either they had an answer or they were going to escalate it. Sometimes it took a little longer than we would like to get that response back. But I think it merely is a situation where they might not have the right person to answer the question at that given time considering the size of the effort here. And it takes

some time to find out or to research the answer to the question and get back to us.

So I didn't intend for it to sound like a total indictment of the lack of response. Certainly they have been responsive and we have worked with them over the last few years in working through this. But I continue to see that they have the need for more resources to make sure that things are flowing smoothly, especially as things move along, because things will get a lot more complicated. Right now we are just doing somewhat of an inventory.

Mr. THOMPSON. And I guess I was kind of moving into that direction for the benefit of the committee, is to see again, Mr. Stephan, whether or not you feel you have the complement of staff necessary to manage this.

Colonel Stephan. The first year of this effort, 2007, has been a rate development year and planning year. We had sufficient resources to do that. Now with the Department's 2008 submission and what you will see from us in 2009 is the requirement to boost the resources up to various levels of intensity to account for now between the next phase of the process, which is in analyzing the top-screens, the consequences piece, doing the very technically complex vulnerability assessments by site and the very collaborative planning not just with the security planning and plan development, not just with the sites and the facilities, but also with State and local government partners. We have put in our budget request to the appropriators, a logical, reasoned increase so that I can get field staff in place, headquarters management staff in place, additional resources to provide additional analysis, so forth and so on. If those requests are honored, I feel that I will have the resources I need to push the program forward. Again, a multiyear commitment is required from Congress and the administration, both this one and the next to move this thing forward.

Mr. THOMPSON. And I think the members of this committee have already seen—it appears that the administration is going to submit a budget just the opposite of that for Homeland Security and so I think we will have a challenge, Madam Chairman, going forward, needing what has been established from the staff and then resource standpoint if, in fact, the President's initiative to reduce the Homeland Security budget is approved.

And if I might—if you would indulge me for another minute. Mr. Setley, the workers who you have who work in these plants and those regulations that impact them, does your contract call for those workers to be involved in doing security vulnerability assessment or development for facility security plans at all?

Mr. SETLEY. Not specifically. I have no contract language that would specifically speak to the issue of plant security. However, we have as pretty much a pro forma issue of health and safety language which would be a joint committee of management and labor generally shared by management.

Mr. THOMPSON. And that is the point. We generally have a health and safety committee, but I think we have to go an additional step and start talking about security. And the reason I say this is we had similar experiences with rail, if committee members remember. Generally, it is about a 15, 20-minute video and a pamphlet. And that is to your security training. And so we had to step



in as Members of Congress and mandate additional training for workers from a security standpoint, not safety. And so many people tried to tie security and safety as one. And I think what we are looking at is making sure that the workers are involved in it, but also that—but it is from a security perspective and not a health and safety—health and safety is important, but this is the other layer that goes with that.

Mr. SETLEY. Certainly labor would be happy to see any kind of regulatory control and enforcement of that type of language.

Mr. THOMPSON. Thank you. I yield back, Madam Chair.

Ms. JACKSON LEE. Mr. Chairman, Mr. Mannan would like to respond to one your questions.

Mr. MANNAN. Thank you, Madam Chairwoman.

Ms. JACKSON LEE. And perhaps as the chairman asked a number of questions, refer us to the question you are responding to.

Mr. MANNAN. Yes. First, I want to respond to the question of the resources. While Colonel Stephan and Mr. Miller have shed some light on the resources currently available to DHS to deal with current regulations, my concern is that if the IST options and the proposed act are implemented, given what I know, it is my humble opinion that there are no—not adequate technical resources as the numbers to deal with the IST issues that might come up both from the point of view of analyzing those IST issues as well as enforcing them.

The second issue I wanted to refer to was with regard to one of the questions that has been raised, is the issue of employees. While I think consultations of employees and involving employees is very important and should be done, but it should be done carefully. There is a two-edged sword there, and one of the issues we deal with in anti-terrorism issues is the insider threat. In my own testimony I provided some statements as to the threat from not only al-Qa'ida but mutations of the organization of al-Qa'ida and their associations with organizations that may have ideological or different view, but maybe anti-establishment and may develop a collaboration with al-Qa'ida type organizations. So insider threat is an issue that is something that we need to be aware of.

Mr. THOMPSON. You are correct and one of the panelists talked about information protection as a real issue. And I agree with you to some degree. We absolutely have to keep many of the things that we know that are involved in these facilities as secret as we can and not allow them to get into the public domain, if you please, because that then enhances the vulnerability of that particular facility if that breach occurs. I agree with you.

Thank you.

Ms. JACKSON LEE. Thank you very much, Mr. Mannan. I think that was an important insight. I am delighted to yield 5 minutes to the distinguished gentleman from New Jersey, Mr. Pascrell.

Mr. PASCRELL. Thank you, Madam Chair, Mr. Chairman. Colonel Stephan, would you say that New Jersey is the model that you would suggest the Federal Government move towards in responding to the risk factors contained in the chemical industry at large?

Colonel Stephan. Sir, I have a great relationship with the Office of Infrastructure Protection under the Homeland Security Adviser's supervision in New Jersey, And I would say overall in terms of in-

infrastructure protection they have a model program for the Nation bar none. However, there are differences, very crucial differences between this Federal CFATS regime and the State regime. I, in fact, think that the Federal regime—I don't want to use the word "tougher," but I think it is more comprehensive and more demanding than the New Jersey State regime. We have a very unprecedented level of risk analysis here, vulnerability assessments, collaborative planning, inspections for compliance and some fairly stiff, heavy financial penalties and the possibility of a cease operations order that do not exist in the New Jersey statute.

Mr. PASCRELL. But none of those actions have been taken against any company?

Colonel Stephan. We are in the beginning phases of implementing this program.

Mr. PASCRELL. This is 6 years later. This is 6 years later. Mr. Sondermeyer, how many people do you have working in what—if I read correctly in your testimony, you have direct access to Richard Canas. Richard Canas is the Director of Homeland Security; is that correct?

Mr. SONDERMEYER. Yes, he is, sir.

Mr. PASCRELL. You have direct access if I am looking at this correctly. And you undertake your preparedness to the Domestic Security Preparedness Task Force.

Mr. SONDERMEYER. Yes.

Mr. PASCRELL. And how many personnel do you have that work specifically on the chemical industry in the State of the New Jersey? Which surprisingly has been very cooperative with the Department. Isn't that interesting? Even though you have stricter standards than the rest of the country, most of the country, you have tremendous, God bless you, cooperation; is that correct?

Mr. SONDERMEYER. Yes, it is correct. We have had tremendous cooperation.

Mr. PASCRELL. How many people do you have working for you?

Mr. SONDERMEYER. Dedicated to chemical facilities security? None.

Mr. PASCRELL. You don't have anybody?

Mr. SONDERMEYER. Not dedicated. This is function——

Mr. PASCRELL. It is shared. Is this a shared—I mean, who checks out all of the chemical factories, the two-mile stretch of the turnpike, for instance, which has been called by the FBI, et cetera, et cetera, who does that work?

Mr. SONDERMEYER. It is a collaborative effort. The Homeland Security program itself under Director Canas is about—I think the staff is about 200, 250 people, but that deals with the intelligence and critical infrastructure and planning. The State agencies like the DEP were assigned responsibilities to organize and implement a program for sectors that we normally work with, chemical, petroleum, water, wastewater, dams, pharmaceutical, biotechnology and nuclear. So that is sort of our purview. I am sorry I am not being really clear. We don't have any dedicated staff that are funded——

Mr. PASCRELL. They are shared staff?

Mr. SONDERMEYER. All shared staff. But we do the inspections. So we have inspected all the chemical facilities for compliance with

the standards and the best practices between three, six, seven times.

Mr. PASCRELL. I don't quite understand how 30 personnel can cover the entire country of thousands of chemical facilities. And in the center part of your question, Mr. Chairman, to the witnesses, we are not serious about this. We don't have a sense of urgency here. I mean, it doesn't make sense. We have got 2,000 that are compliant and have basically submitted what they were supposed to submit in terms of this tiered sense of risk that we have developed here. And we are concerned that one State in the Union, which has attempted to be the pioneer in this area where there are a lot of chemical facilities, which is spending time to develop this inherently safer technology, we are concerned that that State has taken action that is working and yet why if those standards are working, why should they be applied to the other chemical facilities throughout the rest of the country? I don't understand.

I have got a question to you, Mr. Sondermeyer. I want to ask you if you have read the draft of the Chemical Facility Anti-Terrorism Act.

Mr. SONDERMEYER. Yes, sir.

Mr. PASCRELL. Do you feel that the draft provides enough certainty to preserve the States rights? You referred to this before in the vague statement that—I am trying to get in your testimony where you referred to that vague part of the legis—what was that last sentence?

Mr. SONDERMEYER. It is section, sir, 21.07.

Mr. PASCRELL. 21.07. You referred to—you specifically picked out that phrase. Would you repeat the phrase?

Mr. SONDERMEYER. Certainly. It is unless the State regulation requirement or standard of performance would conflict with the purposes of this title.

Mr. PASCRELL. Now, that could mean anything, couldn't it?

Mr. SONDERMEYER. That is our concern, sir, that—the first part of the paragraph is very good and it seems to be clear on the pre-emption issue and it seems to undo it with that language which really isn't very clear.

Mr. PASCRELL. Madam Chairwoman, Mr. Chairman, I think that that phrase is critical to what I know you all are trying to do. And this is nothing new. You said this last year and the year before. And I think that that phrase needs to be clarified. In fact it should be removed. It should be removed altogether maybe, because on that hook you are going to see more conflict in what we are trying to do on this committee, both sides of the aisle, than anything else that I can find in the draft or in the bill. Forget this is simply a repetition of what is already there. This is nothing new. And I think that is a way out. Do you see it as a way out, Colonel Stephan?

Colonel Stephan. Sir, I see no inherent conflict at this point in time between any regulation and authority that the State of New Jersey has on the—

Mr. PASCRELL. But the phrase that Mr. Sondermeyer referred to seems to be—it is like the door is opened so wide that you can drive, you know, a couple of Mack trucks through it. Do you agree with that?

Colonel Stephan. Sir, I don't agree with that because we——

Mr. PASCRELL. So you like that phrase?

Colonel Stephan. We have very carefully considered that phrase inside this language, inside our rule. It is very carefully explained in terms of our view regarding State preemption. It is not field preemption. It is specific conflict preemption. And we see that the State regulatory authorities and programs can and should be and are in fact at this point very complementary to the thing we are trying to do at the Federal level.

Mr. PASCRELL. Madam Chair, can I just continue with one question?

Ms. JACKSON LEE. One more question.

Mr. PASCRELL. Thank you. Colonel, then, you would keep that phrase exactly as it is, correct?

Mr. STEPHAN. Sir, I would have to see that phrase in front of me. I don't want to make an open-ended statement with a document that I do not have in front of me.

Mr. PASCRELL. I think this whole hearing is much more than one phrase. But to me getting these facilities throughout the United States to comply, to work together, the workers, the companies is very important. They have been cooperative from what I have seen in the State of New Jersey. Gee, who would have thought? But it is possible. But if you open this door, if you open this door, you are simply going to get a lot of confusion, a lot of conflict and not resolution.

Madam Chair, I ask that you pay particular attention to this. Thank you.

Ms. JACKSON LEE. I thank the gentleman for exploring that. His time has expired. It is now my pleasure to yield to the distinguished gentlelady from New York, Ms. Clarke, for 5 minutes.

Ms. CLARKE. Thank you very much, Madam Chair. And this is a hearing of paramount importance, particularly to our region. And, Assistant Secretary Stephan, I just wanted to follow up on a question that Chairman Thompson raised with you just to get some more clarity. Have you been able to do any approximation or contingency plans on how to compensate for any financial shortfalls you may have notwithstanding, you know, what you are required to do in building out your Department's infrastructure, one, and two, given the limited resources, have you done any projections on the cost for human resource requirements going forward?

Colonel Stephan. Yes, Madam. Again, we have fiscal year 2008 budget up for consideration on the Hill, as you know. We are hoping to get that full accessibility of that funding as quickly as possible. We have just gone through the 2009 budgeting process at the Department level, and I think you would be very happy in this particular area with the support the Secretary and the executive branch has put into this particular mission focus, chemical site security going into the 2009 process. We have completed a manpower requirement study based upon an initial universe of potentially 5,000 facilities shredding out within a Tier I through IV construct and have that information available in briefing format to provide to you at your request, ma'am.

Ms. CLARKE. I think that is some of what we are trying to get to the bottom of here today. We don't want this issue to sort of lin-

ger out there and then God forbid, you know, we are not prepared for something that could occur in any region of our Nation because, you know, we are still in the planning process. I think it is very important that you share that with this committee as soon as possible so that we can be advocates, you know, in the upcoming fiscal years to make sure that what is required we hold the line on. And we hope that you will be really open and honest about that. Our mandate is really a nonpartisan mandate. It is one that the American people expect of us, given our experiences, and I can tell you as a New Yorker I am really, really interested in making sure that we get this right.

Mr. Sondermeyer, based on your regulatory experience in New Jersey, do you feel that DHS has an appropriate number of personnel to handle oversight of chemical security nationwide?

Mr. SONDERMEYER. Thank you for the question. Before I wasn't as clear perhaps as I could have been in terms of resources. We don't have dedicated resources in New Jersey. But just by example, just for the piece that our department has been involved with, the sectors that I mentioned, chemical and petroleum being part of that, we probably had about 200 people engaged in that effort. Again, not in a dedicated function, but as part of their job. So if the number used before of 40 or whatever that number is of people that are going to be out inspecting, that does seem to be from our own experiences a low number.

Ms. CLARKE. And you pretty much had to be creative and sort of build out a new purview for your current workforce to embrace in order to make sure those pieces are covered; is that correct?

Mr. SONDERMEYER. That is exactly right. We took existing individuals, in particular working in our Toxic Catastrophe Prevention Act program and give them a new responsibility which was an add-on function and a critical one to implement the best security practice oversight that we have done. So we built those responsibilities into their existing inspections. And it has worked, I think, as well as it could. It has worked well.

Ms. CLARKE. And do you feel this is the future of what those positions would hold or are you looking to us at the Federal level to really create a dedicated and committed workforce to deal specifically with this? I think this definitely has to be State collaboration. But at the same time, you know, as your workforce ages, will that be something that becomes a best practice for your employees, or do you feel like there is something that is missing and you are just basically holding the line with what you have?

Mr. SONDERMEYER. Yeah, it is a great question. I do think as we evolve in the program, even with our program, and as we work hopefully seamlessly with the Federal Government and DHS, we do need to expand our technical expertise on security. The folks that we have were not trained in security. They are trained to do environmental protection work. We can only do assessments to verify things were done. We are not doing, as an example, detailed lighting plans to make sure the street lights have enough lumens, that it is secure in that particular area. We need to have that kind of expertise over time, particularly for the most critical infrastructure sites, to make sure that we get it right. And we do not as a State government currently have that expertise. We are trying to build

it within our central security organization, which is our Office of Homeland Security and Preparedness.

But we are a distance from having that level of expertise. It is a great question.

Ms. CLARKE. Thank you very much. Madam Chair, I yield back.

Ms. JACKSON LEE. I thank the distinguished gentlelady. In Mr. Pascrell's absence, we will explore the language that he has pointed out, and I think he raises an important question, to be able to discern what the purpose of those words are so that we don't dumb down the responsibilities or the achievements that a State has made.

Mr. SONDERMEYER. I have a few more questions. Let me just pose this question for you. I think the point you are making is that—as great a work you are doing, there are gaps just because of the nature of the structure that the State of New Jersey has. You are out front on tapping in for the need for chemical security but in essence in terms of elements that you are able to oversee because of expertise, the Federal Government's role would be helpful, be complementary, particularly if they focused on some of the hard core security issues that you might not be able to directly address; is that correct?

Mr. SONDERMEYER. Very well put, Chairwoman, yes.

Ms. JACKSON LEE. So the approach we should look at is this very important, firm complementary relationship and certainly the Federal Government should have sufficient staff to build up on that security aspect of it. Is that your—

Mr. SONDERMEYER. Yes. And again the last policy point I made about the delegated authority concept of letting us be the agent for the Federal Government. We are running the program now and as we mesh these things together, it would be great if we could have that kind of collaborative relationship. We do it in environmental law every day. It works well under a very structured work plan which is called a performance partnership agreement we have with the United States Environmental Protection Agency. I think that is a model for how that collaboration you are bringing up could work well.

Ms. JACKSON LEE. So we should look to language in this legislation that might create State and Federal partnership in States that may be sufficiently far ahead which may help Colonel Stephan's resource and personnel issue that he has to address?

Mr. SONDERMEYER. Precisely.

Ms. JACKSON LEE. What do you think about outside auditors or those private entities that contractually would provide oversight, again adding additional staff to this process?

Mr. SONDERMEYER. That certainly can be a positive thing to do, sort of the independent third party assessor that would come in, and it is something that might have to augment in the absence of sufficient staff at the Federal level to perform those functions. That would be, I think, a way that you could go, yes.

Ms. JACKSON LEE. Most chemical plants are—find themselves at least in a sometimes massive way and limited way in populated areas.

Mr. SONDERMEYER. Absolutely.

Ms. JACKSON LEE. New Jersey certainly is in a dense urban area, near I-95 as well. So there is quite a bit of ingress and egress of traffic. And certainly in my State in Texas in a number of our—well, our complete refinery area there are surrounding neighborhoods. What is your thought about including language that would insist or require through DHS that there be neighborhood evacuation plans and training plans that incorporates the surrounding facilities? It may be businesses, they may be residential, they may be, if you will, traffic centers. What is your thought about that as an addendum to our efforts?

Mr. SONDERMEYER. Certainly appropriate as it would be framed out and there was a lot of discussions about worker involvement which we think is critically important and we have involved the program. I think, neighborhood knowledge and involvement is also important and I would say, Chairwoman, as a potential example to look at would be the structure that is in place through the Nuclear Regulatory Commission, evacuation and off site contact, and if the slightest thing happens at a nuclear plant there is an immediate requirement for a public disclosure and we do have four nuclear plants in New Jersey. So we do have a little bit of experience with that.

That might be the model, Chairwoman, of what I think you are driving at. That could be something that could be replicated to give that kind of involvement and forewarning in evacuation planning.

Ms. JACKSON LEE. Very good. Colonel Stephan, you as part of the CFATS regulation; your office created a new class of protected information called chemical terrorism vulnerability information. As you know, we as a committee and frankly in light of recent incidents that have occurred with the whole umbrella of overprotected information, though we certainly don't want to expose sensitive information to the general public, I want to raise the concern that this proliferation of new classes of nonclassified for protected information may raise problems with trying to secure America. Explain why you feel it is necessary, feel this new class of information is necessary. What are the main differences between CPI and SSI, which is the designation of information used under MTSA? And have you received comment from State and local authorities as well as the private sector about whether CVI serves as an undue obstacle to the necessary sharing of information?

Colonel Stephan. We created this new information protection regime, this category called CVI, for the simple reason as follows. We are requiring now for the very first time a very comprehensive and detailed set of information be provided us from the private sector. Consequence information, vulnerability information and very, very unique security plans. Many aspects of this information will have to appropriately be shared with State and local government partners, law enforcement and emergency managers. We strongly feel that there is not any existing security information, security protection regime that affords the appropriate level of protection given the incredible detail of this very sensitive vulnerability and security information coming into us. Our requirement to share a lot of it with the appropriate State and local officials just doesn't exist anywhere.

Secondly, in terms of judicial proceedings, in terms of enforcing this regulation or cases that come to courts, SSI or sensitive security information and that regime, there is a lot of leeway that a judge has in terms of how to protect that information and what to do with it. In the statute that provides us the implementing authority for this regulation, CFATS were specifically required in those kinds of proceedings to have an information regime in place, information sharing regime in place that treats the information as if it were classified information. So because of the level of detail, the incredible number of detailed data bytes that will be coming in to us, our requirement to share them collaboratively with State and local partners, we have got to have more protection than any current regime offers.

Also in terms of your point about have we received information, yes, we have received information, good things and bad things about the CVI program, from both the private sector and State and local governments. We have a working group with the private sector through our Chemical Sector Coordinating Council that is focused on helping us get the right balance between information protection and information sharing. And he is of use on the industry side. And on the State and local government side, the State of Michigan Homeland Security Adviser, Brigadier General Mike McDaniel, is spearheading a State and local task force which is co-chaired by the State of New Jersey, coincidentally Sherry Black of the Infrastructure Protection Office there, to help us figure out how we are going to implement CVI protocols with respect to State and local government partners, law enforcement, Homeland Security advisers and emergency managers.

Ms. JACKSON LEE. Colonel, I know that your intent is good and your efforts are to be commended. But there is a long history of denying State and local governments the right kind of information or the information that they need to ensure the security of the homeland. Frankly, this committee is probably unified in its opposition to overclassifying. And we have just had, you know, an experience with a discovery of what probably should have been well-known information, obviously outside of the realm of this committee, but a destruction of the CIA of very important information and destruction of tapes that commented on that information or indicated information that this Congress might have needed for better decision making.

Let it be clear that we are going to take a very close look at overclassification of information that will be important to securing the homeland, particularly in this area of chemical security. So I hope the intent of our efforts here in this committee will impact on you and I know that you are mentioning requirements that you have and we may look at those requirements because we think we are blocking cooperation as opposed to helping it.

Mr. Miller, did you want to have a question or comment on that, the classifying of additional information?

Mr. MILLER. Thank you, Chairman Jackson Lee. I agree in a lot of—in respect to what Colonel Stephan has said regarding protection of information. The issues that we have with the guidance that has been provided and how to go about handling CVI classified information has to do with, for example, if my chairman comes in



and says so what are we doing about security at a particular facility that is a regulated facility. Under the current regulation and under my reading of the guidance that has been provided, I cannot provide him that direct information without him having to go on-line and take an on-line training course on how to handle and properly manage this type of information and then sign a nondisclosure agreement with the Department of Homeland Security that says he won't disclose this information to unauthorized parties. Believe me, that is a tremendous hurdle for someone that is as busy as our chairman of our companies are when I can sit down with him and discuss this with him and enlighten him on what we are doing at a particular facility, which I feel I am currently handicapped on doing right now.

Ms. JACKSON LEE. Because of this CVI?

Mr. MILLER. That is correct.

Ms. JACKSON LEE. I think the record should reflect that we do have a difference of opinion, Colonel. And I believe that the difference of opinion that the committee has is not to expose sensitive material but it is to question the process of declaring CVI material and how that impacts actually industry, States, local government in doing their job of securing the facilities in their area. So that is something we are going to have under advisement and express concern either through a legislative fix or otherwise.

Dr. Mannan, let me just raise the question. I think the academic involvement—and you have raised some interesting concerns about how we approach the training of employees in making sure that we train them but provide protection to the flow of information that might be detrimental in the hands of others and we don't represent that employees are terrorists. We represent that we want to be as detailed in how we handle material and balance it by not overclassifying information as well. But I also believe the academic partners are important as relates to new technology, as it relates to new practices, best practices.

So I raise the question of a thought of adding to the legislation what we call chemical security centers of excellence that might be placed on academic—on campuses that would focus on how we improve security, how do we analyze information. And they would not be analyzing information received by DHS as much as they would be giving a roadmap and plan for how you do it more effectively, how you train personnel, how do you work with local and State governments. What would be your thought about that kind of addition to the legislation?

Mr. MANNAN. I am totally in complete support of something like that. As I mentioned in my oral testimony, this problem requires the collaborative work of all stakeholders, and academia should be a complete part of it. I would daresay that academia has not done enough up to this point. But I think a little prodding by the government might help in that direction.

I mentioned some of the things that we could do, for example, building resilient engineering systems, building self-healing plants, learning from nature in terms of biopneumatics. Also in my written testimony there are other examples of things like—for example, before 9/11, we never designed chemical plants or the chemical infrastructure with terrorism in mind. That never entered the equation.

I think research definitely needs to be conducted as to how we would design the whole infrastructure with terrorism in mind. And that should have two objectives. One, how would it impact new plants and, two, how would it impact existing plants? In fact, one of the other things we need to consider is that when we do permit new plants should we consider things like prevention of significant vulnerability, similar to air type of acts where we look at prevention of significant deterioration of air emissions. So I think I am on the same wave-length as you are in that respect.

Ms. JACKSON LEE. Thank you. And as I listen to you, I know that we have provisions for fencing in the legislation. Make note of it. And the thought of safer technology, virtual fencing, as we build new chemical plants and new refineries, we should move to the next level or in the revising of a chemical plant's security infrastructure through this legislation should virtual fencing be part of an option of how you secure these plants. And that, then, includes a whole new component of staffing, which is a staffing constituency on site that monitors in a more scientific manner the ingress and egress and things going on inside the plant and outside the plant.

I frankly believe—Mr. Sondermeyer, you are shaking your head. Is that something that would be worthy of consideration?

Mr. SONDERMEYER. Yes. And certainly in New Jersey we have tried to integrate that type of forethinking analysis. As an example, we are developing a new Giants stadium up in our Meadowlands complex. And as part of that, we did require compliance with our best standards for Homeland Security. And I think it is an excellent point. We really should be—any new facilities we are building, they should be built with security in mind as the professor is recommending as well.

Ms. JACKSON LEE. Funny you should say that. We look forward to having an infrastructure protection hearing on large venues such as the stadium. And you or one of your representatives from the State of New Jersey may be back in front of us again. Thank you very much.

I want to take this time to give an opportunity for the distinguished gentlelady from New York to ask a few questions.

Ms. CLARKE. Thank you, Madam Chair. Professor Mannan, I wanted to just sort of follow up on what the chairwoman has stated to you or has raised as a concern. You speak extensively about the importance of research and the creation of new technology in securing chemical infrastructure. Do you get a sense that DHS is doing enough to support such research? Are there additional Federal assets outside of DHS that you have identified that can facilitate and accelerate a support system and is there more that we should be doing?

Mr. MANNAN. That is a loaded question. I will try to answer it as best I can. The short answer is that we are not doing enough, both from the government perspective as well as from the universities. Universities are probably notoriously slow in moving and changing the research direction. But I think government can play a very dominant role in making that change. I can guarantee you if programs become available where they will support research like this, you wouldn't imagine how many professors will change their

research goals and missions. That would happen overnight, whether or not DHS has done enough in funding some of these research.

Again, the short answer is no. The reason I believe it is that DHS—I consider research like this at two or three levels. The first level is guards, guns and gates, background checks, putting up blockages, looking at lightings and things like that. Those are the short-term issues. The long-term issues are looking at these types of process changes and long-term research issues like terrorism risk and plants, robust control systems like even if some terrorists were to take over a plant, the control system would be hard to compromise, things like that.

Those kinds of things have not been funded. The other government agencies that I have been disappointed with in terms of funding and driving this kind of research are the agencies like National Science Foundation, National Institutes of Health, as well as NIOSH. I think they could be doing a lot more in driving this research. And I do like the idea of the chairwoman, funding centers of excellence in terms of these areas.

Ms. CLARKE. Thank you very much. Mr. Setley, what type of collaboration do you feel must be established with the workers in the industry and how should it be integrated into CFATS regulatory process?

Mr. SETLEY. Thank you, by the way, for the question. It would be our position in labor that the workers be intimately involved in the formulation of any and all security plans, first and foremost because it is where they work. They are going to be the ones first and most dramatically impacted by anything that happens. Rarely do people attack plants when they are empty. The workers are going to be there, the workers know where to hide the bomb. Those are the folks who need to be involved and anything in a regulatory matter that requires that is something that is going to be very beneficial not only to the worker, but ultimately to the companies and communities surrounding any of the plants.

Ms. CLARKE. Do you feel that the voices of the workers have been taken into account thus far?

Mr. SETLEY. Not as much as I would like.

Ms. CLARKE. And what do you think that we can do to sort of amplify that?

Mr. SETLEY. I think what we can do, we should all be doing, is making requirements, not suggestions, requirements for all of the stakeholders. I keep hearing the word “stakeholders” and certainly the workers are a stakeholder in the chemical plant. Requiring that the stakeholders are involved, not suggesting. We have to move away from hope to a point where we have actual concrete language that we can point to say it is a requirement and not a suggestion.

Ms. CLARKE. Thank you. Mr. Sondermeyer, as the DHS chemical facility anti-terrorism standards are beginning to be implemented, is there anything you feel DHS should be doing differently? How well is DHS coordinating with your State?

Mr. SONDERMEYER. I do believe as the Colonel represented earlier, we do work very well together and particularly we have worked well together on critical infrastructure protection. I do think there are some elements of the bill that are critically important. One of them was the discussion we had on access to informa-

tion and confidentiality, and I am very heartened that we have a State and local work group working together actively to make sure that the CVI issue does not take a turn that does not result in sharing of information. If we don't share information with the State partner, you know, we are not effectively working together. As I did mention, the whole collaboration through a delegated authority we think is something that is important so that we can work better together. Because that is a concern that I have, that we go down a road where we are not properly connected and we are—and I think the chairwoman had perhaps used the term in her opening statement of not reinventing the wheel—to not reinvent the wheel so that we are working closely together, collaboratively for efficient government for such an important topic as homeland security.

Ms. CLARKE. Thank you, Madam Chair.

Ms. JACKSON LEE. Thank you, Ms. Clarke. Mr. Pascrell, do you want to ask one or two more questions?

Mr. PASCRELL. Thank you.

Ms. JACKSON LEE. Thank you.

Mr. PASCRELL. Mr. Sondermeyer, the chemical sector best practices standards I failed to mention when I was asking the question the first time. These are not mandatory, are they?

Mr. SONDERMEYER. They are mandatory.

Mr. PASCRELL. They are mandatory in the State of New Jersey?

Mr. SONDERMEYER. They are mandatory in the State of New Jersey for a universe of approximately 157 facilities that report under certain SIC or NIA codes.

Mr. PASCRELL. And the rest had simply asked for an evaluation, those other chemical facilities? Or was it mandatory for every chemical facility in New Jersey?

Mr. SONDERMEYER. Sadly it is very confusing. The base program for implementing best security practices is applicable to all 450 recognized DCPA, or discharge prevention facilities in our State. The standards which go further and are mandatory are applicable for 157 facilities. And 45 of the 157 were required to do the—

Mr. PASCRELL. But the inherently safer technologies is not mandatory?

Mr. SONDERMEYER. Mandatory to do the review, not mandatory to implement the findings.

Mr. PASCRELL. Now, New Jersey passed the Toxic Catastrophe Prevention Act in 1986. In April of this year, the Department of Environmental Protection proposed amendments to that act to require all companies subject to the program to evaluate the potential of incorporating inherently safer technology at their facility. I think it is worth noting, as you have said in your testimony, that in New Jersey the inherently safer technologies requirement under the chemical sector best practices standards represents a practicability test as I see it. It is not mandatory that a covered facility implement IST, only that they evaluate it. From your experience implementing a program in New Jersey, do you feel that there is a cost/benefit relationship to performing IST analysis?

Mr. SONDERMEYER. Thank you. I would say, as I said earlier in my remarks, that from our experiences working very cooperatively with the chemical industry, that IST analysis is really a good business practice. So there is a cost/benefit analysis element to it. It

makes sense from the company's perspective to evaluate inherent safety and to make appropriate changes for economic reasons.

We talked a lot about worker safety, which is of critical importance. They look out for their employees and of course from our perspective as a DEP regulatory compliance. So we do think that there is a cost/benefit analysis positive to performing the analysis. And as you referenced, sir, the rulemaking that we proposed in April really takes the requirement for inherently safer technology, which it has already done for the chemical plants. And we feel so strongly from our experience, we seek to expand it, to involve food processing facilities, water treatment facilities, wastewater plants and some energy facilities.

Mr. PASCRELL. How many times do you meet with Mr. Canas to go over what you find at these chemical facilities? He is the head of Homeland Security in the State of New Jersey. What kind of regular meetings do you have with him?

Mr. SONDERMEYER. My response would be that our relationship is pretty much seamless. It is an unusual program. We don't have dedicated resources. But to directly answer your question, I in my title as the Chief of Staff, Director of Operations am with folks from Director Canas' office every other week. Every 2 weeks we have a structured meeting to coordinate.

Mr. PASCRELL. Will the new CFATS regulations require those facilities to make significant security upgrades, and my second question is without identifying the facility, the facility's name or location, can you describe the security measures your facilities are putting in place? Could you give us an idea of what they are doing to make the place safer? Because we know if one of these things goes off in terms of the volatility of the chemicals we have got a natural disaster.

Mr. SONDERMEYER. Right. Yeah.

Mr. PASCRELL. Or a very unnatural disaster.

Mr. SONDERMEYER. Right. I think it is fair to say that the measures put in place are very comprehensive and sweeping. It is hard to answer really specifically because each plant is different. And that is why the site specific vulnerability assessment is so critical. So you look at each individual circumstance. Target hardening certainly has been done across the board in terms of fencing and scanning and bollards and whatever target elements are put in place, cyber security protocols, which is of critical importance.

We had some experiences in New Jersey where a system went down for a few days. It paralyzes you. Cyber security is very critical. Badging and credentialing, background checks, you know, who can access, who can't access, who is looking at the Sparkletts water person or the Purolator courier delivery person. All these elements have been part of the best practices that we adopted that they had to evaluate and come up with schedules for implementing.

Mr. PASCRELL. Madam Chairwoman, can I ask one more question of Mr. Miller?

Ms. JACKSON LEE. Mr. Pascrell, if you can be very quick on that last question. And then if Mr. Miller—please abbreviate your answer.

Mr. PASCRELL. Could you be as nonspecific as I asked Mr. Sondermeyer to be in terms of the facilities under your jurisdiction?

Mr. MILLER. Well, first of all, Congressman Pascrell, we have got a limited number of facilities in New Jersey and we do have a presence there. So anything—I have got to be very careful about not getting real specific about what we have done at our facilities. I will concur with Mr. Sondermeyer, that the measures that he mentioned we do in fact have. I will say that we also helped write the best security practices that are in place there.

Mr. PASCRELL. I think that is important that you mention that.

Mr. MILLER. But I also will point out that in the inspections that were done in reaction to the IST requirements, the focus tended to be because he has already said that their people were trained on the DEP side, that the focus tended to be on what type of evaluation we did related to IST and the focus was not as heavy on what kind of security measures we had in place. From a security professional, that is a concern of mine, that the focus moves from the overall security posture that we have in place as opposed to focusing on one particular security measure.

Mr. PASCRELL. I think that is significant what you just said in that we need to be doing more things in terms of the security rather than talk about the safety aspect of this whole situation. I think that is very important that you mentioned that.

Thank you very much. Thank you for all your testimony. Thank you.

Ms. JACKSON LEE. The gentleman's time is expired. I thank Mr. Pascrell. He made a very, very key, if you will, distinction that defines the Homeland Security Committee and Department. And that is the idea of security and, Mr. Pascrell, it seems that when we discuss this issue there is an enmeshing or a fudging of the safety security definition and many people will wonder why our additional oversight because they say we are safe. But safety is not security. And frankly I believe it is important that the conclusion of this hearing, and there may be a need for another hearing to indicate that we are going to have legislation, the focus will be on security. And the idea will not be to stifle the productivity and growth of the industry. But it is to recognize that the chemical and refining industry many times are located in the seat of population, they remain vulnerable because they are old, their equipment is old, and we hope that this oversight will be taken as a positive step, one, to look to 21st century technology to provide a vehicle for academic institutions, to begin to assess cutting edge technology that will be helpful to the industry and, as Mr. Setley has said, to make chemical security employees on the frontline providing security in those areas. And as I am continuously concerned with surrounding neighborhoods, to let them not be acted upon, but to have them act with us in securing their neighborhoods.

And finally, Colonel, as I started out this hearing, we thank you for your service. There has been a decided improvement and recognition of your commitment to the security of America. It is our responsibility as members of this committee to in essence turn the lights on, pull the covers back and pronounce the need for more resources and more personnel and not run from it and not hide from

it and ask this administration if they recognize that you have the needs that you have. We will be the voice because we have to be the voice for the people. And frankly I believe that there is a great need to be able to bolster your department for the many infrastructure needs that we are going to be addressing that are now still in the eye of the storm. And certainly you don't have the resources to cover that gamut. We don't want to give the details to those who are our enemies, but we want to be prepared to be in front of the enemies and not behind them.

So we thank you for your testimony, all of you. Certainly, Mr. Sondermeyer, we thank you for representing in essence the States and their work and we look forward to working and collaborating with them. Mr. Miller, send the word out to the industry that we are not foes, but we need to be allies in the war against terror and the idea of securing the homeland. I thank the witnesses for their valuable testimony and the members for their questions. The members of the subcommittee may have additional questions for the witnesses, and we will ask you to respond expeditiously in writing to those questions.

In addition, I ask for unanimous consent that these testimonies and reports be entered into the record, Synthetic Organic Chemical Manufacturers Association report entitled Chemical Security New Jersey, completed by the Maxwell School at Syracuse University. Dr. Mannan, there goes the academic report.

[The information follows:]

FOR THE RECORD  
SUBMITTED TO THE  
U.S. HOUSE OF REPRESENTATIVES  
COMMITTEE ON HOMELAND SECURITY  
SUBCOMMITTEE ON TRANSPORTATION SECURITY AND INFRASTRUCTURE PROTECTION  
ON  
U.S. DEPARTMENT OF HOMELAND SECURITY'S CHEMICAL FACILITY ANTI-TERRORISM  
STANDARDS (CFATS) AND OTHER RELATED CHEMICAL SECURITY MATTERS  
PREPARED BY  
WILLIAM E. ALLMOND, IV, DIRECTOR, GOVERNMENT RELATIONS, SOCMA  
WITH  
JEFFREY GUNNELFSEN, SENIOR MANAGER, GOVERNMENT RELATIONS, SOCMA  
DECEMBER 12, 2007

#### ***I. Introductory Comments***

SOCMA appreciates the opportunity to submit this testimony regarding the implementation of the U.S. Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) and other related chemical security matters. Our goal is to provide you with a description of the effects of the Agency's new chemical security standards are having on the specialty and batch chemical manufacturing sector. We also want to share our position on the use of inherently safer technology (IST), as well as our opinions on the Department's staffing and resources.

**About SOCMA.** Approximately 90 percent of SOCMA's members are small businesses, according to Small Business Administration definitions. While commodity chemicals make up most of the production volume in the global marketplace, specialty and batch chemicals make up most of the diversity (the number of different chemicals) in commerce. As a condition of membership in SOCMA, chemical companies must subscribe to our environmental, health, safety, and security management system, ChemStewards. This self-imposed program requires companies to develop systematic approaches to environmental and chemical risk management with independent, third-party verification.

## ***II. The Unique Nature and Role of Specialty and Batch Chemical Manufacturing Sector***

Specialty and batch chemicals are essential ingredients and building blocks for the manufacture of almost everything produced in the United States. Specialty and batch chemicals perform very specific functions, based largely on their molecular structures, giving them unique physical and chemical properties. Without these substances, nylon would not be strong enough to use for seatbelts, medicine would revert back to what it was in the 1800s, and our armed forces would not have the equipment and supplies necessary to defend our country.

Specialty batch chemicals have complex chemistries and narrowly focused applications, and are typically produced batch-by-batch in reaction vessels. Batch processes are very different from the 24 hours-a-day, 7 days-a-week continuous operations that produce commodity chemicals. Since continuous processes employ continuous feeds and yields, the production volume is usually far greater than for batch processes. The main difference, however, is that a batch process, incorporates the chemical reaction (and yields the desired product), has a distinct beginning and end for each batch. As a result, the products that are stored onsite also change on a continual basis.

Batch producers are necessarily flexible, and they can make many different products during any given production year. Their business is driven by customer demand, and many chemicals are made on short notice. As a result, the types and quantities of chemicals onsite at a batch manufacturing facility often change from week to week or even day to day, leading to similarly frequent changes in the risk profile of the facility. Because of the differences in processing and variable production schedules, another distinct feature among specialty and batch chemical producers is the variability of risk at production and storage sites. This ever-changing risk profile can be a challenge for risk managers, but it also provides opportunities to continually review the chemistries for novel and safer approaches. Conveniently, frequent changes in the risk profile also makes it that much harder for a potential terrorist to know what chemicals are on site and in what quantities at any one time. The inherent variability of batch manufacturing can actually make these sites less attractive as a target of terrorists.

## ***III. Implementation of CFATS and Path Forward***

With the November 20, 2007, *Federal Register* publication of Appendix A to the Chemical Facility Anti-Terrorism Act standards, the chemical security regulations are finally being implemented. It is premature to judge today how well the implementation of the standards is or will unfold. Nevertheless, there has been progress made that is worth noting, in addition to concerns with the direction of the standards going forward.

The approach taken by the Department in promulgating the standards is the right approach. The Department kept the potentially regulated community engaged during the development process rather than seeking input only after the fact. Instead, DHS carefully took into consideration how important it is to know who is handling dangerous chemicals, and limiting regulations to the highest risk chemicals at the sites that pose the highest security risk to the nation. It would have been far too easy to make one-size-fit-all regulations. The practical, risk-based standards that emerged mandate robust, accountable actions with stiff penalties for non-compliance.

An important point to understand is that the industry did not wait for federal standards before taking actions to secure their facilities. Millions of dollars have been invested following 9/11 to implement additional security measures above and beyond those that are put in place in accordance with normal operating procedures at a chemical facility. In 2002, SOCMA and its members developed a comprehensive, asset-based security vulnerability assessment methodology (SVA) and voluntarily completed assessments years prior to CFATS. The methodology was eventually recognized by the Center for Chemical Process Safety (CCPS) as a recommended methodology. Additionally, SOCMA members have been required to inte-



grate security practices into their management system, ChemStewards, which is mandated by SOCMA.

Some other security achievements prior to CFATS finalization that are especially noteworthy include the Chemical Industry Site Security Guidelines, that SOCMA cosponsored in 2001 to serve as a temporary, but timely, compilation of security best practices. SOCMA has also sponsored numerous well-attended conferences and web-based seminars since 2001, which have established a higher degree of attention to chemical plant and chemical transportation security following 9/11. SOCMA helped lead the development of the Chemical Sector Coordinating Council, which assembles the various sectors of the industry to discuss priority security issues and provides a forum to exchange information about threats and vulnerabilities with DHS and other key Federal and State government agencies.

These examples only scratch the surface in listing the activities and achievements made by the industry to better secure their facilities and products. The bottom line is SOCMA and its members took and continue to take the initiative in addressing chemical security challenges. DHS's new security standards will complement many of these achievements and provide for additional safeguards where necessary.

The biggest concern we have about the implementation of CFATS is the possibility of having the requirements altered by Congress in mid-stream before the standards expire. The single fact that the standards expire within a short window of time after being promulgated is difficult enough—though not impossible—for members, particularly from a planning and implementation perspective. On the other hand, the limited timeframe given to the implementation of CFATS further underscores why Congress should resist calls from special interest groups to revise the standards now. SOCMA urges Congress to not delay further the implementation of this important set of regulations. While we are confident that our members are prepared to comply with the standards, the extent of security commitments by other facilities subject to CFATS is unknown. These standards provide unified regulations and will go a long way towards holding covered facilities accountable. We look forward to working with Congress in the future to re-authorize the CFATS.

#### ***IV. SOCMA's General Position on IST and the Commonwealth of New Jersey's Inherently Safer Technology (IST) Review Under its Toxic Catastrophe Prevention Act (TCPA)***

SOCMA members covered by New Jersey's chemical security rules report that the rules have not been overly burdensome. However, they also report that inspections conducted by the State focus 80 percent on a site implementation of IST and only 20 percent on actual security regulatory compliance. Since many sites in New Jersey are also subject to Federal rules, such as the Environmental Protection Agency (EPA)'s Risk Management Program (RMP) and the Occupational Safety and Health Administration (OSHA)'s Process Hazard Analysis (PHA) regulations, in addition to state rules, one could question the priority of the New Jersey security program.

The New Jersey "prescriptive order" did not go through due process (notice and comment) and rulemaking, denying the regulated community the opportunity to comment on the rule and resulting in a number of issues and gaps that could have been easily avoided or otherwise addressed.

IST is only one of many methods for potentially reducing risk and vulnerability. Vulnerability assessments should consider the feasibility of a multitude of methods that would improve security while achieving the optimum balance of vulnerability reduction cost effectiveness. From our members' experience in New Jersey, as stated previously, the focus of the vulnerability assessments was entirely on IST to the point of essentially neglecting all other methods of improving security. Since IST has long been an integral part of designing a facility and regular plant health assessments, the newly required New Jersey vulnerability assessments audits were of very little value because of its narrow focus. The New Jersey security process could be greatly improved by broadening the scope to include the entire available spectrum of physical security tools and processes.

SOCMA recognizes that employee awareness, knowledge and assistance may be necessary in identifying and effectively managing security-related scenarios. However, employee inclusion throughout the entire vulnerability assessment process adds little security expertise and raises concerns regarding the protection of Security Sensitive Information (SSI) or Chemical-terrorism Vulnerability Information (CVI) discussed during the process. Furthermore, the protection of security information (non-disclosure) provisions in the prescriptive order and under New Jersey law are insufficient and fall short of federal information protection standards for security related information.

On a federal level, SOCMA believes that the DHS has a useful role to play in encouraging the private sector to incorporate IST as a means to reduce security

risks at chemical facilities wherever possible. However, we do not support regulatory measures that mandate IST. Such mandates are unnecessary and, in some cases, would fall short of their intended purposes.

Supporters of regulatory IST measures within the context of chemical security either ignore industry's commitment to this every day process safety measure or they misunderstand its purpose. In the name of security IST is being used to support environmental agendas and not security. IST is an established chemical engineering philosophy that was launched by the industry in the late 1970s. Its goal is to use traditional engineering, chemistry, and other scientific concepts to reduce the risks associated with chemical processing. Risk and safety are often used in the same context, but the two actually have an inverse relationship: as risk is reduced, safety is increased. Since its inception, IST has been ingrained as a normal part of the engineering discipline in the chemical industry.

The main goal of IST is to reduce risks to health and the environment, similar to the goals of pollution prevention (P2) and risk management in general. The idea is to tie risk reduction to lower operating costs, which is fairly straightforward in the chemical industry. The costs associated with handling materials classified as hazardous have increased substantially over the past 20 years. The economic incentives for reducing the use of hazardous chemicals include reducing the likelihood of accidents among laboratory and processing workers, cheaper transportation and disposal costs, discounted insurance rates and fewer regulatory requirements. Obviously, it is in a chemical company's best financial interest to handle less hazardous substances; it reduces costs, which helps maximize profits. The concept of risk reduction, practiced through IST, P2 and other environmental management systems, is an important feature of the business model employed by chemical producers. The same principle applies for those who use, store or distribute chemicals. In many ways IST is already built into the chemical supply chain.

The pilot phase in research and development (R&D) typically attempts to replicate the bench-scale results at a slightly larger scale. The process (i.e., chemical reaction and necessary equipment) is reviewed in detail and tweaked accordingly. The R&D phase may continue and include trial usage at the customer's site, to check product performance, ensure that the product can be used safely and make sure that there are no unaccounted risks. IST does not stop at the R&D phase, however. This approach is also applied when full-scale production begins, to double-check findings from earlier studies. If changes in production are made at some point in the future, the review process is conducted all over again to see what impacts the changes will make.

IST approaches are based on fundamental, long-standing engineering and chemistry principles. The concepts associated with IST work because they identify opportunities to maximize yields, reduce wastes and reduce risk, which, in turn, reduce cost and maximizes profit—the most powerful driver in business. Even if the conditions in the market place change, such as new regulations or restrictions, the fundamental driver for business decision-making will continue to be the maximization of profit. IST uses fundamental engineering and chemistry principles that fit well into the chemicals business model.

Despite its fundamental importance, IST is one of the most misunderstood concepts in commercial chemistry. While it seems self-explanatory, the term as used in chemistry and engineering may be misleading to non-scientists. Many non-scientists have been led to believe that the only way to ensure safe chemical manufacturing or achieve pollution prevention is by reducing the amount of hazardous substances used in chemical manufacturing and processing. Application of IST, however, follows basic, scientific principles, and is bound by the laws of physics; a simple reduction in the use of hazardous chemicals is rarely possible within the confines of a particular chemical reaction or process. When such reductions are possible, they often result in the transfer of risk to other points in a chemical process or the supply chain, without actually reducing it. To place the current IST debate in context, this discussion will begin with an illustration of the limitations of substitution in the field of chemistry, and then move to an explanation of why reducing a hazard in a process does not necessarily reduce the overall risk.

Like IST, chemistry is also bound by the laws of physics. These physical laws place restrictions on what can and cannot be done when trying to make a chemical. For instance, a molecule (i.e., a chemical) is made up of atoms (e.g., sodium, carbon, chlorine, etc.) that are in specific locations or positions on the molecule. In organic chemistry, the goal is to take the atoms from one molecule and move them to locations on another, different molecule so that the target molecule takes on a specific function or behavior.

The laws of physics dictate if, how and when those atoms can be moved. To achieve certain critical structural changes, reactive chemicals must be used, and

many are by their very nature hazardous, e.g., toxic, flammable, etc. In light of these constraints, scientists seeking to achieve certain chemical changes are often left with few alternatives. Where hazardous chemicals are used, they are highly regulated by EPA, OSHA, the Department of Transportation (DOT) and other agencies, and appropriately managed by chemists in universities, government and industry. Scientists usually cannot produce the materials that make our standard of living possible without using very specific chemicals. Making medicine is a good example.

Often, it takes multiple steps to make medicine. Each step in the process carefully moves atoms from one molecule to locations on another molecule. Eventually, the scientist will obtain the desired chemical that performs a precise medicinal function. The movement of these atoms, from one molecule to another, is a chemical reaction and can only take place using certain materials. The chlorine atom, for instance, when it is located on a specific part of a molecule, allows these steps to take place. One common misconception, though, is that any chlorine atom will do. That is not the case. Chlorine atoms take on different behaviors, or physical properties, depending on the atoms to which they are attached.

Table salt consists of the sodium (Na) and chlorine (Cl) atoms, which make up the chemical sodium chloride (NaCl). The chlorine atom used to make medicine, on the other hand, often comes from phosgene (COCl<sub>2</sub>) or phosphorous trichloride (PCl<sub>3</sub>). Phosgene, for example, has one carbon atom bonded to one oxygen atom and two chlorine atoms, giving the chlorine atoms very specific characteristics. The sodium atom that is attached to the chlorine atom in table salt, however, gives the chlorine a different nature. The very specific nature of the chlorine atom in phosgene is critical to its fundamental role in pharmaceutical manufacturing and minimizes the formation of potentially toxic by-products that would otherwise contaminate the medicine. By contrast, to use the chlorine in table salt in the drug manufacturing process would require the application of electrical energy to the salt, resulting in the formation of chlorine gas, which is corrosive and poisonous by inhalation. At that point, it is no longer table salt; it has been converted into a compound (chlorine) with similar hazards to the phosgene and achieving that conversion required the introduction of additional risks. The complex chemistry associated with making medicine has well-defined physical boundaries and requires the use of reactive chemicals. That is why, generally, medicine is not made from table salt.

IST is a conceptual and often complex framework that covers procedures, equipment, protection and, when feasible, the use of less hazardous chemicals. Its premise is that if a particular hazard can be reduced, the overall risk associated with a chemical process will also be reduced. In its simplicity, it is an elegant concept; however, reality is not always that simple. A reduction in hazard will reduce overall risk if, and only if, that hazard is not displaced to another time or location, or does not magnify another hazard. If the hazard is displaced, then the risk will be transferred or increased, not reduced. In science, risk is dependent on the circumstances and surroundings of a hazard. A simple reduction in hazard will not necessarily result in a reduction of overall risk. IST decisions, therefore, are and should be based on overall risk, not simply on inherent hazards.

Here are several examples of how seemingly simple reductions in hazard may affect overall risk:

#### *Reducing the amount of a chemical stored on site*

A manufacturing plant is considering a reduction in the volume of a particular chemical stored on site. The chemical is used to manufacture a hazardous precursor to a critical nylon additive, which is sold to another company and used to make seat belts stronger. Because it is a critical component for nylon strength, and seatbelt production cannot be disrupted, the production schedule cannot change. If the amount stored on site is reduced, the only way to maintain the production schedule is to increase the number of shipments to the site. This leads to more deliveries (an increase in transportation risk), more transfers of chemical from one container to another (an increase in transfer risk) and, since there is now a greater chance that production could be disrupted by a late shipment, there is an increase in economic risk.

#### *Substituting Sodium Hypochlorite for Chlorine*

Some people point to the Blue Plains water treatment plant in Washington, DC, as a prime example of how easy it is to substitute sodium hypochlorite solution for chlorine gas as a wastewater disinfectant. Unfortunately, several important facts are usually missing from these explanations. First, the conversion was not an overnight process; in fact, the substitution began prior to September 11, 2001, and included costly retrofitting to the plant to accommodate the substitution. Secondly, the District of Columbia is in a different situation financially than other municipalities, in that it often receives federal funding to make such expensive changes possible.

Also, it takes a large amount of sodium hypochlorite to achieve the same sanitizing effects as chlorine. But the most important fact missing from this story is that it takes chlorine to make sodium hypochlorite. The facilities producing the hypochlorite must now use and store vast quantities of chlorine in very few locations to keep up with the increased demand. There are only a handful of sodium hypochlorite producers in the United States, which means that more and more chlorine will have to be concentrated in a few locations to keep up with demand. The ultimate result of this is a huge increase in risk at chemical facilities that produce hypochlorite and, since water treatment plants typically use 1-ton cylinders, a somewhat modest reduction in overall risk.

As noted earlier, the philosophical movement of IST was born in the chemical industry during the late 1970s and is routinely practiced by chemical engineers. It can be argued that this approach, along with the concept of P2, led to the establishment of environmental management systems, which provide a systematic way to manage environmental, health and safety risks. At no time during the evolution of IST were the founders thinking about applications in chemical site security. In fact, practitioners of IST, i.e., chemical engineers, to this day consider IST strictly an environmental, health and safety approach.

Only recently have some people sought to connect the concept of IST to security; and, they are typically not engineers, nor do they practice IST. In fact, most do not have the technical background to fully grasp the concepts and principles that comprise IST. Further, they misunderstand that IST is a *risk*-based concept and not a hazard-based concept.

To SOCMA's knowledge, only one study has been conducted to attempt to connect the concept of IST to security. In April of 2006, the Center for American Progress published a report, *Preventing Toxic Terrorism, How Some Chemical Facilities Are Removing Danger to American Communities*, which claims that 284 chemical facilities have substituted hazardous materials for less hazardous products. It is easy to misinterpret this report. Just the title alone is misleading, because it uses the term "chemical facilities," when, in fact, approximately 90 percent of the study facilities are related to utilities, not chemical plants. Most of the facilities in the study are related to water treatment (about 75 percent), agriculture (almost 10 percent) and electricity (about 5 percent). Out of the 16 manufacturers that responded, only 6 were in the chemical or allied products industries. Most of those 6 make formulations, which are mixtures of chemicals, but those companies do not actually produce the chemicals. The IST methods applied were as follows:

- 3 moved operations or storage to another location
- 1 changed from rail shipments to pipeline distribution
- 1, a chemical wholesaler, provided no explanation of what was done
- Only 1 company actually implemented IST; but, in reality, it was an engineering and process change more than a chemical substitution

This study has little to do with chemistry or chemical manufacturing. It primarily concerns the substitution of products used by water and electricity providers, and farmers.

In most cases presented in the report, chlorine was substituted with sodium hypochlorite solution. As was previously pointed out, it takes chlorine to make hypochlorite bleach; therefore, the few bleach manufacturers will have to have much more chlorine on hand, concentrated in very few places, to keep up with the ever-increasing demand for hypochlorite solution. This not only transfers the risk, but concentrates it and magnifies it—due to more chlorine being needed at the bleach manufacturing sites. Also, commercial grade hypochlorite solutions present very well-known risks as well.

The prefix "hypo" indicates that the compound has as much chlorine as is physically possible and needs a specific substance to prevent the chlorine gas from being released out of the hypochlorite solution. Hypochlorites by their very nature are unstable compounds, which is why we do not see a dry form of sodium hypochlorite, and will release copious amounts of chlorine gas under easy-to-achieve conditions. I would argue that there are more incidents involving the release of chlorine from hypochlorites than releases from actual chlorine vessels, such as rail cars and cylinders.

The only example in the report of IST being used at an actual chemical facility was the substitution of oleum with sulfur trioxide. Oleum, also known as fuming sulfuric acid, is simply sulfuric acid with an excess of sulfur trioxide added. The sulfur trioxide is the chemical consumed in the process, and is much more dangerous than the sulfuric acid. The company chose to manufacture and consume the sulfur trioxide on-site, rather than having it delivered in concentrated sulfuric acid. This is an excellent example of IST, because the transportation and transfer risks were reduced, and waste was minimized. These changes will probably pay for themselves

and reduce overall costs for the company in the long run. In the context of security, however, is there a significant amount of risk reduction? It could be argued that the answer is no. Although oleum releases sulfur trioxide fumes, it does so at a rate that is much slower than a release of pure sulfur trioxide from a pressurized cylinder or rail car. Because of the slow release of sulfur trioxide gas from the oleum, a release would be fairly easy to control compared to a release of liquefied or pressurized sulfur trioxide.

IST uses chemistry and engineering principles to enhance safety and reduce risk. Chemistry and engineering must follow the laws of physics, significant risk reduction is very difficult to achieve, without transferring the risk to something—or someone—else.

Congress already created a law to ensure that full consideration is given to the same concepts and principles that make up IST: The Pollution Prevention Act. There are also components of IST built into the EPA's Risk Management Program, under the Clean Air Act, and the Process Safety Management regulations at OSHA. IST is an environmental, health and safety approach, and not a panacea for security.

Members of the industry support the concept of using inherently safer technologies whenever possible for more than economic reasons. They have a big motivating factor: their own safety. Scientists spend hours each day in laboratories and manufacturing facilities that use and produce chemicals. It is difficult to imagine that any scientist would not want to work under the safest conditions possible.

With all of these economic and safety incentives in place, the question becomes: Why do chemical companies still use hazardous materials? The laws of physics are a much larger determining factor in selecting process materials than anything else. No federal program mandating IST or P2 will change how these processes are run in any significant way. Instead, such a program would result in government micro-management of the design and engineering at individual facilities, would impose burdensome paperwork requirements on the regulated community, would duplicate certain key requirements of other federal and state regulatory programs, could slow chemical production activities, and could lead to manufacturers moving production overseas. Forcing implementation of IST could be quite costly. As the cost of doing business in the U.S. increases, manufacturers will seek opportunities to relocate to lower-cost regions, taking much needed manufacturing jobs with them.

#### **VI. CVI**

SOCMA generally supports the level of information protection provided for under CFATS CVI provisions. Most military, industrial security, law enforcement and intelligence professionals agree that the protection of information that could be exploited by adversaries is paramount to a security program. SOCMA's biggest concern is the lack of a notification procedure to alert facilities that CVI may have been disclosed to an unauthorized party. A facility certainly has a need to know if sensitive information pertaining to its site has been disclosed.

Additionally, some uncertainty exists with managing facility security information that is now classified as CVI. When the U.S. Department of Transportation adopted its sensitive security information (SSI) designation several years ago, there was widespread confusion over how to adequately restrict access to documents that were once openly available to employees and how to convincingly communicate this to employees who were subsequently restricted because they were not authorized users.

#### **VI. DHS Staffing/Resources**

SOCMA would like to recognize DHS for the good work that they have done in a limited amount of time and with limited resources. They have created a sensible security program that is risk based, recognizing that not all chemical sites are the same nor will they all have the same hazards or pose the same risks. SOCMA does request that Congress provide additional resources to the DHS CSCD to ensure the program can continue to fulfill its mission.

#### **VII. Conclusion**

Compliance with the U.S. Department of Homeland Security's Chemical Facility Anti-Terrorism Act standards is now underway. It is too early to judge how well the implementation of the standards will unfold. Nevertheless, it is certain that statutory changes to the standards before they expire will undermine the implementation. Attempts to mandate product substitutions as a means to reduce security risks should be avoided. Current standards are appropriately based on risk, not hazards. There are numerous well-established State and Federal regulations that industry must currently follow that adequately mandate process safety, pollution prevention, and process hazard analysis. In conclusion, the current standards need to be allowed

to be implemented, CVI needs to be further explained, and IST is not the solution to chemical site security.

Ms. JACKSON LEE. And with that, hearing no further business, hearing no objection to the submission of these particular documents and then hearing no further business, the committee stands adjourned. Thank you again. Happy holiday to all.

[Whereupon, at 12:05 p.m., the subcommittee was adjourned.]

