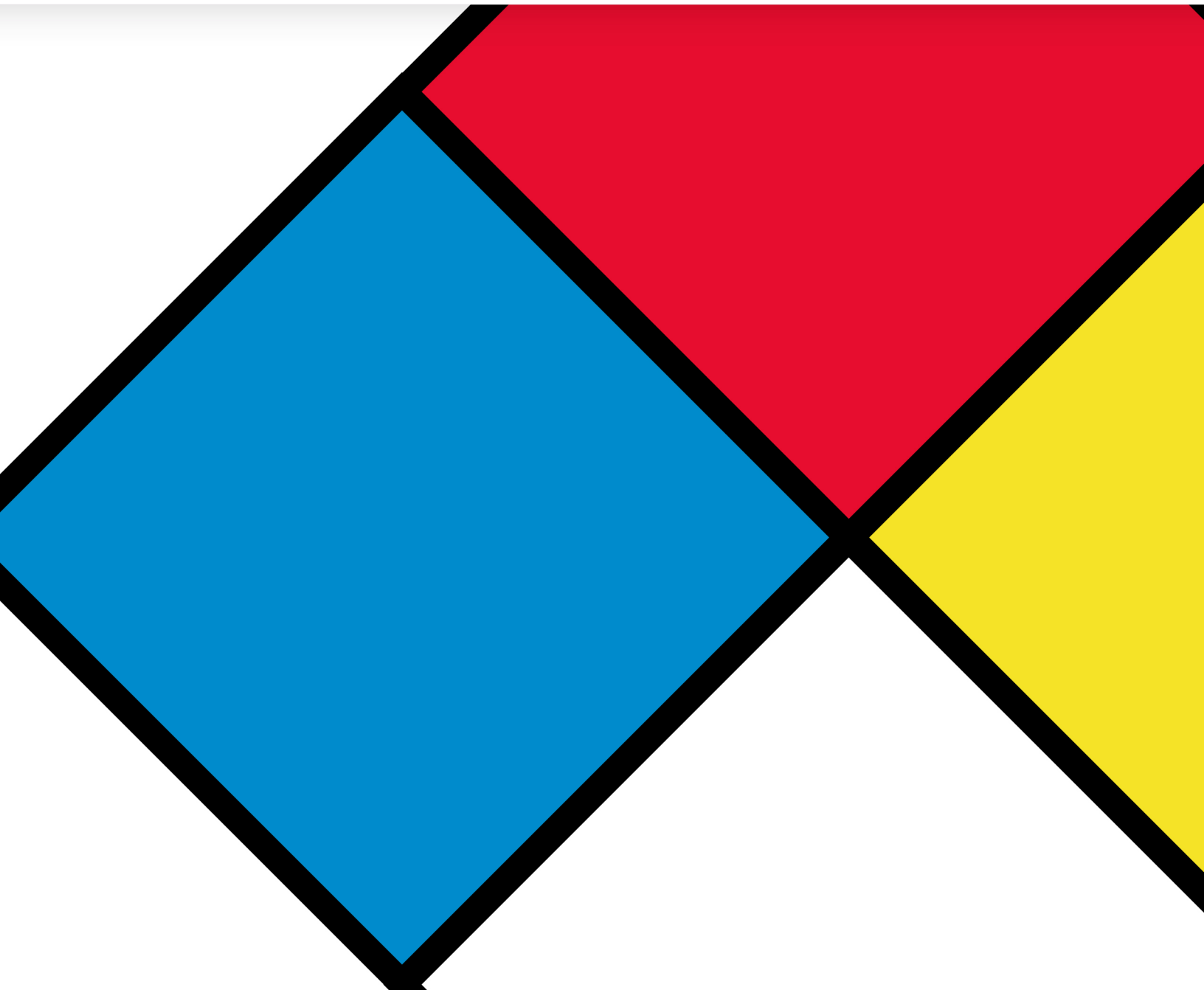
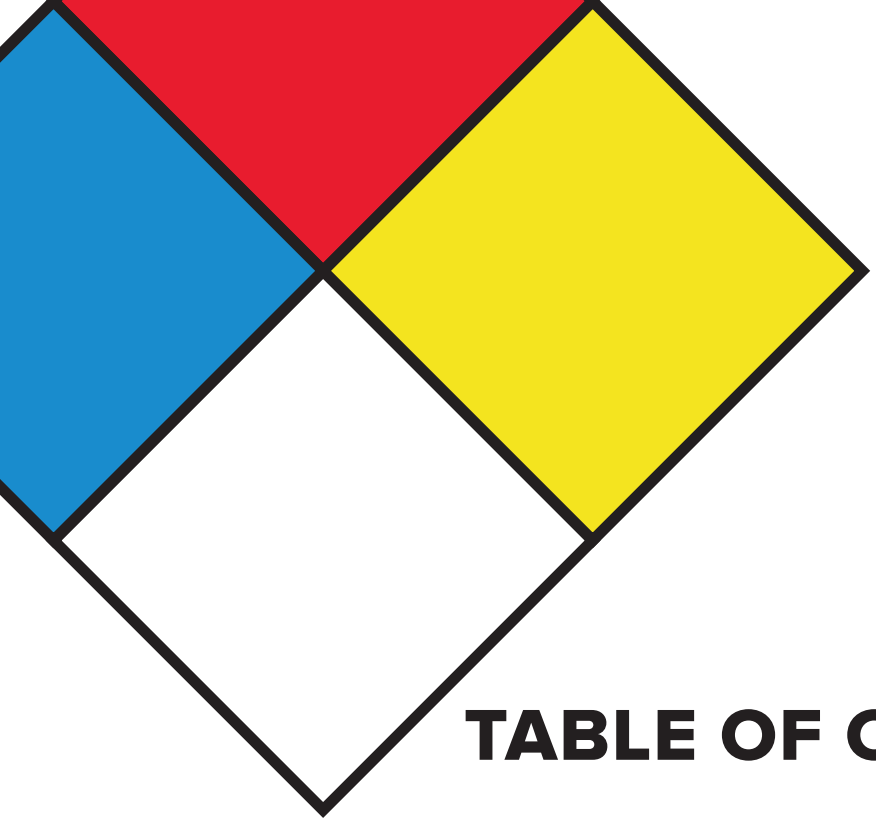
U.S. SENATE
HOMELAND SECURITY & GOV. AFFAIRS COMMITTEE

# CHEMICAL INSECURITY

AN ASSESSMENT OF EFFORTS TO SECURE THE NATION'S CHEMICAL FACILITIES FROM TERRORIST THREATS

A REPORT BY TOM COBURN, RANKING MEMBER





# TABLE OF CONTENTS

# EXECUTIVE SUMMARY

ELL BEFORE THE September 11, 2001, attacks, the federal government was aware of the vulnerability created by the chemical facilities that dot our nation. While contributing immensely to our economy, chemical facilities that process hazardous chemicals can present a target of opportunity to a would-be terrorist if left unsecured. As a nation, we nearly learned that the hard way in 1999, when three men plotted to blow up one of the largest propane facilities in the country. Located in Elk Grove, California, the facility was home to two colossal, twelve million gallon, propane tanks; several smaller propane tanks; and three railroad lines filled with 33,000 gallon propane tank cars.[1] Fortunately, the hard work of Sacramento's Joint Terrorism Task Force stopped the attack before it began. But the attempt left its mark — had the attack been successful, it could have created a firestorm eight miles wide, decimating residential areas less than a mile away.[2]

The attempted attack on the Elk Grove propane facility, and the September 11th attacks two years later, revealed our exposure to an attack on domestic chemical facilities. As then Director of Central Intelligence George Tenet warned Congress in 2002, "al-Qa'ida or other terrorist groups might … try to launch conventional attacks against the chemical … industrial infrastructure of the United States to cause widespread toxic … damage."[3]

Responding to that potential threat, in 2006, Congress authorized the Department of Homeland Security (DHS) to begin a new program to increase the security of chemical plants across the country against terrorist attacks. Since then, DHS has spent $595 million and hired 250 employees to launch a regulatory and inspection program, develop security standards for chemical facilities, and analyze and determine which chemical facilities are the highest risk and should be subject to security regulations.

But the Chemical Facility Anti-Terrorism Standards (CFATS) program has faced substantial problems. In early 2010, DHS officials learned the program's risk assessment model contained a computational error that meant DHS had overestimated the risk of a terrorist attack for about 250 facilities.[4] DHS ultimately concluded about 100 of those facilities should not even have been covered by the CFATS program meaning they may have spent time and money acquiring security measures they didn't need.[5] Later that year, a sharply critical internal report revealed DHS had wasted taxpayer dollars on frivolous equipment the program didn't need, like rappelling gear and hazardous materials suits; had hired unqualified employees; was too reliant on contractors; lacked effective and professional leadership; and had yet to approve a single security plan.[6]

Then in late 2012, DHS discovered another error in the risk calculation for about 150 chemical facilities — DHS had neglected to consider the density of populations near facilities outside the continental U.S., like those in Alaska, Hawaii, Puerto Rico, and Guam.[7] In March 2013, DHS's Inspector General released a report identifying thirteen major deficiencies in the CFATS program, including a continuing backlog, lack of appropriate employee training, wasted funds, and a culture of management-retaliation and suppression of opposing opinions against employees. The Inspector General made twenty-four recommendations, of which eleven still remain incomplete.[8] The following month the Government Accountability Office (GAO) issued a report finding critical flaws still existed in DHS's approach to calculating risk, meaning DHS could be focusing and regulating the wrong facilities; a seven to nine year backlog of chemical facilities' security plans in the CFATS program; and poor engagement and transparency with regulated companies.[9] In the report, GAO made four recommendations, of which three remain open to this day.[10] For example, DHS has yet to develop a plan to bring its risk assessment process in line

with its own definition of risk and its plan for protecting critical infrastructure.[11] Then in late 2013, DHS's research and development center completed an internal review of the risk assessment finding fundamental problems, errors, inconsistencies, and unsupported assumptions in the methodology underlying the whole CFATS program as well as a general lack of transparency with the private sector and outside experts.[12]

Perhaps hoping DHS would finally fix the program, Congress has renewed CFATS each year, since the program's first authorization in late 2006.[13] Yet today — eight years later — there is little, if any, evidence to show that the more than half a billion dollars DHS has spent created an effective chemical security regulatory program or measurably reduced the risk of an attack on our chemical industrial infrastructure.

This report identifies fundamental problems in the design, implementation, and management of the CFATS program, finding:

- **CFATS is not reducing our nation's risk of a terrorist attack on domestic chemical infrastructure.** The program focuses on the wrong threats, shifts risk to other parts of the chemical sector and supply chain, and is unable to determine if it is improving security at the facilities it regulates. For example, the program regulates ammonium nitrate — a chemical that can be used in manufacturing explosives — but does not regulate twelve other chemicals that can also be used to manufacture explosives.[14] Meanwhile, CFATS continues to require chemical facilities to respond to changes in DHS's color-coded threat level system, although DHS phased the system out in 2011.[15]

- **DHS does not know whether some dangerous chemical facilities exist.**[16] Because of the way the program is structured, facility's initial reporting to DHS is largely on an honor system, with little way for DHS to identify facilities that do not report. As a result, there are likely to be chemical facilities with dangerous chemicals that DHS does not even know exist, some of which may be intentionally dodging regulators because of lax security.

- **CFATS regulates the wrong facilities.**[17] Designed to focus on the chemical plants at high risk of terrorist attack, the success of CFATS depends on an accurate understanding of facilities' risk. But experts, in a recently completed but unreleased review of the CFATS risk assessment process, characterize it as "riddled with problems."[18] According to the review and previous investigations, DHS is misjudging the risk of a terrorist attack at chemical facilities — it largely ignores key factors like threat and vulnerability, relies on threat information seven-years outdated, and makes basic calculation errors.[19] The review reveals identical facilities on either side of a state border could be treated differently because of inaccurate assumptions in the calculation. As a result, the program may be missing facilities at the highest risk of attack, while spending time and money scrutinizing plants at a lower risk of attack.

- **The CFATS program is failing to meet key deadlines, validate security plans, and conduct compliance inspections.** According to the GAO, it may be seven to nine years before CFATS catches up with a backlog of reviewing facilities' security plans and conducting inspections to verify compliance with security requirements. 99 percent of all CFATS regulated facilities have never been inspected by DHS for compliance in the program's eight years of existence and 78 percent of CFATS regulated facilities still have not had their security plans approved by DHS. Meanwhile, facilities will likely be required to resubmit new documents before CFATS catches up, exacerbating the backlog even more. Even if DHS meets its goal of halving GAO's estimate,[20] it is unlikely DHS would get back on track quickly enough to stay ahead of the two to three year resubmission schedule it requires of all 4,011 CFATS-covered chemical facilities.[21]

- **CFATS creates a massive regulatory burden for the companies it covers.** Despite doing little to reduce risk, CFATS is costly to the companies it regulates, forcing them to dedicate time and money they don't have to fulfill onerous administrative requirements that dwarf those of other agencies. Facilities with fewer than fifty employees are often required to submit over 2,000 pages of forms and

revise and resubmit the same form an average of almost three times, all through a cumbersome website. In fact, DHS has made every one of the thousands of facilities that have submitted a security plan revise and resubmit their security plans at least once. Meanwhile chemical facilities must satisfy the duplicative and disjointed regulations of their multiple other regulatory agencies, meaning some companies have to run the same exact background check on their employees multiple times, once for one agency, then again for CFATS. For example, personnel who have undergone background checks and received federal licenses to manufacture and store explosives from the Department of Justice, are required to undergo the same background check again from DHS in order to store ingredients used to manufacture explosives.

- **DHS is not transparent about how the CFATS program works and creates an adversarial relationship with the companies it regulates.** DHS makes the process of working with companies adversarial, assuming the worst about the private sector — that left to their own devices companies would eschew security and ignore the threat of terrorism just to increase profits. Also, by classifying information about CFATS and refusing to be transparent about how CFATS works, DHS is less able to leverage industry's and academia's chemical security expertise, making fixing CFATS much more of a challenge.

Without major changes to the program, the CFATS program will never work as intended. Catching up with the backlog, finding facilities that are skirting regulation, making sure DHS knows which facilities are the highest risk, and better engaging with outside expertise are all essential to getting this program on track. Congress and the President also need to take a broader look at chemical security in the U.S. — both threat and vulnerabilities — to ensure DHS is focusing on the most likely threats and addressing the key vulnerabilities that could be exploited. Some changes that would bring CFATS on the path to success are:

1. **Allowing lower risk CFATS-covered chemical facilities to self-certify their security plans meet DHS's security standards;**
2. **Fixing and validating the risk assessment model and tiering methodology;**
3. **Creating a CFATS advisory group from existing chemical sector and oil and natural gas sector coordinating councils;**
4. **Giving DHS the authority to penalize companies that try to evade security regulations;**
5. **Implementing sensible metrics to ensure CFATS isn't shifting risk to other parts of the supply chain;**
6. **Conducting a review of the threats and vulnerabilities across the spectrum of the chemical sector to make sure DHS is prioritizing chemical facility security appropriately relative to other risks; and**
7. **Harmonizing chemical security regulations across the federal government including vetting employees, determining the chemicals to regulate, and minimizing the administrative burden.**

In its current form, CFATS isn't working. The program regulates the wrong chemical plants — increasing costs for companies at lower risk while missing those at higher risk— and would not make us significantly more secure even if it worked as designed. Faced with new evidence of on-going challenges in CFATS, and the likelihood that the program will not be adequately fixed for many more years — if ever — Congress must act decisively. Whether Congress decides to substantially overhaul CFATS and put it on track, or terminate the program altogether, one thing is clear: small fixes here are no fix at all.

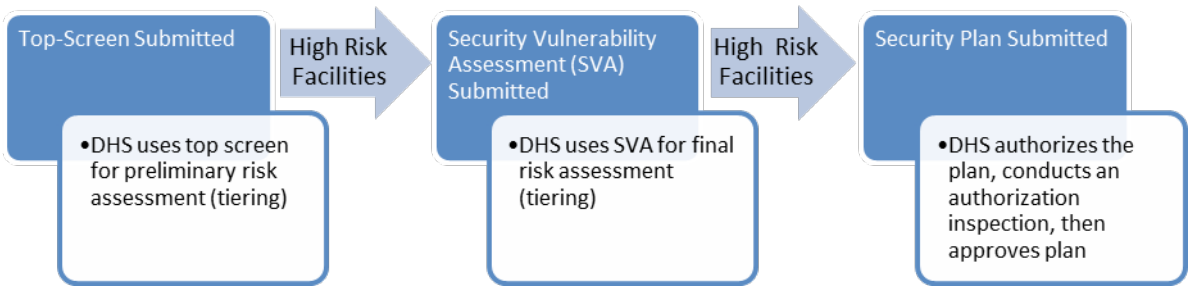
# BACKGROUND

> *[T]he chemical sector certainly stands as one of the principle areas of infrastructure about which we have to be concerned. If you look back at the whole history of the way al Qaeda has conducted its operations, where possible, they have always tried to leverage our own technology against ourselves. They've turned jets, commercial jets, into weapons. They've tried to use our own chemicals and our own products as means of exploding devices against us. [O]ne of the areas we have to be concerned about are parts of our infrastructure which house chemicals which could, if properly ignited, create a huge amount of havoc in a populated area — whether it be because of a large explosion or whether it's because of toxic inhalation. … [W]e have to make sure we are constantly focused on … how do we protect our chemical industry against being exploited by terrorists.*
>
> ***— Michael Chertoff, Secretary of Homeland Security (2006)***[22]

CONGRESS CREATED THE CFATS program in 2006 in response to the concern that chemical plants around the country could be turned into weapons against us.[23] Fearing terrorists could sneak onto an unsecured chemical plant and effect the release of toxic or flammable chemicals, Congress was compelled to act.[24] The consequences of such an attack are easy to imagine: the effects of chemicals like chlorine gas are well known — it was used as a chemical weapon in World War I — and all too often Americans have seen the tragic effects of accidents at chemical plants. Just last year, a fertilizer facility in West, Texas, tragically exploded taking the lives of fifteen, including eleven firefighters, injuring hundreds more, and devastating the small town of West.[25] Yet these sorts of accidents pale in comparison with the consequences of releasing large quantities of toxic gas into a densely-populated city, and with chemical plants in many of our most populated cities, the weapons are already in place.

In first authorizing CFATS, Congress required DHS to propose the final CFATS regulation to the chemical sector within six months, an unusually fast turnaround for a new regulation.[26] DHS successfully issued the proposed regulation within six months, and the final regulation within a year.[27] Under the CFATS regulation, companies with toxic or flammable chemicals must report to DHS.[28] DHS then conducts a risk analysis to determine if the facility is high risk.[29] If DHS determines the facility is high risk, the facility is covered by CFATS, meaning it is required to satisfy eighteen risk-based performance security standards, file a security plan with DHS, and submit to regular security inspections.[30]

The CFATS program is housed in the Infrastructure Security Compliance Division, a division of the Office of Infrastructure Protection in DHS's National Protection and Programs Directorate. Suzanne E. Spaulding was confirmed as the Under Secretary of the National Protection & Programs Directorate earlier this year, and David Wulf is the Director of Infrastructure Security Compliance Division where he leads the CFATS program.[31] For fiscal year 2014, the Infrastructure Security Compliance Division had a budget of $81 million and 253 employees.[32]




## The CFATS Process

CFATS is a program at DHS that regulates security at high risk chemical facilities across the country.[33] Under the program, DHS regulates chemical facilities with dangerous amounts of toxic or flammable chemicals, or "chemicals of interest."[34] DHS has identified 322 chemicals as chemicals of interest, because of their potential to be expropriated to commit acts of terrorism.[35] Two such chemicals of interest, for example, are chlorine and ammonium nitrate.[36] Chlorine is a dangerous corrosive that can kill or seriously injure people if released into the air. Ammonium nitrate, a common fertilizer,[37] can also be used in the construction of explosives.[38]

Determining whether a facility has a dangerous amount of a chemical of interest is based on an exchange of information between companies and DHS, which reviews the information to determine whether a facility should be covered by CFATS.[39] The process begins when a facility with more than a threshold amount of a chemical of interest informs DHS by submitting a form called a "top screen."[40] DHS then uses the top screen to conduct a preliminary risk assessment to see if the facility may be high risk.[41] If DHS determines the facility is not high risk, DHS tells the company, and the facility is not covered by CFATS nor is it subject to additional CFATS requirements.[42] On the other hand, if DHS determines the facility may be high risk, DHS compares and rates the risk of the facility against other high risk facilities and assigns it to a preliminary risk "tier."[43] High risk facilities are assigned a tier from one to four, with the highest risk facilities assigned to tier one.[44] Facilities that receive a preliminary tier must then submit a security vulnerability assessment providing more detailed information so DHS can conduct a complete risk assessment and assign a final tier (or determine the facility is not high risk and should not be covered).[45] A facility that receives a final tier after the vulnerability assessment is covered by CFATS.[46] Such facilities must satisfy a number of regulatory requirements including completing a security plan, sending it to DHS for approval, and submitting to DHS compliance inspections.[47]

The final tier is a reflection of DHS's assessment that the facility is at a high risk of certain types of attack such as theft or release of a toxic chemical, and it determines the level of security measures DHS will expect the facility to install to meet the risk-based performance standards.[48] This procedure from top screen to final tiering is the risk tiering process. Risk tiering is a critical part of the CFATS program because it determines which facilities are regulated, and the level of scrutiny they will face.[49] Higher tiered facilities are subject to greater security expectations and more scrutiny than lower tiered facilities (and facilities that are not covered because they are not "high risk").[50] Getting the risk tiers wrong means chemical facilities at a high risk of a terrorist attack may be left vulnerable to attack while facilities at a low risk of terrorism are being made to install expensive but unnecessary equipment.

The next step for a "high risk" facility is to complete either an extensive site security plan or alternative security program detailing the specific security measures it has in place to reduce risk.[51] Typically it is a cumbersome administrative process requiring the attention of more than one facility

employee, and several hundred pages of documentation. Regardless of which plan they choose — DHS's security plan template or a third party alternative security plan — the facility will need to persuade DHS it has complied with all eighteen of CFATS' Risk-Based Performance Standards for chemical facility security.[52] For example, one of the risk-based performance standards covers personnel surety — background checks on facility employees and checks for terrorist ties against the Federal Bureau of Investigation's Terrorist Screening Database.[53]

After receiving a security plan from a facility, DHS reviews the plan to determine if it meets the standards.[54] If it does, DHS authorizes the plan, and conducts a physical inspection of the facility to make sure the facility has the security measures shown on the security plan.[55] If the inspection is satisfactory, DHS issues a letter of approval.[56] DHS has sent 764 such approval letters as of May 2014.[57] After sending the letter of approval, DHS begins a cycle of regular inspections to verify the facility stays in compliance with its security plan.[58] Throughout the process leading up to the authorization inspection and approval of the security plan, DHS also conducts voluntary "compliance assistance visits" at the request of facility operators and owners, to help them complete their plans and identify the security vulnerabilities at their facilities.

According to DHS and the chemical industry, the U.S. chemical sector is an approximately $800 billion industry with almost 800,000 U.S. employees.[59] Depending on the facilities counted, there are several hundred thousand "chemical facilities" in the U.S.,[60] although only about 15,000 of them have toxic and flammable chemicals in large enough amounts to pose a great risk if released into the air.[61] Approximately 36,000 chemical facilities have submitted top screens to DHS, reporting they have one or more hazardous chemicals above DHS's reporting threshold,[62] some more than once.[63] DHS has at least preliminarily determined about 4,000 of those reporting facilities are "high risk" and finally tiered about 3,300 of them, thereby subjecting them to CFATS regulation.[64] In order to review those facilities' submissions, conduct the risk tiering process, and inspect the facilities, CFATS has a staff of about 250 employees and a budget of approximately $81 million.[65] In total, CFATS has spent almost $600 million since its inception.[66]

## The Reality of How CFATS Works

The reality is CFATS does not run as smoothly as intended.[67] It has received widespread criticism, including: a scathing internal report leaked in 2011 detailing employee misconduct, misuse of funds (like the purchase of rappelling gear and construction of expensive, but unnecessary classified storage rooms), poor performance, and ineffective hiring;[68] reports of an error in the tiering process resulting in re-tiering hundreds of facilities almost a year later;[69] an Inspector General report in March 2013 revealing technical problems with the program including issues with the custom-built CFATS data-entry website,[70] tiering methodology errors, excessive reliance on contractors, inadequate training, and a culture of retaliation against employees;[71] no fewer than seven GAO reports and testimonies in the past two years covering the risk assessment process, a multi-year backlog, and inadequate transparency and outreach to the private sector;[72] and the discovery that a West, Texas fertilizer facility that exploded in an apparent accident last year was unknown to DHS but possessed 270 times the reporting threshold of ammonium nitrate.[73]

To his credit, Mr. Wulf, the current director of CFATS, has attempted to improve the program. Indeed CFATS has made more progress in the past two years, than it did in its first six years of existence.[74] But as this report details, CFATS still suffers from many of the same challenges identified by previous investigations and inquiries, as well as others that are more fundamental, and the program is a long ways from success.

## Scope & Methodology

This investigation was prompted by concerns identified in the previous reports and anecdotal evidence presented by industry, all suggesting CFATS was not meeting its mandate. The report's objective was simple: a comprehensive review of the CFATS program to assess whether CFATS was functioning as designed, and whether CFATS was capable of achieving Congress's objective for the program — systemic risk reduction in the chemical sector.

The report is based on a year-long investigation of the CFATS program. Over the course of the investigation, Minority Committee Staff conducted over fifty interviews of industry representatives, academic experts, and sources within DHS and the Executive Branch; reviewed hundreds of documents, including open source reports, internal reports and reviews, and legislative histories; and analyzed data obtained from DHS including samples of individual facilities' top screens, vulnerability assessments, and security plans.

Advanced copies of this report and the opportunity to provide feedback were provided to the Department of Homeland Security and the majority staff of the Senate Homeland Security and Governmental Affairs Committee. The final edition of this report reflects feedback received in that process.

# WHETHER CFATS REDUCES THE RISK OF TERRORISM

The Department of Homeland Security defines the basic purpose of the CFATS program as "buying down risk" at chemical facilities.[75] But it is unclear the program is doing so. There is strong evidence the program is not working as Congress intended and buying down risk in domestic chemical infrastructure. As discussed below,

1. **78 percent of CFATS-covered facilities' security plans have yet to be approved and 99 percent have yet to have a compliance inspection;[76]**
2. **CFATS only targets chemical security at specific facilities and may just be shifting risk to other areas of the supply chain that are not CFATS-regulated;[77]**
3. **There may be facilities DHS is unaware of that are avoiding CFATS regulation;[78]**
4. **DHS lacks data on how it has contributed to risk reduction, even at the facilities it regulates; and[79]**
5. **Errors in its risk assessment methodology mean DHS may be reducing risk at the wrong chemical facilities — focusing on those at lower risk while ignoring or focusing less on those at higher risk.[80]**

Whether CFATS is achieving its goal of buying down risk is an important question, and the answer is part of the significant reform Congress and the taxpayers should demand as part of any reauthorization of the program.

## CFATS Shifts Risk to Other Parts of the Chemical Sector

A key question in answering whether CFATS is meeting its objective of reducing risk is whether its impacts on other areas of the chemical sector offset reductions in risk at CFATS-covered facilities. In other words, does CFATS shift risk to parts of the supply chain CFATS doesn't cover, to chemicals CFATS doesn't regulate, or to facilities exempt from CFATS?

In enacting CFATS in 2006, Congress intended to create a targeted program aimed at the threat of release of toxic chemicals in dense urban areas either directly from chemical facilities or stolen from chemical facilities and transported to those areas.[81] Congress was motivated to create CFATS out of "deep concern" for the vulnerability of chemical facilities in populated to attack and release of toxic and flammable chemicals. [82] At a speech to the American Chemistry Council arguing for a chemical facility security program, then-Secretary of Homeland Security Michael Chertoff expressed his concern that a


***Figure 1:*** *Rail car filled with chlorine stopped near the U.S. Capitol.* | *Source: Jim Dougherty / Sierra Club*

terrorist could detonate flammable chemicals or release toxic chemicals from a chemical facility in an urban area with catastrophic consequence.[83] The perception of security experts post 9/11 — and impetus for CFATS — was Americans were at risk of release of hazardous chemicals from in and near metropolitan areas full of people. For example, in enacting the first CFATS authorization, Congress cited to the GAO's 2003 report finding about 3,000 chemical facilities in urban areas with enough toxic chemicals to put large numbers of people at risk if the chemicals were released.[84] The data included 123 facilities around the country that could each expose more than one million people each if their toxic chemicals were released into the air.[85]

But risk does not exist in a vacuum. The shifting of risk is a major concern with the CFATS program because CFATS-covered chemical facilities constitute only a small portion of the chemical sector and supply chain. This means understanding the impact of CFATS on our national security requires looking at more than just individual facilities and CFATS-covered facilities.[86] Security risk must be evaluated systemically to ensure efforts at reducing it, like CFATS, are reducing our nation's risk of an attack, not just transferring the risk elsewhere in the chemical sector. As Dr. Andrew Morral, Associate Director of RAND Justice, Infrastructure, and Environment explained in an appendix to the recent review of the CFATS risk tiering process:

> *The risk posed by a given facility is inextricably linked to the risk posed by each neighboring facility, those that are regulated and those that are not. . . . Even though CFATS has no authority to regulate non-CFATS entities, the risk to the regulated entities must nevertheless consider broader system risks.*[87]

To illustrate this problem, consider ABC Chemical, a hypothetical chemical facility with 2,500 pounds of chlorine — a corrosive and toxic chemical that can suffocate, and burn eyes, skin, and lung tissue.[88] CFATS regulates most facilities with more than 500 pounds of chlorine because of its toxic effect and ABC Chemical will probably be covered by CFATS.[89] But one common use for chlorine is water and wastewater treatment, which is exempt from CFATS regulation.[90] So if there is a wastewater treatment facility with an unsecured chlorine tank down the road from ABC Chemical, a seven-foot barbed wire fence around ABC Chemical is not going to stop a terrorist from releasing chlorine into the air or water, because the terrorist will get the chlorine from the wastewater treatment facility. The terrorist doesn't care whether a facility is regulated by CFATS; his only objective here is releasing a toxic chemical. As long as he achieves that objective, the terrorist will choose the most convenient and least risky option — in this case, the wastewater treatment facility. Although the increased security at ABC Chemical reduced the risk of theft of chlorine from ABC Chemical, it has not reduced the greater national security risk of an intentional release of toxic gas.

The issue of systemic risk is important for DHS and Congress to consider in deciding how best to mitigate the risk of terrorism with limited resources. There are a number of chemical facilities and sources of chemicals CFATS does not regulate, and thus does not consider.[91] Those include chemicals in transit, whether by rail, truck, or pipeline;[92] chemical facilities along rivers and the coast;[93] and water and wastewater treatment facilities.[94] Most of these are excluded from the CFATS program because CFATS lacks statutory authority to regulate them — in some cases they are regulated by other federal security programs like U.S. Coast Guard's Maritime Transportation Security Act Program; in other cases they are not subject to similar security regulations.

An accurate understanding of chemical facilities' risk requires consideration of the system as a whole, including unregulated neighboring facilities.[95] Focusing exclusively on individual facilities or CFATS-regulated facilities impairs our understanding of the actual impact CFATS has on our nation's security. For example, some facilities try to avoid CFATS regulations by parking railcars full of dangerous chemicals just outside their gates.[96] In May, a representative of the United Steelworkers Union testified before the Senate Homeland Security and Governmental Affairs Committee that she has "gotten accounts from

our members of rail cars full of hazardous chemicals parked for days outside the fence line within yards of a busy road near homes and other businesses. ... Under CFATS there is no way of knowing if and how these risks are being shifted, which leaves communities in danger."[97] If an adversary can obtain a chemical more easily from a railcar parked at an unattended rail spur than inside a locked facility, he will do so. In which case, the additional security measures required by CFATS at the facility have done little to improve our overall security against chemical infrastructure terrorism.

***Figure 2:*** *Rail tankers filled with hydrofluoric acid — a powerful acid that can cause severe burns and respiratory injuries — parked outside the gates of a CFATS-covered chemical facility in Illinois.* | *Source: E-mail to Minority Committee Staff (Jul. 1, 2014)*

Another important consideration is whether there are alternative chemicals a terrorist could use in place of regulated chemicals. Ammonium nitrate, for example, is a common ingredient in explosives and is regulated by CFATS.[98] But ammonium nitrate is not the only way to make explosives; there are numerous other chemicals that can be used instead of ammonium nitrate, at least twelve of which are entirely unregulated by CFATS.[99] As with alternative *sources* for specific chemicals, our adversaries are not tied to specific *chemicals* — if an alternative chemical is more readily available and will achieve the same objective, they will use it.[100]

## Outliers – The Facilities DHS Doesn't Know About

Our adversaries may also choose to target chemicals at facilities that should be secured under CFATS but are not, because they have not reported to DHS — so-called outlier facilities. There may be numerous outliers DHS does not know about, but it is difficult if not impossible for DHS to identify these facilities because there is no comprehensive database of every chemical facility in the country. Thus it is also impossible to say how many outliers there are, and how many of them are high risk.

This illustrates a broader conceptual problem with CFATS more than it does a weakness in leadership. In fact, since the 2013 explosion in West, Texas, the CFATS program has made a diligent effort to identify and contact facilities that are not compliant, including cross-referencing the CFATS database with chemical facility databases at other federal and state regulatory agencies like the Environmental Protection Agency; the Occupational Safety and Health Administration; and the Bureau of Alcohol, Tobacco, and Firearms.[101] The problem is not a lack of effort to identify those facilities, but a resource limitation — with CFATS, DHS has designed a program too big to enforce.[102] There are hundreds of thousands of chemical facilities throughout the U.S.; checking each one to verify compliance with CFATS' initial "top screen" reporting requirement[103] is impractical and would contribute comparatively little to chemical security.

## Weak Program Metrics

The statistics DHS maintains about CFATS reveal little about the program's successes or failures. As evidence of the program's success, DHS has claimed over 3,000 facilities have "tiered out" of the CFATS program — facilities that reduced or eliminated their holdings of covered chemicals so as to be unregulated.[104] Chemical companies and trade groups have cited to the statistic as well.[105]

But chemical inventory changes can occur for a variety of reasons and DHS does not collect information about why companies are reducing their chemical inventories, making it impossible to say whether the number of facilities that have tiered out reflects the program's success, or merely a shift in risk.[106] DHS is not asking facilities that reduce the amount of chemicals on their sites why or how they achieved the reduction even though — without that information — knowing the number of facilities that tiered out is of little value.

Facilities may have reduced their holdings by shifting risk to an area of the supply chain that is not CFATS regulated. For example, facilities may have reduced their chemical holdings by reducing the size of shipments of dangerous chemicals but increasing their frequency, shifting risk to the transportation of those chemicals. Since transportation of those chemicals often occurs over public roads and railways through metropolitan areas, a release there could be even more catastrophic. Or a facility may have changed to an alternative chemical that is similarly hazardous but is not covered by CFATS, because the CFATS list of regulated chemicals has not been updated since the program's inception and omits many hazardous chemicals.[107] Another explanation could be the facility went out of business — in a hearing before the Senate Homeland Security and Governmental Affairs Committee in May 2014, Dow Chemical's Chief Security Officer told Congress Dow had moved out of some of its facilities because of CFATS regulations.[108] Surely forcing companies out of business or shutting plants down is not a measure of a successful regulatory regime. Alternatively, a facility could use a loophole in the CFATS program, like leaving railcars full of hazardous chemicals on the railroad tracks just outside their gates.[109] There, outside the facility's locked gates, the chemical is far more susceptible to theft or release.

***If security measures were in place before CFATS existed, documenting them for DHS in a 400-page security plan is a paperwork exercise with little other purpose than to satiate DHS regulators.***

None of this is to say one of these scenarios is more likely than another, but without more information DHS cannot say the number of facilities that tiered out is evidence of the CFATS program's success in reducing the risk of chemical terrorism. And without some evidence of the program's success in reducing our risk of chemical terrorism, we should not assume the CFATS program has made us more secure.

## Measuring Success

One metric DHS could use to measure the success of CFATS is a comparison of the security measures and risk of CFATS-covered facilities before and after CFATS was implemented. This would allow for the measurement of how the vulnerability and overall risk at specific facilities has changed because of the CFATS program. Given companies' significant expenditures complying with the program, regulated companies should be able to provide useful evidence of the improvements made at their facilities and resulting reductions in vulnerability. For example, DHS could ask how many chemical plant owners discovered through the CFATS compliance process that intruders could easily access areas of

their plants with dangerous chemicals. DHS could also ask how many of those facilities responded by erecting fences and hiring security guards to keep potential bad guys at bay,[110] and how many chemical facilities without a crisis management plan before they were covered by CFATS have since worked with the local police and fire department to develop one.[111]

This information would help to determine if CFATS has measurably reduced Americans' risk of a terrorist attack at a chemical facility. If a CFATS-covered chemical facility installs targeted security measures to mitigate site-specific vulnerabilities or threats following a CFATS assistance visit, that would suggest CFATS successfully reduced risk at the facility. However, if security measures were in place before CFATS, documenting them for DHS in a 400-page security plan is a paperwork exercise with little other purpose than to satiate DHS regulators.

DHS is not asking these key questions, or collecting those data. In fact, there are indications the latter paperwork exercise is common and much of the private sector had comprehensive security programs in place well before the CFATS program was created. Many industry trade associations like the American Chemistry Council, the National Association of Chemical Distributors, and the Society of Chemical Manufacturers & Affiliates have security programs for their member companies that predate CFATS.[112] For example, the American Chemistry Council established a Responsible Care Security Code for all of its members shortly after 9/11.[113] The National Association of Chemical Distributors stood up its Responsible Distribution program for its members — a third party verified environmental, health, safety, and security program required of all its members — in December 1991.[114] The Society of Chemical Manufacturers & Affiliates began its comparable program, ChemStewards, in 2005.[115] All this was achieved well before CFATS was authorized in 2006,[116] and issued its first regulations in 2007.[117]

The paperwork exercise is not just a burden for chemical facilities; it is slowing down the CFATS review process at DHS. As of July 2014, CFATS had completed the approval process for only 22 percent of CFATS-covered facilities and inspected less than 1% of them for compliance.[118] The Government Accountability Office most recently estimated it could take seven to nine years before the program catches up.[119]

# REGULATING THE WRONG FACILITIES


VIDENCE EXISTS THAT the CFATS program regulates the wrong facilities. That is, the risk assessment and tiering methodology DHS uses to determine which facilities to regulate and the appropriate level of security for each is flawed, raising basic questions about the CFATS program's design and execution.

As part of a DHS-commissioned review completed in late 2013 and not publicly released, a panel of industry experts, academics, and federal security professionals found major faults in DHS's system to determine which facilities to regulate under CFATS. According to one panelist, the tiering methodology review raises questions about the last seven years of work in the CFATS program because we can "not [be] confident that [facilities] in the program should be in the program," and there may be chemical plants that are not in the program and should be.[120]

Panelists on the review concluded the CFATS risk tiering methodology, which determines which facilities are regulated, was not technically sound. The report (the "Tiering Methodology Review") was written by the Homeland Security Studies and Analysis Institute, a federally funded research and development center operated for and funded by DHS. The review identified issues with the tiering methodology "rang[ing] from minor formulaic errors to more major issues with how the current framework treats threat, vulnerability, and consequence," the three elements of risk calculation.[121] It also revealed that in many cases DHS cannot explain, or does not even know why certain parts of the methodology are structured as they are. In other places, the methodology contains obvious errors and major omissions. In total, the Tiering Methodology Review identified several major deficiencies in the process including: inconsistency,[122] lack of transparency,[123] inadequate documentation,[124] use of models that are not scientifically supported,[125] unjustified tiering thresholds,[126] inaccurate and unreliable data assumptions,[127] and consideration of implausible attack scenarios.[128]

***One panelist in DHS's Tiering Methodology Review called the CFATS thresholds for regulation "spitballed" and said they were not scientifically justified "or even rational."***

**Panelists recommended wholesale revision of the risk tiering methodology, finding it was inaccurate, and inconsistent.[129] The report concluded some of the recommendations would take significant time and work to implement, "requir[ing] DHS to develop a strategic plan or a long-term process for implementing changes."[130] Any significant revision of the risk tiering methodology will also likely result in re-tiering of facilities, meaning exacerbation of the existing backlog and some companies may have wasted money on security enhancements that were not necessary.**

This is not the first time problems have been identified in the CFATS program's tiering methodology.[131] DHS first identified a formulaic error in the so-called "F1" factor of its tiering methodology in 2010.[132] The F1 error meant over 500 CFATS-covered facilities had been incorrectly tiered, at least 100 of which should not have been covered by the CFATS program at all.[133] But it took DHS another year and a half before notifying facilities they had been incorrectly tiered.[134] As a result, facilities spent time and money installing new security measures and developing a comprehensive security plan to meet the CFATS requirements, when they didn't need to. Then in late 2012, DHS officials identified another error in the tiering methodology, whereby they had miscalculated the risk assessment for 150 facilities outside the continental U.S. Basic problems persist with the risk assessment today, as DHS has yet to conform the CFATS risk assessment process to its own definition of risk.[135] Even the F1 factor has yet to be fixed, according to the Tiering Methodology Review, which identified issues with data quality and population density calculations,[136] imperial to metric conversion errors, inconsistency in units, and formulaic errors.[137] The report goes on to recommend DHS re-create the F1 table, yet again.[138]

## Key Elements of DHS's Risk Assessment Model are Not Understood

There is also a lack of understanding, even within DHS, about core elements of the CFATS risk assessment process, including how it works and why it was set up as it was.[139] In many cases, DHS could produce no person or document that could explain the rationale behind core aspects of the risk tiering methodology — its models, assumptions, parameter values, and rules.[140] Minority Committee Staff learned in interviews that a major reason the tiering methodology is so poorly understood and documented, even within DHS, may be that the Department terminated its contract with a firm that helped design CFATS, and was unable to recover the documentation from that company after ending the contract. DHS ended the contract early and not amicably. But because DHS had drafted the contract poorly, it was not able to force the contractor to turn over the documentation after the contract ended.[141] As a result, documentation on the initial standing-up, implementation, and rationale for aspects of the methodology was unavailable to the review panel because it does not exist or was not in DHS's possession.[142]

***One reason the tiering methodology is so poorly understood and documented, even within DHS, may be that a key contractor in developing the methodology left before providing DHS the documentation.***

Because of the lack of documentation on the methodology, the experts who participated in the review were unable to identify rational, scientific explanations for basic elements of the program.[143] In one of several examples, the report concludes an indoor model developed for the threat/diversion issue "is not physics-based and violates the fundamental principle of indoor dispersion."[144] Though DHS does not currently use the model in its tiering process other examples related to models currently in use, like using different damage radii for different attack modes without adequate justification.[145]

## Risk Calculations are Inaccurate and "Riddled with Problems"

Tiering thresholds represent a crucial part of the risk tiering methodology, both for DHS and for regulated agencies, because they determine the number of facilities in each tier. Lower thresholds result in more facilities tiering in and up in the CFATS program, increasing compliance costs for regulated facilities and increasing the workload for CFATS regulators.[146] Yet no one at DHS seems to be able explain the rationales for the specific thresholds chosen.[147] One panelist in DHS's Tiering Methodology Review called the thresholds "spitballed" and said they were not scientifically justified

"or even rational."[148] The Tiering Methodology Review comes to a similar conclusion.[149] In addition to raising concerns about regulating the wrong facilities, an error in the thresholds may be unnecessarily increasing the CFATS backlog discussed above. Notably, DHS has also classified the specific threshold values, making it difficult to share the methodology with CFATS-regulated companies and to solicit the private sector's expertise on improving it.[150]

***Despite calculating risk-based on the same threat data for the last seven years, DHS officials did not realize the information was out of date.***

Based on the limited documentation available, the Tiering Methodology Review concluded the CFATS program calculates risk incorrectly.[151] One panelist went so far as to call it "riddled with problems."[152] Since late 2005, DHS has used the formula R=T*V*C to calculate risk,[153] where risk (R) is the product of:

1. **Threat** (T) to a target (the likelihood an attack on the target will occur),
2. **Vulnerability** (V) of the target (the likelihood an attack on the target will succeed), and
3. **Consequence** (C) of a successful attack (casualties and economic impacts if an attack on the target succeeds).

Thus, in DHS's own estimation, an accurate risk calculation depends on an accurate understanding of threat, vulnerability, and consequence. But according to the DHS-commissioned review, DHS did not accurately assess any of the three factors used to measure risk — neither threat, nor vulnerability, nor consequence were accurately evaluated.[154]

In calculating the threat, vulnerability, and consequence of an attack on a given chemical facility, DHS considers three potential attack scenarios: release, theft (or diversion), and sabotage (or contamination).[155] Each chemical of interest is regulated because of its potential for use in one or more of those attack scenarios.[156] The release and theft attack scenarios are further divided into subcategories based on the type of threat the chemical would pose. For example, if an adversary attacked a plant with a large amount of chlorine gas, that gas could be released at the plant, or stolen and released somewhere else, either way with toxic effect. Thus CFATS regulates chlorine under the toxic release scenario and the theft or diversion of a chemical weapon scenario.[157] For each chemical and risk issue at a facility, DHS calculates a risk value and tier assignment; the facility's final tier is the highest tier it receives among all of its chemicals and risk issues.[158]

But there are many problems with how threat, vulnerability, and consequence are defined and calculated. That includes a number of issues with DHS's approach to calculating threat, from basic problems with the definition of threat and inadequate documentation to five different errors in the threat calculation engine. For example, the threat scores used in the calculation have not been updated in seven years, even though — as DHS's 2014 Quadrennial Homeland Security Review makes clear — the threat of terrorist attacks is continuously evolving; our adversaries are adaptive, varying their approach to respond to changes like increased security.[159] When asked why DHS was using outdated data, DHS officials told the GAO that they had been unaware the data was outdated.[160] Other mistakes in the threat calculation engine included:

1. **Artificial political boundaries** — The calculation of threat relies largely on artificial political boundaries, namely state boundaries. As a result, facilities can be tiered differently on either side of a state border, even though the actual risk of terrorism is likely to be exactly the

same because terrorists can move easily across state borders.[161] For example, DHS might tier identical facilities in Kansas City, Kansas, and Kansas City, Missouri, differently, even though they were just two miles away from each other.[162]

2. **Formulaic errors** — The threat calculation does not correctly calculate threat because of a formulaic error that puts the population density variable in the wrong field — causing densely populated areas to be treated as lower threat regions than sparsely populated ones.[163] The final threat calculation also double counts a number of variables, including those miscalculated with the population density figure.[164]

While DHS uses a static threat assessment in its own calculations, it requires the chemical facilities it regulates to react dynamically to threat increases.[165] In fact, the CFATS program's risk-based performance standards require facilities to increase security measures when DHS increases the threat level under its color-coded threat level system.[166] But DHS phased out the color-coded threat level system in 2011.[167]

***DHS's own policy stresses the importance of considering economic consequence, but CFATS ignores it.***

The Department's consideration of vulnerability in calculating risk is also inadequate, largely because it does not consider vulnerability at all.[168] Instead, for release and sabotage/contamination, DHS treats all facilities as equally vulnerable.[169] Although vulnerability may be difficult to assess, other DHS programs have established models to do so including the Federal Protective Service through its Modified Infrastructure Survey Tool and the Coast Guard's Maritime Transportation Security Act program through its Maritime Security Risk Analysis Model.[170] By neglecting to consider vulnerability in its tiering process, the CFATS program is not accurately assessing risk, and therefore not meeting the requirements of its authorization law or final rule.[171]

The Department also treats consequence inadequately, as in the previously discussed problems with calculating the F1 factor.[172] Although the Tiering Methodology Review describes consequence as "the least problematic" of the three risk factors,[173] it still identifies inconsistency between security issues, lack of transparency, and problems in the correlation factors the Department uses to calculate consequence.[174] The review also suggests the CFATS risk assessment methodology has applied models obtained from the National Oceanic and Atmospheric Administration and the Environmental Protection Agency inaccurately or imprecisely, such that they do not reflect realistic environmental and physical conditions in an attack.[175]

A second concern is the risk tiering methodology considers only one of the four components of consequence, as identified in the Department of Homeland Security's National Infrastructure Protection Plan.[176] The National Infrastructure Protection Plan prescribes that consequence assessments should consider effect on public health and safety, economic effects, psychological effects, and governance and mission impact (like if a chemical plant is the sole producer of Kevlar, which is used in police officers' bullet-proof vests).[177] While recognizing some of these may be challenging to calculate, the plan states, "[a]t a minimum, assessments should focus on the two most fundamental impacts — the human consequences and the most relevant direct economic consequences."[178] CFATS ignores economic consequence, psychological effects, and governance and mission impact though, considering only potential effect on public health. The Department is currently developing an assessment model to incorporate some of those other consequences but instructed the tiering methodology review panel not to consider whether and how the methodology should include economic consequence.[179] It is not clear why DHS instructed panelists to ignore that aspect of the risk assessment methodology, or its effect on the completeness of the review.

## Risk Assessments are Inconsistent between Similar Chemical Facilities

One of the cross-cutting problems with the tiering methodology is inconsistency.[180] Security experts across the industry have long said the CFATS tiering assignments are inconsistent among similarly situated facilities.[181] For example, some private sector chemical security experts told Minority Committee Staff the tiering assignments were often "confusing" and appeared "random."[182] Sometimes facilities the security manager expected to be assigned the highest tier were assigned the lowest tier, or were un-tiered, while other facilities the manager expected to be assigned a low tier were assigned the highest tier.[183] According to Lawrence Wein, one of the panelists on the tiering methodology review and the Holden Professor of Management Science at Stanford Graduate School of Business, the inconsistency in how DHS treats threat, vulnerability, and consequence across the attack scenarios "may lead DHS to downgrade some potentially dangerous facilities while simultaneously imposing an unnecessary burden on facilities that are inherently not dangerous."[184]

Those experts' opinions and the anecdotal evidence they cite are well founded; there are inconsistencies throughout the risk assessment methodology including threat, vulnerability, and consequence, and in the treatment of the different attack scenarios (release, theft/diversion, and sabotage/contamination).[185] For example, the methodology uses different approaches to calculate risk for a release scenario versus a theft/diversion scenario, although release and theft/diversion consider several of the same chemicals.[186] The differences between the methodologies for theft/diversion and release or sabotage/contamination mean the program can treat release of a small amount of a hazardous chemical as a higher risk than release of a larger amount of the *same chemical*. This led panelists to conclude the "underlying assumptions for the release and theft or div[er]sion issues are clearly incompatible."[187]

## Chemical and Screening Amounts are Poorly Justified

DHS's decision to regulate certain chemicals over others, and in the amounts it does, is often poorly justified.[188] For example, CFATS treats mixtures of fuel stored in above ground tanks, like gasoline, differently from other chemicals that are equally flammable, without explaining why.[189] CFATS also treats those chemicals differently from the way other chemical regulatory programs do, again without explanation.[190] For example, the Environmental Protection Agency's Risk Management Program, on which much of the CFATS risk tiering methodology is based, only regulates chemicals with the highest flammability rating.[191] CFATS generally follows suit, but carves out an exception for fuel mixtures like gasoline, regulating them even though they have a lower flammability rating.[192] The impacts of this change are substantial — hundreds of facilities could be added to CFATS based on a hypothetical scenario most experts conclude is unlikely.[193] Notwithstanding a petition from the International Liquid Terminals Association in 2009,[194] DHS has yet to provide adequate scientific justification for its divergent treatment of fuel mixtures to Congress, regulated chemical companies, or the public.[195]

In another example, one of the few known threats to domestic chemical facilities publicly identified before CFATS existed, was a plot to blow up two twelve-million gallon propane tanks in the Sacramento area.[196] The plot itself may have even been part of the impetus for CFATS.[197] Yet the CFATS rule inexplicably treats propane as a much lower risk than equally flammable chemicals.[198]

## Independence of the Tiering Methodology Review

Despite strongly criticizing the risk assessment methodology, the Tiering Methodology Review's final report was toned down from what panelists had said in their meetings, and its author was not independent from DHS, making it probable that the reality about the risk assessment process is even

worse. It was one of DHS's federally funded research and development centers — the Homeland Security Studies and Analysis Institute — that drafted the report based on panelists' comments during several meetings. The panelists were not the authors of the report and had no control over its final contents." [199] As a result, the findings and recommendations in the report "do not necessarily reflect a consensus opinion of the panel,"[200] and the Department's characterization of the conclusions of the report as those of the "peer reviewers" is not necessarily accurate; the findings and recommendations are those of the Homeland Security Studies and Analysis Institute.[201]

DHS preempts this criticism by arguing "[t]he requirement for 'independent review' does not necessarily mean that all reviews must be provided by a person or organization external to the Division and its contractors."[202] This explanation is fundamentally inaccurate. If "independent review" means anything, it must mean a review "conducted ... in a way apart from and unaffected by others."[203] Clearly employees and organizations within the Department and its federally funded research and development centers are within the Department's sphere of influence. Given the clear and ongoing financial relationship between DHS and its federally funded research and development centers, including Homeland Security Studies and Analysis Institute, this raises concerns about the true independence of final report. Indeed, panelists told Minority Committee Staff the Homeland Security Studies and Analysis Institute had toned down their language before including it in the final report.[204]

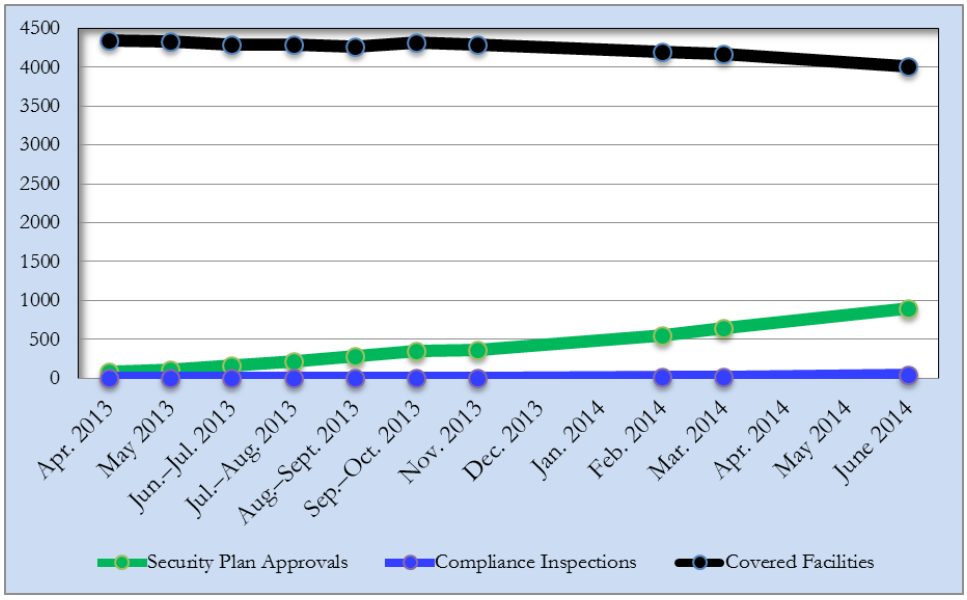
***Panelists on a DHS-commisioned Peer Review of CFATS told Minority Committee Staff that a DHS research center toned down their language before including it in the final report.***

It is remarkable then — despite the Homeland Security Studies and Analysis Institute's questionable independence and panelists' concerns that language was toned down — the report so unabashedly condemns the basic design of one of the CFATS program's core components. One can infer that had the panelists controlled the language of the final report, it might have been even more critical. These findings, from DHS's own research center, show no one at DHS can explain key aspects of DHS's risk assessment program and those parts that are explained are often wrong and lack scientific justification, debunking fundamental assumptions in the CFATS regulatory regime. This raises doubt about not only the design of the CFATS program and what it is doing now, but all of the work it has done over the past eight years. It is not clear CFATS is regulating chemical plants at risk of terrorism, rather than focusing on the lower risk ones. As the Tiering Methodology Review's report revealed, no one knows.

# THE CFATS PROGRAM'S FAILURE TO MEET DEADLINES, VALIDATE SECURITY PLANS, AND INSPECT FACILITIES

WHILE THE PREVIOUS sections raise questions about whether the Chemical Facility Anti-Terrorism Standards (CFATS) program is well designed, or even focused on the right problem, this section will examine whether DHS is managing the current program well, even if not aimed at the right problem.

**Figure 3:** Facilities, Plan Approvals, & Compliance Inspections

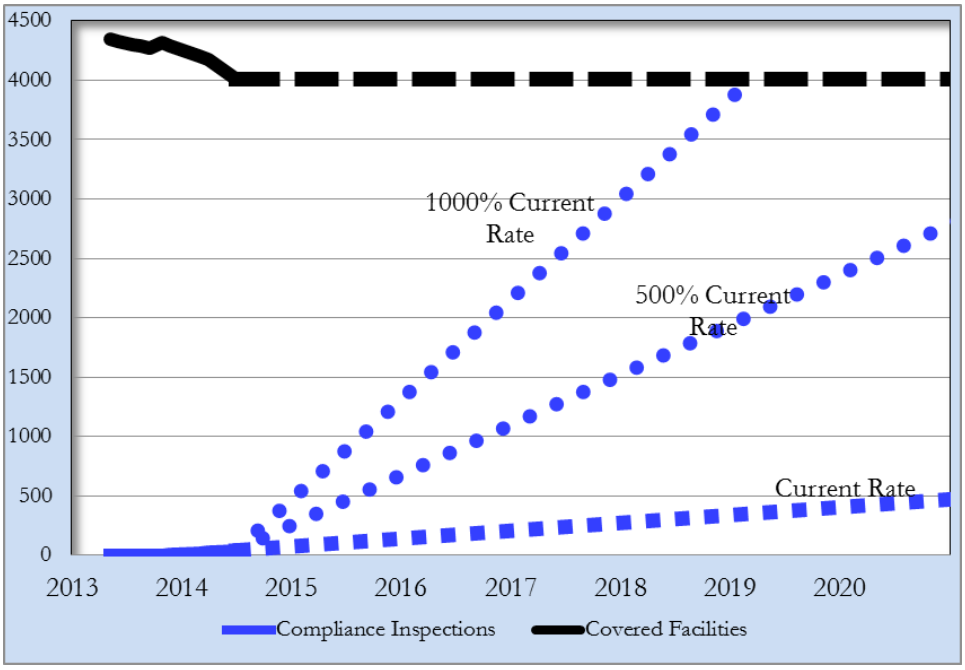



*Source: Minority Committee Staff analysis of DHS reported statistics.*

Since its inception, DHS has struggled to keep pace with facilities' submissions of top screens, vulnerability assessments, and security plans, repeatedly missing its own expected timelines and milestones for reviewing facilities' security plan submissions under the CFATS program.[205] This has created an enormous backlog of those documents awaiting DHS review. Exacerbating the challenge, many facilities require multiple submissions of documents before they are approved.[206] Even today, despite some progress in increasing the pace of reviews, DHS remains far from completion.

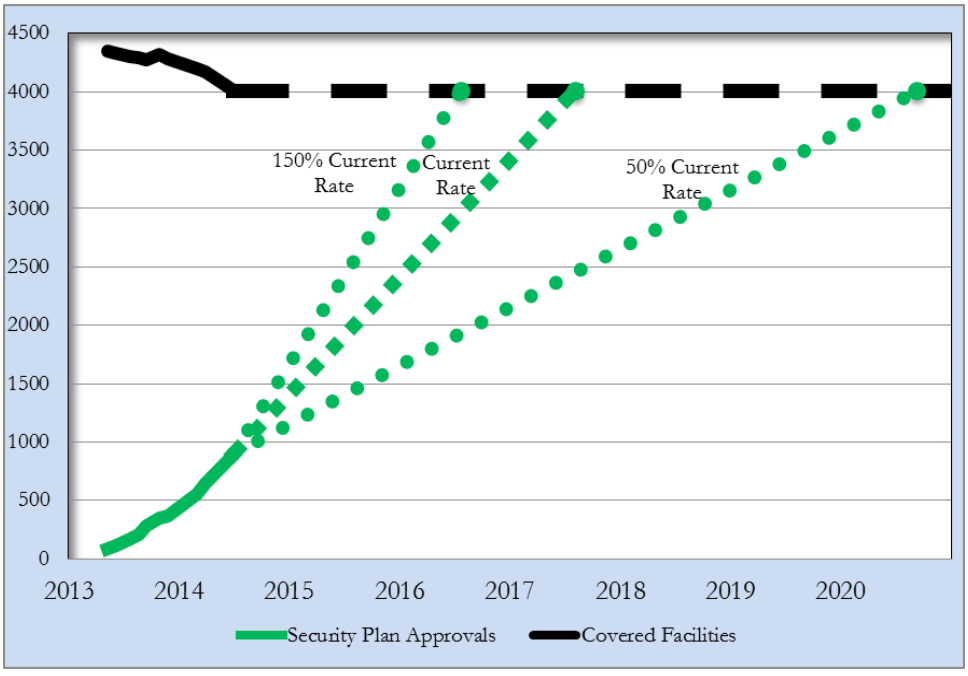
Moreover, CFATS program administrators have routinely promised results and under delivered.[207] For example, in 2010, then DHS officials testified before the Senate Homeland Security and Governmental Affairs Committee that they expected all tier one facilities to have their authorization inspections completed by the end of the 2010 calendar year.[208] But they were not complete by the end of 2010.[209] In 2011, Under Secretary Rand Beers came before

**Figure 4:** Projections for Full Regulatory Implementation Including Compliance Inspections




*Source: Minority Committee Staff analysis of DHS reported statistics*

**Figure 5:** Projections for Completion of Security Plan Approvals



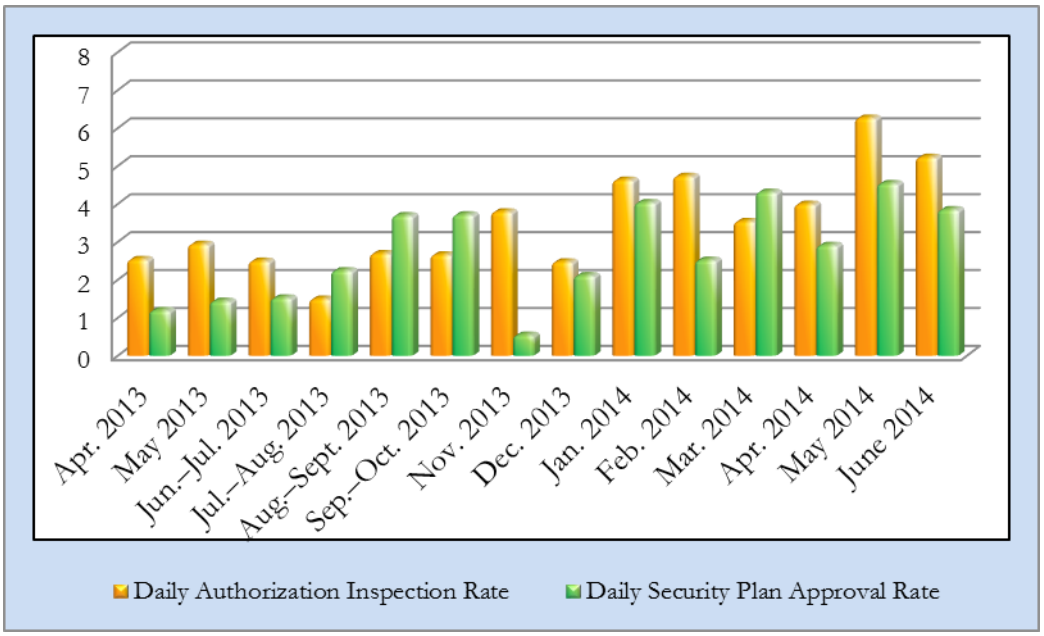

*Source: Minority Committee Staff analysis of DHS reported statistics.*

Congress and testified the inspections would be done by 2011.[210] But again they were not.[211] In March of 2013, Messrs. Beers and Wulf told Congress they would complete authorization inspections and approve security plans for all tier one facilities by October 2013, and approve all tier two facilities' security plans by May 2014.[212] Yet neither was completed on time.[213] In November, they told Minority Committee Staff approvals of tier one facilities' security plans would be complete by the end of December and tier two plans before April.[214] But again neither was completed on time. As of June 30, 2014, approximately 10 percent of tier one and two facilities had yet to receive their final tier, 29 percent have yet to have an authorization inspection, and approximately 32 percent have yet to have their security plans approved.[215] Even today, they remain incomplete.[216]

When all of the CFATS-tiered facilities are counted, the numbers are even more troubling. According to the most recent data provided to the Committee, DHS has conducted an initial authorization inspection of only 31 percent of covered facilities and approved only 22 percent of their site security plans.[217] Meanwhile, recurring inspections that DHS is supposed to begin about a year after first approving facilities' security plans, have only just begun. Out of the 4,011 facilities presumptively in the CFATS program, there have been a total of just thirty-nine compliance inspections.[218] This means DHS has yet to conduct a compliance inspection for 99 percent of CFATS-covered facilities, despite spending eight years and $595 million on the program.[219]

Even considering the numbers in the most favorable light, the Department still faces a major backlog. Discounting facilities in limbo for other reasons, 61 percent of facilities are still awaiting authorization inspections and 72 percent have yet to have their site security plans approved.[220] Some of these companies have been waiting for over six years for DHS to review their documentation, inspect their facilities, and approve their security plans.[221]

**Figure 5:** Daily Authorization Inspection & Approval Rates




*Source: Minority Committee Staff analysis of DHS reported statistics.*

It would be unfair to DHS to end the discussion here though. The Department has been making significant progress in recent years. To DHS leadership and staff's credit, each of the over 750 security plan approvals CFATS has completed, were in the last two years.[222] But CFATS is still many years from catching up with its backlog. Last year, the U.S. Government Accountability Office (GAO) estimated it would be another eight to ten years before CFATS achieves full regulatory implementation, including assessing all security plans and conducting compliance inspections.[223] Although the GAO estimate has not been updated to reflect more current data, DHS's estimates it will take three to four years to catch up with the backlog (excluding compliance inspections).[224]

GAO's finding is corroborated by an analysis assembled by the Congressional Research Service (CRS): if DHS keeps up the current rate of site security plan approval, no new facilities are added to CFATS, and no facility resubmits its security plan, DHS is likely to complete security plan approvals in five to ten years.[225] There is no guarantee those ifs will hold true though. DHS may be able to increase the rate as it transitions to reviewing more lower-tiered facilities, but it might also encounter new challenges and slow down.[226] For example, the current CFATS rule requires facilities to regularly resubmit certain documentation after their security plan is approved. And according to CRS, the Department will probably not catch-up before resubmissions begin, which means the process will need to restart for all of the facilities that submit new security plans.[227] That is, if DHS does not catch-up soon, it may get caught in an endless cycle of resubmissions and never catch-up.

A second concern is pressure from DHS leadership and Congress to implement the CFATS program faster than projected may cause reviewers to focus more on quantity of approvals than quality of the plans being approved. One DHS employee familiar with the CFATS chemical facility inspection process corroborated this concern, expressing little confidence in the CFATS program's ability to weed out unsecure facilities.[228] According to the employee, as of mid-2013, DHS leadership was pushing through site security plan approvals to make a target approval quota of 400 site security plans by the end of the calendar year, despite a lack of substance in many of them.[229] CFATS had approved 417 site security plans by January 1, 2014.[230] The Department's statements to Minority Committee Staff also suggest a quota mentality, telling Minority Committee Staff the Department's goal was to reach and sustain a rate of 900 site security plan approvals per year, or about eighty approvals per month.[231] Over the last six months, the Department has seen the highest rate of security plan approvals yet, still has only achieved a rate of about sixty per month.[232]

The administrative burden of CFATS may be one reason the program is struggling to keep up with the workload of reviewing and monitoring compliance — CFATS is trying to do too much with too little.[233] CFATS officials often compare their inspector cadre with of the U.S. Coast Guard's Maritime Transportation Safety Act Program, which has three to four times the inspectors as CFATS and covers fewer facilities.[234] But this ignores the multi-faceted mission of those inspectors and — more importantly — that much of the CFATS backlog is a self-created problem. DHS created a regulatory regime that requires more resources than it should.

# WORKING WITH THE PRIVATE SECTOR

AT THE ROOT of many of the problems in the Chemical Facility Anti-Terrorism Standards (CFATS) program is the Department of Homeland Security's inability or unwillingness to collaborate effectively with the companies it regulates. The CFATS program cultivates an adversarial relationship with the private sector — it is not transparent with the private sector and refuses to engage and leverage private sector expertise. The result is a program that does not reflect the input, concerns, and needs of the businesses CFATS regulates. This is one of the reasons companies with CFATS-covered facilities often cite CFATS as an example of the problems that result when DHS is given regulatory authority, and why DHS should not be given regulatory authority in other areas like cybersecurity.[235] As one panelist in the DHS Tiering Methodology Review told Minority Committee Staff, "This is what happens when you give DHS regulatory authority without restrictions."[236]

## Adversarial Relationship with the Private Sector

A persistent theme in regulated companies' complaints about CFATS is DHS representatives treat regulated companies as an adversary — often assuming the worst about companies and their intentions. This adversarial culture may be partly due to DHS's employment of many former law-enforcement officers as CFATS chemical security inspectors, rather than former chemical facility employees.[237] As a result, inspectors often come into facilities with the approach of a criminal investigator and without technical or practical expertise in the chemical industry.[238]

Exemplifying this mentality, one CFATS regulatory official told Minority Committee Staff she believed most or many companies would intentionally neglect security if DHS had less enforcement authority, because companies are motivated only by profit and cost-benefit analyses.[239] The official told Minority Committee Staff she believed many companies would not increase security voluntarily even if DHS inspectors identified specific vulnerabilities in their security and warned them their chemicals were at risk of being stolen and used by terrorists.[240] While this may not be the Department's official position and others at DHS may have different views, it is concerning that any regulatory professionals at DHS would take such a negative view of their regulated community.

This cynical view of the private sector is also not supported by evidence or common sense. As previously discussed many chemical facilities had more comprehensive voluntary security programs in place before CFATS.[241] And not one of the over 36,000 CFATS-regulated facilities has ever been so resistant to security improvements that DHS has had to disapprove its security plan, fine it, or order it to stop operations.[242]

The adversarial nature of the relationship between DHS and CFATS-regulated companies makes it difficult for those companies to work with the Department. For example, Minority Committee Staff interviewed representatives from a chemical facility who believed their facility had been incorrectly tiered by the Department because of flaws in the CFATS risk assessment (the same flaws subsequently revealed in the Tiering Methodology Review[243]).[244] But the company encountered such resistance from the Department in attempting to explain the flaws that it had to hire a well-connected consultant to

talk to DHS on its behalf.[245] The challenge was complicated by the lack of a formal process to appeal tiering decisions, despite the inaccuracy of the tiers and their importance to the CFATS regulatory process.[246] The company and the consultant characterized the entire experience and their contact with the CFATS program as combative — telling Minority Committee Staff the Department treated them as an adversary.[247]

Many of the problems identified in this report could have been avoided if the Department had better engaged with the private sector and its chemical and security experts in the first place. Those include the unrealistic and unworkable requirements like duplicative background checks,[248] the inaccurate risk assessment and tiering methodology,[249] and the burdensome forms and poorly designed data-input website.[250] For example, companies have long complained the tiers their facilities are assigned do not make sense and that lack of access to information on how the tiering methodology works prevents them from making recommendations on how to fix it.[251] Just last year, private sector and other outside experts showed how valuable their expertise can be when, for the first time ever, a select group of industry and outside experts reviewed the risk assessment and tiering methodology and made recommendations to fix it.[252]

## Lack of Transparency with Outside Experts

> *The biggest flaw … is [the CFATS program] is full of … secret law. … As it's been implemented, you aren't allowed to know, for example, what's the line that divides Tier One from Tier Two to Tier Three; that's classified. You don't have any way of knowing what happens to companies that are similarly situated.*[253]

One result of this adversarial relationship is the Department is not transparent with stakeholders about how CFATS works.[254] The tiering methodology review was the first time since the CFATS program's inception that DHS has opened its process to scrutiny by a joint panel of representatives from industry, academia, and other federal agencies.[255] According to the Tiering Methodology Review,

> *The regulated community has been largely uninformed about the methodology for tier assignment and the fundamental assumptions on which [the CFATS program] based its risk assessment. The lack of communication has led to skepticism and distrust between stakeholders and DHS. It has also prevented the department from leveraging the considerable risk assessment expertise that exists in the private sector and academic community.*[256]

Moreover, the review indicated the details of how the CFATS risk tiering methodology works "are still unknown to industry."[257] Although a 2013 internal report by DHS provides an official description of the risk tiering methodology and related algorithms, to date DHS has not provided the report to the regulated community, with the exception of during the review.[258]

A recent survey of the CFATS-regulated community by the Government Accountability Office (GAO) also found private sector entities did not think DHS was transparent about the risk assessment and tiering methodology.[259] When asked about the usefulness of outreach efforts for understanding the risk tiering process, the vast majority of respondents described the outreach efforts as "not useful" for "increasing understanding of the [CFATS] risk tiering approach."[260] The respondents to the survey said one of their primary sources of frustration was DHS refused to provide them with key information on how the risk tiering process works.[261] DHS officials told GAO they had not provided the information because they were waiting on recommendations from the Tiering Methodology Review panel on what information to release to the regulated community,[262] but later that year, when the review recommended DHS release its internal report on the risk tiering process, the Department refused to do so.[263]

An additional example of apparent lack of collaboration and transparency with the private sector

comes in the Department's proposal on personnel surety.[264] For one, the Department characterized the proposed change to personnel surety as an "information collection request" rather than a change to the CFATS regulations, which provides less opportunity for engagement with the regulated community, and accelerates implementation of the proposal. The proposed implementation is very controversial among regulated companies, particularly those that would be required to implement duplicative personnel surety programs, and some characterized it as an attempt to steamroll the proposal over industry's objection.[265] Despite near unanimous objection to the proposal by the regulated industry and its employees, DHS told Minority Committee Staff the proposal "reflects just about all of what stakeholders want," further illustrating the disconnect between the Department and many of its stakeholders.[266]

This lack of transparency means DHS is less able to leverage valuable expertise in the scientific and regulated communities.[267] In the words of one of the panelists on DHS's Tiering Methodology Review, "[members of industry] don't know what [DHS is] working on because they don't communicate."[268] By opening the program to the scientific and regulated communities, DHS can benefit from their expertise in improving the CFATS program while helping chemical facilities understand the standards to which they will be held.

## Administrative Compliance Costs

A second example of a problem that comes from poor collaboration with the private sector, as well as a partial explanation for the program's backlog, is its administrative burden. This administrative burden affects not only DHS's reviewers but also regulated companies.

The paperwork in the CFATS program is onerous. Each of the 3,300 or so facilities DHS has finally determined are "high risk" has completed and submitted at least 582 pages of forms and read 573 pages of instructions and documentation for those forms.[269] This process starts with the initial "Top Screen" form.[270] All of the more than 36,000 facilities that have dangerous amounts of one of the 322 CFATS chemicals of interest must submit a 167-page top screen to DHS, while following the 212 pages of instructions, documentation, and rules that accompany it, including a 29-page manual just on how to keep CFATS forms secure.[271] Facilities DHS preliminarily determines are "high risk," must then submit a 107-page Security Vulnerability Assessment, carefully complying with its 114 pages of instructions.[272] Those facilities to which DHS issues a final tier are "high risk" chemical facilities and must complete and submit a 304-page site security plan, while carefully adhering to the 240 pages of instructions and guidance accompanying it.[273]

***Small companies are required to submit thousands of pages of forms to DHS; one eleven-employee company was forced to submit 1,117 pages of forms to the CFATS program.***

Of course, failure to comply with any of the 573 pages of instructions and documentation is virtually guaranteed to result in DHS requiring the facility to redo and re-submit one or more of the forms. In fact, no facility has ever gotten it exactly right the first time. Minority Committee Staff analyzed a small sample of finally tiered CFATS facilities' submissions[274] and all were required by DHS to revise and resubmit their security plan at least once, resubmitting the approximately 300-page form an average of three times.[275]

DHS also confirmed that every one of the thousands of facilities that has submitted a security plan has had to rewrite and resubmit the form at least once.[276] According to the Department, the average across all CFATS covered facilities is 2.78 security plan submissions per facility, meaning it takes an average of almost three attempts to correctly complete the security plan submission process.[277] Combined with multiple submissions of the top screen and security vulnerability assessments, each facility

completed and submitted to DHS an average of 1,156 pages of forms.[278] None submitted fewer than 400 pages of forms.[279]

Smaller companies with only a few or one facility may struggle even more with some aspects of CFATS given their lack of a dedicated legal compliance staff or the budget to outsource CFATS compliance, resulting in a form of regulatory capture benefitting larger businesses in the chemical industry.[280] Minority Committee Staff identified one regional chemical manufacturing company with two full time staff members dedicated to CFATS compliance, out of a total workforce of about eighty employees.[281] This is not surprising; in the sample of CFATS data provided by DHS, two-thirds of the facilities had fewer than eighty employees but most had submitted well over 1,000 pages of CFATS forms.[282] One of them, a company of just eleven employees, completed and submitted a total of 1,117 pages of CFATS forms to DHS.[283] Another small chemical distribution company estimated its administrative costs for CFATS compliance exceeded $46,000, not including the actual security measures added, like security guards, cameras, and fencing.[284]

***Some companies find DHS's site security plan template so convoluted and vague that they are forced to keep two security plans — one that they actually use, and another to submit to DHS.***

Just the administrative cost of CFATS — the paperwork, not the actual security improvements — dwarfs those of other chemical security regulatory programs. For example, according to multiple companies, a "facility's administrative cost to comply with CFATS would consistently be considerably more than [Maritime Transportation Security Act] … easily more than double as a conservative estimate."[285] The Coast Guard's Maritime Transportation Security Act program is one of the most closely analogous regulatory programs to CFATS, with responsibility for regulating security at chemical facilities along navigable waterways and coasts. Facilities that are regulated by the Maritime Transportation Security Act are exempt from CFATS, though some companies have multiple facilities, some of which are in the Coast Guard's program and others of which are in CFATS.

Empirical evidence is telling here as well: Minority Committee Staff learned some chemical companies with facilities not covered under CFATS or Coast Guard's program voluntarily put in security measures at those plants similar to the ones at their regulated facilities because they are sensible security measures.[286] As a result the facilities would likely meet the CFATS or Maritime Transportation Security Act requirements without much difficulty. Yet those companies are adamantly opposed to those facilities being CFATS regulated because of "the abjectly unreasonable administrative demands of [the CFATS] program, which do not add security value."[287] "Exhibit A," they said, "would have to be the DHS Site Security Plan process," which many have characterized as more complicated than necessary.[288] Some companies find DHS's site security plan template so convoluted and vague they are forced to keep two security plans — one they use, and another they submit to DHS.[289]

The CFATS compliance burden is so great, it has spawned a lucrative consulting and compliance assistance business.[290] Minority Committee Staff have identified, and spoken with numerous attorneys, consultants, and other purveyors of products and services who specialize in CFATS compliance.[291] CFATS has even been cited as a primary driver of growth in security markets; one recent market analysis for perimeter security forecasted the global perimeter security market will grow from $11.6 billion last year to $17.7 billion by 2018, explaining "Chemical Facility Anti-Terrorism Standards, which established risk-based performance standards for chemical facilities is one of the major reasons for growth."[292]

## Regulatory Overlap

Chemical companies are subject to a variety of regulations at the federal, state, and local level, from a variety of different departments and agencies.[293] Just a few of the federal regulators include the Occupational Safety and Health Administration in the Department of Labor, the Environmental Protection Agency's Risk Management Program; the Bureau of Alcohol, Tobacco, and Firearms at the Department of Justice; the Department of Transportation's Hazardous Materials Regulations; the U.S. Coast Guard's Maritime Transportation Security Act program; the Transportation Security Administration's Hazardous Materials Endorsement and Transportation Worker Identification Credential programs; and the CFATS program.[294]

### 1. Example of Regulatory Overlap: Personnel Surety

The lack of coordination between these agencies has resulted in inconsistencies between their requirements for security and safety, creating an unnecessary burden and cost for companies covered by more than one of the regulatory regimes. Personnel surety is a clear example. Under CFATS, a facility must identify and run background checks on each individual given unescorted access to a facility — employees, truckers, consultants, and others.[295]

Many of those employees have already been vetted by other agencies based on the same requirements. Truckers, for example, may have a Hazardous Materials Endorsement on their driver license or a Transportation Worker Identification Credential from the Transportation Security Administration, or both. Both the Transportation Worker Identification Credential and the Hazardous Materials Endorsement also require, like CFATS, a person be screened for terrorist ties through the FBI's Terrorist Screening Database. So do the Justice Department's Federal Explosives License, CFATS's own Personnel Surety Program, and a variety of other programs.[296]

But under a recently proposed change to CFATS, facilities will not be allowed to accept any of those other credentials at face value, even the ones issued by other DHS agencies.[297] Instead, CFATS treats those credentials as presumptively invalid until DHS verifies them, requiring facilities to submit personal information[298] on every employee, trucker, and contractor at least 48 hours before the person is allowed inside a facility.[299] In short, the facility has to submit nearly all the same information they would have to submit if the person had no DHS-issued credential at all.[300]

The personnel surety proposal also raises privacy concerns. DHS keeps a record of names of even those who do not turn up in the Terrorist Screening Database for a full year.[301] According to the Department's Privacy Impact Assessment for the CFATS personnel surety program, DHS "may externally share [Personally Identifiable Information], matching analyses, and vetting results for appropriate action by federal law enforcement and intelligence agencies," and the Terrorist Screening Center.[302] The Terrorist Screening Center can, in turn, share that information with other departments and agencies.[303] This raises concerns about how and why this information will be used — for example, whether it will be used to track chemical sector employees, like truckers, around the U.S. as truckers have their names run at each chemical facility they enter, before entering it and offloading their haul. Employees also have little recourse if they are unjustly or incorrectly listed on the Terrorist Screening Database — a listing could mean an employee is out a job, because he is prohibited from entering his worksite, and has no ability to appeal the decision.[304]

Personnel surety is an important element of an effective chemical facility security plan — companies do not want to give terrorists the keys to their stores of hazardous chemicals — but this proposal is unworkable. It raises numerous concerns from duplication and regulatory burden, to keeping individuals' personally identifiable information secure, not to mention the privacy concerns about DHS being able to track truckers as they move about the country. The program could be cost prohibitive for small facilities and large facilities alike.[305] Some larger facilities receive thousands of

trucks annually, each with a different driver whose personal information would need to be obtained, and sent to DHS 48 hours before arrival.[306]

**2. Conflicting Regulations**

In some cases, DHS's CFATS regulations even appear to directly conflict with other federal laws. One company recounted and provided documentation for an incident where they were cited and threatened with arrest by one agency, the Department of Transportation, for complying with the instructions of another, the Department of Homeland Security.[307] During an inspection of their facility by an investigator with Department of Transportation's Pipeline and Hazardous Materials Safety Administration, the investigator asked to review the facility's CFATS Site Security Plan consistent with the requirement under the Hazardous Materials Transportation Act.[308] The Act requires, in pertinent part, chemical facility owners and operators to make "records, property, reports, and information available" to investigators with the Pipeline and Hazardous Materials Safety Administration when requested.[309]

However, DHS prohibits chemical facilities' disclosure of Chemical Vulnerability Information — CFATS documentation like Site Security Plans — to anyone who DHS has not expressly authorized to access Chemical Vulnerability Information,[310] even other federal investigators, and the Department of Transportation investigator did not have an authorization to access Chemical Vulnerability Information.[311] In fact, according to the company representative, CFATS staff at a DHS summit specifically warned chemical facility owners and operators against providing non-DHS federal and state inspectors with access to security plans and other Chemical Vulnerability Information.[312] So the plant owner refused to provide the facility's security plan to the Department of Transportation investigator, unless the investigator obtained an authorization from DHS to access Chemical Vulnerability Information.[313] The facility owner then offered to let the investigator use one of the facility's computers to go to DHS's website and complete the online authorization process for Chemical Vulnerability Information,[314] which typically takes less than an hour.[315] The investigator refused to do so, leaving the facility owner to decide between following DHS's regulations, and the Department of Transportation's.[316] Ultimately, the facility owner decided to follow DHS's regulations, causing the Department of Transportation inspector to threaten the owner with arrest and issued the company a citation.[317]

***One company recounted an incident where a facility owner was cited and threatened with arrest by one agency, the Department of Transportation, for complying with the requirements of another, the Department of Homeland Security.***

# CONCLUSION

CONGRESS FIRST ESTABLISHED the Chemical Facility Anti-Terrorism Standards (CFATS) program in 2006 with the intent to making us safer from terrorist attacks on U.S. chemical facilities. Since then, Congress and the Department of Homeland Security have spent nearly $600 million on the program and have accomplished very little.

Many before this report have examined the CFATS program and found problems in it, including dozens of congressional hearings, studies by the Government Accountability Office, internal reports, the Tiering Methodology Review, and an investigation by the DHS Inspector General. This report is the latest oversight work of CFATS, providing a holistic critique of the approach and design of the CFATS program, as well as its implementation and management.

## Findings

- **CFATS is not reducing our nation's risk to a terrorist attack on U.S. chemical infrastructure.**[318] By leaving exceptions and loopholes, many of which were created by Congress, the program lacks the ability to ensure the security of anything other than individual facilities. Missing the forest for the trees, this approach fails to understand the mentality of our adversaries. They are cunning and adaptive, and will not hesitate to change their plans to acquire their chemicals from a more vulnerable source or to target an equally deadly but more accessible chemical. Even at CFATS-regulated facilities, without better metrics DHS has no way of knowing CFATS is improving security and reducing the risk of terrorist attack.
- **CFATS may not know of all dangerous chemical facilities.**[319] The Department has little way of knowing about facilities that do not affirmatively report-in to DHS when they have a dangerous amount of covered chemicals. As the incident in West, Texas, showed last year, there are facilities in the country with dangerous amounts of toxic or flammable chemicals that are not following the CFATS rules, whether because they are ignorant of the law or intentionally choosing not to comply. And DHS does not know about them. These facilities may have lower security, avoiding CFATS regulations to avoid the cost of improving their security, and making them especially vulnerable to attack.
- **CFATS is regulating the wrong facilities.**[320] There are too many chemical facilities in this country to regulate them all. DHS must focus our limited resources on the highest risk facilities, and that means having an accurate understanding of risk. Unfortunately, the CFATS program continues to suffer from major flaws in the way it computes risk. In some cases DHS does not understand its own risk assessment model. In others, it appears to have questionable scientific validity, with error-laden assumptions and basic formulaic errors. There is little indication the CFATS risk assessment process accurately prioritizes the facilities we should really be worrying about.
- **CFATS is failing the facilities it considers high risk.**[321] Under Secretary Spaulding and Mr. Wulf have taken this program a long ways from where it was when they inherited it, but it is still

too far from catching up. 78 percent of CFATS-regulated facilities still do not have an approved security plan, and 99 percent have not had a compliance inspection. In the meantime, the vast majority of chemical facilities DHS believes are high risk are left effectively unregulated, and by the Department's reasoning, unsecured. America does not have another eight years to spend getting this program on track, and yet a significant acceleration in the pace of reviews may require a decrease in the quality of those reviews, also a mistake our country cannot afford.

- **CFATS creates a massive regulatory burden for the companies it covers.**[322] Taxpayers are not the only ones paying for CFATS; small businesses across the country that are already struggling to make ends meet, find it much more difficult when facing mounting compliance costs and thousands of pages of administrative paperwork. Coupled with poorly coordinated, overlapping, and duplicative regulations, CFATS is making good companies spend money and time they don't have, and with no assurance the money and time is making their facilities more secure, or our country less vulnerable.
- **A key reason for many of these problems is a lack of transparency, trust, and interest in collaborating with industry and scientific experts outside DHS.**[323] Industry and the scientific community have a collective wealth of knowledge and expertise in chemical security that could greatly benefit DHS. But by fostering an adversarial relationship with the private sector, and classifying and restricting access to information about how key parts of the program work, DHS limits its ability to leverage that expertise, making fixing CFATS much harder.

## Recommendations

The challenge for Congress is to determine how and whether to fix the CFATS program. It is not clear how real the terrorist threat to chemical facilities is, or whether CFATS needs to be continued at all. However, if Congress determines the threat is real, and decides to continue the CFATS program, Congress will need to implement substantial changes to the program to ensure CFATS addresses those threats, changes like:

1. **Allowing lower risk CFATS-covered facilities to self-certify their security plans meet DHS's security standards.** Allow lower risk CFATS-covered facilities to develop and submit security plans to DHS and self-certify their plans meet the CFATS Risk-Based Performance Standards, in lieu of DHS's review, authorization, authorization inspection, and approval or disapproval process. Once a facility self-certifies by submitting its security plan and self-certification to DHS, DHS could proceed immediately to a verification inspection phase, randomly inspecting facilities to make sure their security measures match what they indicated on their security plans. DHS could be given authority to immediately fine facilities that lie on their security plans, and remove facilities from self-certification if they try to game the self-certification process through security measures that clearly do not meet the standards. A self-certification model for tier three and tier four facilities would have a number of key benefits: it would eliminate up to 95 percent of the backlog, ensuring some 3,000 facilities have enforceable security plans in place;[324] it would allow DHS far more flexibility to focus its limited resources on the highest risk facilities and the small facilities struggling to implement CFATS; and it would leverage facilities' own security experts — the individuals most knowledgeable about security at those facilities — to determine the security measures necessary to secure them.
2. **Fixing the risk assessment model and tiering methodology.** The validity of the entire CFATS program rests on an accurate determination of which facilities are high risk, and prioritizing the highest risk of those covered facilities. DHS must repair its risk assessment model to ensure it accurately and appropriately considers all elements of risk (or provide scientifically based

explanations for why it should not), and to restore confidence in the tiering methodology. This will require increased transparency in a subject the Department has historically been close-lipped about. But increased transparency will provide the Department an opportunity to engage outside expertise in improving its risk assessment model and tiering methodology.

3. **Creating a permanent CFATS advisory group.** DHS should work with the Chemical Sector Coordinating Council and Oil & Natural Gas Sector Coordinating Council to create an informal task force of experts from outside DHS, with broad expertise and experience, and provide the group with access to key documents explaining the inner workings of CFATS. This group should have regular contact with the CFATS program's leadership team and the Congressional oversight committees to ensure DHS benefits from their expert opinions and recommendations.
4. **Giving the Department the authority to immediately penalize "outlier" companies that deliberately evade CFATS regulations.** Congress should give the Department the authority to make an example of chemical facilities that try to skirt detection and regulation, by immediately fining them. This would send a strong message to other outliers it is time to come into compliance with CFATS. The Department currently lacks the authority to immediately fine facilities trying to avoid CFATS regulation by not reporting their chemical holdings to DHS. Currently, DHS must give them an opportunity to come into compliance before fining them.
5. **Implementing sensible metrics for CFATS to identify successes and challenges.** These metrics need to show to the private sector and Congress CFATS is improving chemical security at high risk chemical facilities, the facilities being regulated are truly high risk, CFATS reflects plausible attack scenarios, and the program is not merely shifting risk elsewhere.
6. **Commissioning an independent, holistic study of systemic risks and the regulatory environment in domestic chemical infrastructure.** Such a study would inform future legislation, regulation, guidance, and implementation as it relates to chemical security, to ensure our chemical infrastructure is protected effectively, efficiently, and appropriately without shifting risk to other areas in chemical infrastructure. Understanding the appropriate role for the federal government in the domestic chemical sector begins with an accurate understanding of the risks across the system, and the regulatory environment throughout the supply chain.
7. **Harmonizing chemical security regulations, based in part on the risk study**. DHS should work to harmonize CFATS regulations with other chemical security regulators, including those both at other DHS agencies, and those outside of DHS. At a minimum, this should include:
    - **Adopting a workable personnel surety program**, possibly a common credential for all critical infrastructure.
    - **Updating the CFATS list of chemicals of interest** and corresponding thresholds through the rulemaking process, with consultation with stakeholders and outside experts, and transparent, scientifically-based justifications for inclusions, exclusions, and thresholds.
    - **Reduce the administrative burden.** DHS should continue to identify more efficient ways to collect information from facilities in order to reduce the administrative burden on regulated companies and its backlog.

CFATS is a broken program that is not making us measurably safer against the threat of a terrorist attack. But these kinds of substantial changes will begin to address these problems and create a more workable chemical security program.

# ENDNOTES

[1] *E.g.*, *Police: California Men Planned to Bomb Propane Tanks*, CNN.COM, Dec. 4, 1999, http://archives.cnn.com/1999/US/12/04/bomb.plot.02/index.html.

[2] *E.g.*, Brandon Bailey, *Odd Portrait Painted of Bomb-Plot Suspect*, SAN JOSE MERCURY NEWS, Dec. 11, 1999, at A1.

[3] S. Hrg. 107-597 at 127.

[4] *E.g.*, U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-13-353, CRITICAL INFRASTRUCTURE PROTECTION: DHS EFFORTS TO ASSESS CHEMICAL SECURITY RISK AND GATHER FEEDBACK ON FACILITY OUTREACH CAN BE STRENGTHENED, GAO-13-353 at 10 (2013) [hereinafter GAO-13-353], *available at* http://www.gao.gov/assets/660/653601.pdf.

[5] *E.g.*, *id.*

[6] *See* Memorandum from Penny J. Anderson, Director, DHS Infrastructure Security and Compliance Division, and David M. Wulf, Deputy Director, DHS Infrastructure Security and Compliance Division to Rand Beers, Undersecretary, DHS National Protection & Programs Directorate, and Todd Keil, Assistant Secretary, DHS Office of Infrastructure Protection (Nov. 10, 2011) (For Official Use Only) (on file with Committee); Mike Levine, *Exclusive: Beset By Strife at Chemical Security Office, DHS Internal Report Claims Anti-Terrorism Program Now in Jeopardy*, FOXNEWS.COM, Dec. 21, 2011, http://www.foxnews.com/politics/2011/12/21/ exclusive-beset-by-strife-at-dhs-office-future-anti-terrorism-program-now-in/.

[7] *E.g.*, GAO-13-353, *supra* note 4, at 10.

[8] *See* OFFICE OF INSPECTOR GEN., U.S. DEPARTMENT OF HOMELAND SEC., OIG-13-55, EFFECTIVENESS OF THE INFRASTRUCTURE SECURITY COMPLIANCE DIVISION'S MANAGEMENT PRACTICES TO IMPLEMENT THE CHEMICAL FACILITY ANTI-TERRORISM STANDARDS PROGRAM (2013) [hereinafter OIG-13-55], *available at* http://www.oig.dhs.gov/assets/Mgmt/2013/ OIG_13-55_Mar13.pdf; E-mail from Office of Inspector Gen., U.S. Department of Homeland Sec., to Minority Committee Staff (Jun. 9, 2014). The DHS Inspector General reports that recommendations 1–2, 6–9, 12–13, 15, 19, and 24 all remain open "because NPPD has not completed all planned actions in response to the recommendations." *Id.*

[9] *See* GAO-13-353, *supra* note 4, at 18.

[10] *See id.* at 18; E-mail from U.S. Gov't Accountability Office to Minority Committee Staff (Jun. 9, 2014). GAO identified that three recommendations for CFATS related to GAO's mission-centered series of reports in which the Department has "started to ... address ... but [has] not taken sufficient action yet." *Id.*

[11] E-mail from U.S. Gov't Accountability Office to Minority Committee Staff (Jun. 9, 2014).

[12] *See* HOMELAND SEC. STUDIES & ANALYSIS INST., RP12-22-02, CHEMICAL FACILITY ANTI-TERRORISM STANDARDS TIERING METHODOLOGY PEER REVIEW: FINAL REPORT (2013) (For Official Use Only) [hereinafter HSSAI REPORT]; *see also, e.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, 113th Cong. ___ (May 14, 2014) (testimony of Stephen Caldwell, Director, Homeland Sec. and Justice, Gov't Accountability Office).

[13] Although Congress authorized CFATS in late 2006, it took several months to draft and issue the regulation, meaning the actual regulatory requirement was not in place until mid-2007. *See infra* note 26 and accompanying text.

[14] *See infra* Part II. A.

[15] *See infra* note 167 and accompanying text.

[16] *See infra* Part II. B.

[17] *See infra* Part III.

[18] HSSAI REPORT, *supra* note 12, at App. F; *see also*, *infra* Part III. B.

[19] *See* HSSAI REPORT, *supra* note 12, at 35–47, 51–57; GAO-13-353, *supra* note 4, at 12–14; *see also, e.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (testimony of Stephen Caldwell, Director, Homeland Security and Justice, Government Accountability Office).

[20] *See infra* note 223 and accompanying text.

[21] *See infra* Part IV; *see also* Chemical Facility Anti-Terrorism Standards, 6 C.F.R. §27.210(b) (2014) (resubmission schedule).

[22] Michael Chertoff, Secretary of Homeland Security, Speech before the American Chemistry Council National Chemical Security Forum, Washington, D.C. (Mar. 21, 2006).

[23] *See, e.g.*, H.R. REP. No. 109-476 at 91.

[24] *See, e.g.*, *id.* at 179 ("The fact that the federal government requires no security standard for most U.S. chemical facilities is one of our greatest security vulnerabilities.").

[25] *E.g.*, Eliott C. McLaughlin, *West, Texas, Fertilizer Plant Blast That Killed 15 'Preventable,' Safety Board Says*, CABLE NEWS NETWORK, Apr. 22, 2014, http://www.cnn.com/2014/04/22/us/west-texas-fertilizer-plant-explosion-investigation/.

[26] Homeland Security Appropriations Act of 2007, Pub. L.109-295, § 550, 120 Stat. 1355, 1388–1389 (2006) (authorizing CFATS on Oct. 4, 2006); Chemical Facility Anti-Terrorism Standards, 72 Fed. Reg. 17,688 (Apr. 9, 2007) (issuing CFATS interim final rule).

[27] Appendix to Chemical Facility Anti-Terrorism Standards, 72 Fed. Reg. 65,396 (Nov. 20, 2007); *see also* Chemical Facility Anti-Terrorism Standards, 6 C.F.R. pt. 27 (2014) (current CFATS regulation).

[28] Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. 78,276, 78,276 (Dec. 28, 2006) (CFATS advance notice of rulemaking).

[29] *Id.*

[30] *Id.*

[31] 160 CONG. REC. S1335 (daily ed. Mar. 6, 2014) (confirmation of Suzanne E. Spaulding).

[32] 3 U.S. DEPARTMENT OF HOMELAND SEC., *National Protection & Programs Directorate: Infrastructure Protection & Information Security*, FY 2015 CONGRESSIONAL BUDGET JUSTIFICATION 1, 7 (2014).

[33] Chemical Facility Anti-Terrorism Standards, 72 Fed. Reg. 17,688 (Apr. 9, 2007).

[34] Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. 78,276, 78,276 (Dec. 28, 2006); Appendix to Chemical Facility Anti-Terrorism Standards, 72 Fed. Reg. 65,396, 65,397–98 (Nov. 20, 2007).

[35] *See* Chemical Facility Anti-Terrorism Standards, 6 C.F.R. pt. 27, app. A (2014) (listing chemicals of interest and their corresponding thresholds for screening); Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,281.

[36] *See* 6 C.F.R. pt. 27, app. A.

[37] *E.g.*, Assoc'n of Am. Plant Food Control Officials, Commercial Fertilizer (2011).

[38] The bomb used in the 1995 Oklahoma City Bombing, for example, used 2,000 pounds of ammonium nitrate. James Collins, *Oklahoma City: The Weight of Evidence*, TIME, Apr. 28, 1997, at 36–42. Ammonium nitrate remains a common precursor in improvised explosive devices (IEDs). *See, e.g.*, Institute of Makers of Explosives, *Explosives Precursor Chemical Regulation* (Jan. 2014) (on file with Committee).

[39] 6 C.F.R. §§ 27.105, 27.200(b)(2), 27.210; Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276.

[40] §§ 27.105, 27.200(b)(2), 27.210; Chemical Facility Anti-Terrorism Standards, 71 Fed. at Reg. 78,276.

[41] §§ 27.205(a), 27.210; Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276.

[42] §§ 27.205(a), 27.210; Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276.

[43] §§ 27.205(a), 27.210, 27.220(a); Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276.

[44] §§ 27.105, 27.220(c).

[45] §§ 27.210, 27.215, 27.220(a), 27.240; Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276.

[46] §§ 27.105, 27.220.

[47] §§ 27.210(a)(3), 27.225, 27.245, 27.250; Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276. CFATS-covered facilities are distributed throughout all fifty states, though approximately half of them are located in the top ten states by number of covered facilities: California, Florida, Illinois, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, and Texas. E-mail from U.S. Department of Homeland Sec. to Minority Committee Staff (July 28, 2014).

[48] §§ 27.210(a)(3), 27.225, 27.230; Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276; DEP'T OF HOMELAND SECURITY, RISK-BASED PERFORMANCE STANDARDS: CHEMICAL FACILITY ANTI-TERRORISM STANDARDS (May 2009) [hereinafter CFATS RBPS].

[49] §§ 27.210(a)(3), 27.220, 27.225, 27.245, 27.250; Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276.

[50] *See, e.g.*, CFATS RBPS, *supra* note 48, at 28–31 (showing expected perimeter security standards decrease from tier one down to tier four).

[51] §§ 27.210(a)(3), 27.225, 27.230, 27.235; Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276.

[52] §§ 27.210(a)(3), 27.225, 27.230, 27.235, 27.245 (2014); Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276.

[53] CFATS RBPS, *supra* note 48, at 96–100; *see also* § 27.230(a)(12).

[54] § 27.245 (2014); Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276.

[55] § 27.250 (2014); Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276.

[56] § 27.250(b)(1) (2014); Chemical Facility Anti-Terrorism Standards, 71 Fed. Reg. at 78,276.

[57] *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (testimony of Suzanne Spaulding, Under Secretary for National Protection & Programs, U.S. Department of Homeland Security).

[58] § 27.250 (2014); U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-14-365T, CRITICAL INFRASTRUCTURE PROTECTION: OBSERVATIONS ON DHS EFFORTS TO IDENTIFY, PRIORITIZE, ASSESS, AND INSPECT CHEMICAL FACILITIES 12 (2014), *available at* http://www.gao.gov/assets/670/661181.pdf.

[59] American Chemistry Council, The Business of Chemistry by The Numbers (June 2013); U.S. Dep't of Homeland Security, National Infrastructure Protection Plan Chemical Sector Snapshot (2011); Department of Homeland Sec., CFATS Knowledge Center Update (Jun. 1, 2014) (on file with Committee).

[60] U.S. DEPARTMENT OF ENERGY, THE POTENTIAL BENEFITS OF DISTRIBUTED GENERATION AND RATE-RELATED ISSUES THAT MAY IMPEDE THEIR EXPANSION sec. 7, at 9 (2007).

[61] *E.g.*, U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-05-631T, HOMELAND SECURITY: FEDERAL AND INDUSTRY EFFORTS ARE ADDRESSING SECURITY ISSUES AT CHEMICAL FACILITIES, BUT ADDITIONAL ACTION IS NEEDED 6 (2005), *available at* http://www.gaonet.gov/assets/120/111602.pdf.

[62] DANA SHEA, CONGRESSIONAL RESEARCH SERV., R43346, IMPLEMENTATION OF CHEMICAL FACILITY ANTI-TERRORISM STANDARDS (CFATS) 5 (2014) [hereinafter CRS, R43346].

[63] CFATS Knowledge Center Update, *supra* note 59 (more than 48,000 top screens submitted).

[64] *Id*.

[65] FY 2015 CONGRESSIONAL BUDGET JUSTIFICATION, *supra* note 32, at 7; Dep't of Homeland Sec., Briefing to Minority Committee Staff (May 23, 2014); CRS, R43346, *supra* note 62, at 3–4.

[66] FY 2015 CONGRESSIONAL BUDGET JUSTIFICATION, *supra* note 32, at 7; OIG-13-55, *supra* note 8, at 11 & tbl.2.

[67] *See, e.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (testimony of Anna Fendley, Legislative Representative, United Steelworkers International Union).

[68] *E.g.*, *H.R. 4007, the Chemical Facility Anti-Terrorism Standards Authorization and Accountability Act of 2014: Hearing Before the Subcomm. on Cybersecurity, Infrastructure Protection, and Security Technologies of the H. Comm. on Homeland Security*, 113th Cong. ___ (Feb. 27, 2014) (prepared statement of Marcia Moxey Hodges, Chief Inspector, Office of Inspector General, U.S. Department of Homeland Security).

[69] *E.g.* OIG-13-55, *supra* note 8, at 47.

[70] The data entry site is called the Chemical Security Assessment Tool or "CSAT."

[71] OIG-13-55, *supra* note 8.

[72] *See* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-12-515T, CRITICAL INFRASTRUCTURE PROTECTION: DHS IS TAKING ACTION TO BETTER MANAGE ITS CHEMICAL SECURITY PROGRAM BUT IT IS TOO EARLY TO ASSESS RESULTS (2012); U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-12-567T, CRITICAL INFRASTRUCTURE PROTECTION: DHS IS TAKING ACTION TO BETTER MANAGE ITS CHEMICAL SECURITY PROGRAM BUT IT IS TOO EARLY TO ASSESS RESULTS (2012); U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-12-1044T, CRITICAL INFRASTRUCTURE PROTECTION: SUMMARY OF DHS ACTIONS TO BETTER MANAGE ITS CHEMICAL SECURITY PROGRAM (2012); GAO-13-353, *supra* note 4; U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-13-412T, CRITICAL INFRASTRUCTURE PROTECTION: PRELIMINARY OBSERVATIONS ON DHS EFFORTS TO ASSESS CHEMICAL SECURITY RISK AND GATHER FEEDBACK ON FACILITY OUTREACH (2013); U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-13-801T, CRITICAL INFRASTRUCTURE PROTECTION: DHS NEEDS TO IMPROVE ITS RISK ASSESSMENTS AND OUTREACH FOR CHEMICAL FACILITIES (2013); U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-14-356T, CRITICAL INFRASTRUCTURE PROTECTION: OBSERVATIONS ON DHS EFFORTS TO IDENTIFY, PRIORITIZE, ASSESS, AND INSPECT CHEMICAL FACILITIES (2014).

[73] *See, e.g.*, Joshua Schneyer, et al., *Texas Fertilizer Company Didn't Heed Disclosure Rules Before Blast*, REUTERS, Apr. 20, 2013. Note that although the appropriate reporting threshold for ammonium nitrate prill is incorrectly identified as 400 pounds in the article (it is 2,000 pounds), App. A, the estimated 540,000 pounds of ammonium nitrate at the West, Texas facility still vastly exceeds the CFATS reporting threshold.

[74] *E.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (testimony of Suzanne Spaulding, Under Secretary for National Protection & Programs, U.S. Department of Homeland Security).

[75] Dep't of Homeland Sec., Briefing to Minority Committee Staff (Jan. 25, 2012); *see also* 6 CFR § 27.100 (defining purpose of CFATS as "to enhance the security of our Nation … by lowering the risk posed by certain chemical facilities").

[76] *See infra* Part IV.

[77] *See infra* Part II. A.

[78] *See infra* Part II. B.

[79] *See infra* Part II. C–D.

[80] *See infra* Part III.

[81] *See, e.g.*, *The Department of Homeland Security: The Road Ahead: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, 109th Cong. 62 (Jan. 26, 2005) (prepared statement of Richard A. Falkenrath, Visiting Fellow, Brookings Institution) ("[O]ur terrorist enemies are surveying American society to locate other inherently dangerous, poorly secured systems that they could strike with catastrophic secondary effects. … One … stands out a[s] acutely vulnerabl[e] and almost uniquely dangerous: toxic-by-inhalation industrial chemicals. These poorly secured chemicals, which in some cases are identical to the chemical weapons used in World War I, are routinely present vast, multi-ton quantities adjacent to or in the midst of many dense population centers."); *id.* (testimony of Stephen E. Flynn, Jeane J. Kirkpatrick Senior Fellow in National Security Studies, Council on Foreign Relations) ("[W] we have 15,000 weapons of mass destruction littered around the United States …. Why produce a chemical weapon, go through the very difficult task of smuggling it into the United States, when essentially there is a vast menu of prepositioned weapons in our population areas next to critical infrastructure?"); Michael Chertoff, U.S. Secretary of Homeland Security, September 11: Five Years Later, Address at Georgetown University, Sept. 8, 2006 ("One of the lessons of 9/11 is the intent of the enemy to turn our own technology against us. … [W]e know that at least some chemical plants in high populated areas could also be transformed into deadly agents to wreak destruction on our populace.").

[82] H.R. REP. No. 109-476 at 91; *see also, e.g.*, GAO-05-631T, *supra* note 61, at 6–8; *EPA Drops Chemical Security Effort*, WASHINGTON POST A17 (Oct. 3, 2002) ("Anti-terrorism experts … say there is little doubt that plants storing large amounts of chlorine and other toxic chemicals are potential terrorist targets. Internal administration documents disclosed this summer warn of at least [thirty] plants near heavily populated areas that require immediate government attention.").

[83] Chertoff, *supra* note 22; *see also* H.R. REP. No. 109-476 at 91 (citing Secretary Chertoff's speech in enacting the report accompanying the CFATS authorization).

[84] *See* H. Rept 109-476 at 179 (citing GAO-03-439); U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-03-439, HOMELAND

SECURITY: VOLUNTARY INITIATIVES ARE UNDER WAY AT CHEMICAL FACILITIES, BUT THE EXTENT OF SECURITY PREPAREDNESS IS UNKNOWN 9–11 (2003); *see also* GAO-05-631T, *supra* note 61.

[85] GAO-03-439, *supra* note 84, at 9–11.

[86] *E.g.*, HSSAI REPORT, *supra* note 12, at 38–39 & App. G at G-1–G-2.

[87] HSSAI REPORT, *supra* note 12, at App. G at G-2–G-3.

[88] *See, e.g.*, CTRS. FOR DISEASE CONTROL & PREVENTION, EMERGENCY RESPONSE SAFETY & HEALTH DATABASE, CHLORINE: LUNG DAMAGING AGENT (2014), http://www.cdc.gov/niosh/ershdb/EmergencyResponseCard_29750024.html. Chlorine also reacts explosively with many common chemicals and forms hydrochloric acid when combined with water.

[89] *See* 6 C.F.R. pt. 27, app. A (2014); *see also, e.g.*, CTRS. FOR DISEASE CONTROL & PREVENTION, *supra* note 88.

[90] Homeland Security Appropriations Act of 2007, Pub. L.109-295, § 550, 120 Stat. 1355, 1388 (2006); CTRS. FOR DISEASE CONTROL & PREVENTION, *supra* note 88.

[91] HSSAI REPORT, *supra* note 12, at App. G at G-1–G-2.

[92] Homeland Security Act of 2007, Pub. L. 109-295 § 550(a) (authorizing regulations only "for security of chemical *facilities*") (emphasis added); *see also* Chemical Facility Anti-Terrorism Standards, 72 Fed. Reg. 17,688, 17,698–99 (Apr. 9, 2007) ("DHS presently does not plan to screen railroad facilities for inclusion in [CFATS], and therefore DHS will not request that railroads complete the Top Screen risk assessment methodology."); *id.* at 17,699 ("In the case of natural gas pipelines, DHS has no intention at this time of requiring long-haul pipelines to complete the Top-Screen (or prepare Security Vulnerability Assessments and develop Site Security Plans).").

[93] Homeland Security Act of 2007, Pub. L. 109-295 § 550(a).

[94] *Id*.

[95] *See, e.g.*, HSSAI REPORT, *supra* note 12, at 67, App. G at G-2–G-3; *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (prepared statement of Anna Fendley, Legislative Representative, United Steelworkers International Union).

[96] *E.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (prepared statement of Anna Fendley, Legislative Representative, United Steelworkers International Union).

[97] *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (prepared statement of Anna Fendley, Legislative Representative, United Steelworkers International Union).

[98] *E.g.*, Umar Farooq, *Pakistani Fertilizer Grows Both Taliban Bombs and Afghan Crops*, CHRISTIAN SCIENCE MONITOR, May 9, 2013; Alan Cullison & Yaroslav Trofimov, *Karzai Bans Ingredient of Taliban's Roadside Bombs*, WALL ST. J., Feb. 3, 2010 at A11.

[99] *Explosives Precursor Chemical Regulation*, *supra* note 38.

[100] *E.g.*, HSSAI REPORT, *supra* note 12, at App. G, at G-2–G-3.

[101] Letter from Suzanne E. Spaulding, Under Secretary for National Protection and Programs, to Tiering Methodology Review Panel Members, Attachment: Peer Review Recommendations and Responses at 4 (Oct. 4, 2013) [hereinafter DHS Peer Review Response]; Dep't of Homeland Sec., Briefing to Minority Committee Staff (Aug. 20, 2013).

[102] *See, e.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (testimony of Stephen Caldwell, Director, Homeland Sec. and Justice, Gov't Accountability Office) (noting the need for additional resources to conduct data-matching and the technology- and labor-intensive nature of the data-matching process).

[103] *See supra* notes 39–40 and accompanying text.

[104] *E.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (prepared statement of Suzanne Spaulding, Under Secretary for National Protection & Programs, and David Wulf, Director, Infrastructure Security Compliance Division, U.S. Department of Homeland Security); Dep't of Homeland Sec., Chemical Facility Anti-Terrorism Standards Statistics Update (Jun. 2014) (on file with Committee) [hereinafter CFATS Statistics Update June 2014]; Briefing to Minority Committee Staff, *supra* note 75; Briefing to

Minority Committee Staff, *supra* note 101.

[105] *See, e.g.*, Letter from Ann M. Beauchesne, Vice President, U.S. Chamber of Commerce, to Lisa Long, Directorate of Standards and Guidance, Occupational Safety and Health Admin., Dep't of Labor (Mar. 31, 2014).

[106] *See, e.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (prepared statement of Anna Fendley, Legislative Representative, United Steelworkers International Union).

[107] *See, e.g.*, *Explosives Precursor Chemical Regulation*, *supra* note 38 (identifying twelve chemical explosive precursors other than ammonium nitrate that are not CFATS regulated).

[108] *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (testimony of Tim Scott, Chief Security Officer, Dow Chemical Company, appearing on behalf of Dow and the American Chemistry Council).

[109] *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (prepared statement of Anna Fendley, Legislative Representative, United Steelworkers International Union)

[110] *See* DEP'T OF HOMELAND SEC., RISK-BASED PERFORMANCE STANDARDS 22–58.

[111] *See id.* at 50–81.

[112] *See, e.g.*, *Supplemental Appropriations for Fiscal Year 2006: Hearing Before the S. Comm. on Appropriations*, 109 S. Hrg. 752 at 149 (Mar. 7, 2006) (response to questions for the record by Michael Chertoff, Secretary, Department of Homeland Security).

[113] American Chemistry Council, Enhancing Chemical Security (undated fact sheet), *available at* http://www.americanchemistry.com/Policy/Security/Chemical-Security-Fact-Sheet.pdf.

[114] National Association of Chemical Distributors, What is Responsible Distribution? (undated brochure), *available at* http://nacd.com/images/newrd_files/NACD_responsibledistubtion_salessheet_web.pdf.

[115] Responsible Care, Responsible Distribution, and ChemStewards are all registered trademarks of their respective organizations.

[116] *See* Homeland Security Act of 2007, Pub. L. 109-295 § 550 (2006).

[117] *See* Appendix to Chemical Facility Anti-Terrorism Standards, 72 Fed. Reg. 65,396 (Nov. 20, 2007).

[118] *See, e.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (testimony of Suzanne Spaulding, Under Secretary for National Protection & Programs, U.S. Department of Homeland Security); CFATS Statistics Update June 2014, *supra* note 104.

[119] GAO-13-353, *supra* note 4, at 22–24.

[120] Minority Committee Staff interview (Feb. 11, 2014).

[121] HSSAI REPORT, *supra* note 12, at 2; *e.g.*, TODD MASSE, ET AL., CONGRESSIONAL RESEARCH SERV., RL33858, THE DEPARTMENT OF HOMELAND SECURITY'S RISK ASSESSMENT METHODOLOGY 3, 6 (2007) [hereinafter CRS, RL33858].

[122] HSSAI REPORT, *supra* note 12, at 27–29; *see also, e.g.*, DHS Peer Review Response, *supra* note 101, at 1, 5, 9.

[123] HSSAI REPORT, *supra* note 12, at 29; *see also, e.g.*, DHS Peer Review Response, *supra* note 101, at 1, 10.

[124] HSSAI REPORT, *supra* note 12, at 29–30; *see also, e.g.*, DHS Peer Review Response, *supra* note 101, at 1–2.

[125] HSSAI REPORT, *supra* note 12, at 30–31; *see also, e.g.*, DHS Peer Review Response, *supra* note 101, at 2, 9, 11.

[126] HSSAI REPORT, *supra* note 12, at 31; *see also, e.g.*, DHS Peer Review Response, *supra* note 101, at 2–3.

[127] HSSAI REPORT, *supra* note 12, at 34–35; *see also, e.g.*, DHS Peer Review Response, *supra* note 101, at 4–5, 8, 12.

[128] HSSAI REPORT, *supra* note 12, at 32–33; *see also, e.g.*, DHS Peer Review Response, *supra* note 101, at 3, 11–13.

[129] *See* HSSAI REPORT, *supra* note 12, at 2–3.

[130] *Id.* at 2.

[131] *See, e.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (prepared statement of Dana Shea, Specialist in Science and

Technology Policy, Congressional Research Service).

[132] *E.g.*, OIG-13-55, *supra* note 8, at 46–50.

[133] *E.g.*, *id.*; GAO-13-353, *supra* note 4, at 10.

[134] *See* OIG-13-55, *supra* note 8, at 46–48 (Oak Ridge National Laboratory first discovered the error in the calculation and notified DHS in January 2010, but DHS did not distribute new tiering notification letters for all affected facilities until June 27, 2011.).

[135] GAO-13-353, *supra* note 4, at 11.

[136] HSSAI REPORT, *supra* note 12, at App. H; *see also, e.g.*, DHS Peer Review Response, *supra* note 101, at 10–11.

[137] HSSAI REPORT, *supra* note 12, at 35, 52–53, App. H; *see also, e.g.*, DHS Peer Review Response, *supra* note 101, at 10–11.

[138] HSSAI REPORT, *supra* note 12, at 53; *see also, e.g.*, DHS Peer Review Response, *supra* note 101, at 10–11.

[139] *E.g.*, HSSAI REPORT, *supra* note 12, at 29 (inadequate documentation generally); *id.* at 30 (inadequate documentation for modeling assumptions, parameters, and special rules); *id.* at 32 (inadequate documentation for the risk tiering threshold values).

[140] *See* HSSAI REPORT, *supra* note 12, at 29-30; Minority Committee Staff interview, *supra* note 120.

[141] Dep't of Homeland Sec., Briefing to Minority Committee Staff (July 7, 2014).

[142] *E.g., id.; HSSAI Report, supra note 12, at 26, 29–30.*

[143] *E.g.*, HSSAI REPORT, *supra* note 12, at 30–31; Minority Committee Staff interview (Mar. 13, 2014); Minority Committee Staff interview, *supra* note 120; Minority Committee Staff interview, *supra* note 126.

[144] HSSAI REPORT, *supra* note 12, at 31, 54.

[145] See *id*.

[146] *See, e.g.*, *id.* at 31–32.

[147] *E.g.*, *id.*; Minority Committee Staff interview, *supra* note 120; Minority Committee Staff interview (July 17, 2013).

[148] Minority Committee Staff interview (May 1, 2014).

[149] HSSAI REPORT, *supra* note 12, at 31–32; *see also id.* at App. E.

[150] *E.g.*, HSSAI REPORT, *supra* note 12, at 31–32; *see also*, *infra* Part V. B.

[151] *E.g.,* HSSAI REPORT, *supra* note 12, at *passim.*

[152] HSSAI REPORT, *supra* note 12, at App. F.

[153] *See, e.g.*, CRS, RL33858, *supra* note 121, at 3, 6-7.

[154] *E.g.*, HSSAI REPORT, *supra* note 12, at 2–3.

[155] Chemical Facility Anti-Terrorism Standards, 6 C.F.R. § 27.105 ("Security Issue").

[156] *See* §§ 27.105, 27.203.

[157] *See* Chemical Facility Anti-Terrorism Standards, 6 C.F.R. pt. 27, app. A.

[158] § 27.220.

[159] *E.g.*, DEP'T OF HOMELAND SEC., 2014 QUADRENNIAL HOMELAND SECURITY REVIEW 18–19, 28; *see also* GAO-13-353, *supra* note 4, at 12–13; HSSAI REPORT, *supra* note 12, at 42.

[160] GAO-13-353, *supra* note 4, at 13.

[161] *E.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (testimony of David Wulf, Director, Infrastructure Security Compliance Division, U.S. Department of Homeland Security); HSSAI REPORT, *supra* note 12, at 3.

[162] *E.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (testimony of David Wulf, Director, Infrastructure Security Compliance Division, U.S. Department of Homeland Security).

[163] HSSAI REPORT, *supra* note 12, at 42–43.

[164] *Id.* at 43.

[165] RISK-BASED PERFORMANCE STANDARDS, *supra* note 110, at 101–05. *See also* HSSAI REPORT, *supra* note 12, at 42.

[166] *See* RISK-BASED PERFORMANCE STANDARDS, *supra* note 110, at 101–05.

[167] *See* Press Release, Dep't of Homeland Sec., Secretary Napolitano Announces Implementation of National Terrorism Advisory System (Apr. 20, 2011) *available at* http://www.dhs.gov/news/2011/04/20/secretary-napolitano-announces-implementation-national-terrorism-advisory-system.

[168] GAO-13-353, *supra* note 4, at 13–15; OIG-13-55, *supra* note 8, at 48–49; HSSAI REPORT, *supra* note 12, at 44.

[169] GAO-13-353, *supra* note 4, at 13–15; OIG-13-55, *supra* note 8, at 48–49; HSSAI REPORT, *supra* note 12, at 46.

[170] *E.g.*, HSSAI REPORT, *supra* note 12, at 47.

[171] GAO-13-353, *supra* note 4, at 13–15; *see also, e.g.*, Homeland Security Act of 2007, Pub. L. 109-295; § 550(a).6 CFR § 27.215(a)(3), 27.220(b)–(c), 27.240.

[172] *See* GAO-13-353, *supra* note 4, at 11–12; *supra* notes 136–138, 144–145 & accompanying text.

[173] HSSAI REPORT, *supra* note 12, at 49.

[174] *Id.* at 49-52.

[175] *Id.* at 48–49, 51–56.

[176] *See* GAO-13-353, *supra* note 4, at 11–12.

[177] DEP'T OF HOMELAND SEC., CRITICAL INFRASTRUCTURE PROTECTION PLAN 34–36 (2007); HSSAI REPORT, *supra* note 12, at 12, 54. Kevlar is a registered trademark of E. I. du Pont de Nemours and Company.

[178] HSSAI REPORT, supra note 12, at 35.

[179] GAO-13-353, *supra* note 4, at 12; HSSAI REPORT, *supra* note 12, at 18; DHS Peer Review Response, *supra* note 101, at 11; Dep't of Homeland Sec., Briefing to Minority Committee Staff (Nov. 4, 2013).

[180] *E.g.*, HSSAI REPORT, *supra* note 12, at 28-29, 35–36.

[181] *E.g.*, HSSAI REPORT, *supra* note 12, at 16.

[182] Minority Committee Staff interview, *supra* note 120; Minority Committee Staff interview (May 14, 2013).

[183] *Id.*; *see also, e.g.*, HSSAI REPORT, *supra* note 12, at 16.

[184] HSSAI REPORT, *supra* note 12, at App. F.

[185] *See* HSSAI REPORT, *supra* note 12, at 28–29; GAO-13-353, *supra* note 4, at 12–13.

[186] *See* GAO-13-353, *supra* note 4, at 12–13; HSSAI REPORT, *supra* note 12, at 29; *see also* Chemical Facility Anti-Terrorism Standards, 6 C.F.R. pt. 27, app. A.

[187] HSSAI REPORT, *supra* note 12, at 29.

[188] *E.g.*, HSSAI REPORT, *supra* note 12, at 3–4, 60; Minority Committee Staff interview, *supra* note 120; Minority Committee Staff interview (June 10, 2013).

[189] 6 CFR § 27.203(b)(1)(v).

[190] HSSAI REPORT, *supra* note 12, at 3, 15, 57.

[191] List of Regulated Substances and Thresholds for Accidental Release Prevention, Amendments, 63 Fed. Reg. 640, 641 (Jan. 6, 1998); *see also* 40 CFR § 68.115(b)(2).

[192] 6 CFR § 27.203(b)(1)(v).

[193] HSSAI REPORT, *supra* note 12, at 60.

[194] Petition of the International Liquid Terminals Association for a Declaratory Order Pursuant to 5 U.S.C. § 554(e) (May 12, 2009).

[195] *E.g.*, HSSAI REPORT, *supra* note 12, at 60. According to the report, DHS also commissioned a study on the treatment of fuel mixtures in 2012 that was completed in February of 2013, but the Department has not provided the study to Congressional

overseers or industry. HSSAI REPORT, *supra* note 12, at 15 & n.21. It is not clear that the Department even provided a copy of the study to HSSAI and panelists who participated in the review of its risk tiering methodology. *See* HSSAI REPORT, *supra* note 12, at 20–21 (listing technical documents provided to panelists for the review and not listing the fuel mixtures study as one of the documents provided).

[196] *E.g.*, *Police: California Men Planned to Bomb Propane Tanks*, *supra* note 1.

[197] *See* Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (P.L. 106-40).

[198] *See* Clarification to Chemical Facility Anti-Terrorism Standards: Propane, 73 Fed. Reg. 15,051 (Mar. 21, 2008) ("DHS listed … propane as a release-flammable [chemical of interest] with [a screening threshold quantity] of 60,000 pounds; this is in contrast to the 10,000 pound [threshold] that DHS used for most other release flammable [chemicals of interest].").

[199] *E.g.*, HSSAI REPORT, supra note 12, at 19–20; *see also, e.g.*, *id.* at 24–25, 27 (process was largely controlled by HSSAI); Minority Committee Staff interview, *supra* note 126 ("HSSAI was explicit that they were not going to treat [the review and subsequent report] as staffing the panel.").

[200] HSSAI REPORT, *supra* note 12, at 20.

[201] *See, e.g.*, DHS Peer Review Response, *supra* note 101, at 2, 3.

[202] DHS Peer Review Response, *supra* note 101, at 5.

[203] OXFORD ENGLISH DICTIONARY (2014) (defining "independent").

[204] Minority Committee Staff interview, *supra* note 143; Minority Committee Staff interview, *supra* note 148.

[205] CRS, R43346, *supra* note 62, at 1 & n.3; *e.g.*, Letter from Ann M. Beauchesne, *supra* note 105 ("Facilities, in partnership with DHS, are far from fully implementing CFATS measures.").

[206] Dep't of Homeland Sec., Briefing to Minority Committee Staff (Apr. 23, 2014); CRS, R43346, *supra* note 62, at 3–4; *infra* Part V. C.

[207] *See, e.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (prepared statement of Dana Shea, Specialist in Science and Technology Policy, Congressional Research Service).

[208] *Chemical Security: Assessing Progress and Charting a Path Forward: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, 111th Cong. 20 (Mar. 3, 2010) (testimony of Sue Armstrong, Acting Deputy Assistant Secretary for Infrastructure Protection, U.S. Department of Homeland Security).

[209] *See, e.g.*, Department of Homeland Sec., Chemical Facility Anti-Terrorism Standards Statistics Update (May 2013) (on file with Committee) (showing even as of May 2013, less than half of tier one facilities had received an authorization inspection).

[210] *Preventing Chemical Terrorism: Building a Foundation of Security at Our Nation's Chemical Facilities: Hearing Before the Subcomm. on Cybersecurity, Infrastructure Protection, and Security Technologies of the H. Comm. on Homeland Security*, 112th Cong. 25 (Feb. 11, 2011) (testimony of Rand Beers, Under Secretary for National Protection & Programs, U.S. Department of Homeland Security).

[211] *See, e.g.*, *supra note* 209.

[212] *Chemical Facility Anti-Terrorism Standards (CFATS) Program: A Progress Update: Hearing Before the Subcomm. On Environment and the Economy of the H. Comm. on Energy & Commerce*, 113th Cong. 9 (Mar. 14, 2013) (prepared statement of Rand Beers, Under Secretary for National Protection & Programs, and David Wulf, Director, Infrastructure Security Compliance Division, U.S. Department of Homeland Security).

[213] *See, e.g.*, Dep't of Homeland Sec., Chemical Facility Anti-Terrorism Standards Statistics Update (Nov. 2013) (on file with Committee) (showing even as of late November, 18 percent of tier one facilities had yet to receive an authorization inspection and 23 percent had not yet been approved).

[214] Briefing to Minority Committee Staff, *supra* note 179.

[215] CFATS Statistics Update June 2014, *supra* note 104.

[216] *Id*.

[217] *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (prepared statement of Suzanne Spaulding, Under Secretary for

National Protection & Programs, and David Wulf, Director, Infrastructure Security Compliance Division, U.S. Department of Homeland Security); CFATS Statistics Update June 2014, *supra* note 104.

[218] CFATS Statistics Update June 2014, *supra* note 104.

[219] FY 2015 CONGRESSIONAL BUDGET JUSTIFICATION, *supra* note 32, at 7; OIG-13-55, *supra* note 8, at 11 & tbl.2.

[220] Includes only finally tiered facilities. Minority Committee Staff analysis of DHS reported statistics.

[221] *See* Chemical Facility Anti-Terrorism Standards, 6 C.F.R. § 27.210(a)(1)(i) (2014) (noting initial submission deadline for Top Screens was January 19, 2008).

[222] Briefing to Minority Committee Staff, *supra* note 206.

[223] *See* GAO-13-353, *supra* note 4, at 8-10, 18.

[224] *See Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (testimony of Suzanne Spaulding, Under Secretary for National Protection & Programs, U.S. Department of Homeland Security); GAO-13-353, *supra* note 4, at 18.

[225] *See, e.g.*, CRS, R43346, *supra* note 62, at 13–14; 6 C.F.R. pt. 27, app. A; *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (prepared statement of Dana Shea, Specialist in Science and Technology Policy, Congressional Research Service).

[226] CRS, R43346, *supra* note 62, at 14.

[227] Chemical Facility Anti-Terrorism Standards, 72 Fed. Reg. 17,688, 17,691 (Apr. 9, 2007); CRS, R43346, *supra* note 62, at 11, 15.

[228] Minority Committee Staff interview (May 31, 2013).

[229] *Id*.

[230] Department of Homeland Sec., CFATS Knowledge Center Update (Jan. 1, 2014) (on file with Committee).

[231] Briefing to Minority Committee Staff, *supra* note 179.

[232] Minority Committee Staff analysis of publicly distributed monthly CFATS updates and monthly statistical reporting to Congress through May 1, 2014; *see also* CRS, R43346, *supra* note 62, at 14 (showing 50 approvals per month but using less current data).

[233] *See, e.g.,* Minority Committee Staff interview (Apr. 28, 2014).

[234] *E.g.*, Briefing to Minority Committee Staff, *supra* note 101.

[235] *See, e.g.*, Heritage Foundation Panel, *Lessons from Homeland Security Regulatory Regimes: CFATS and Cybersecurity* (Apr. 26, 2012) (speech of Jamie Conrad), *available at* http://www.heritage.org/events/2012/04/cfats; Minority Committee Staff interview, *supra* note 143; Minority Committee Staff interview (Apr. 25, 2014).

[236] Minority Committee Staff interview, *supra* note 143.

[237] *E.g.*, Minority Committee Staff interview, *supra* note 235; Minority Committee Staff interview, *supra* note 120.

[238] *E.g.*, Minority Committee Staff interview, *supra* note 235; Minority Committee Staff interview, *supra* note 120.

[239] Minority Committee Staff interview (Jun. 18, 2014).

[240] *Id*.

[241] *See supra* notes 112–117 and accompanying text.

[242] Letter from Brian de Vallance, Acting Assistant Sec'y for Legislative Affairs, Dep't of Homeland Sec. to Sen. Tom Coburn, Ranking Member, Senate Committee on Homeland Sec. & Gov'l Affairs (Oct. 29, 2013) (on file with Committee) [hereinafter Letter from Brian de Vallance]; E-mail from U.S. Department of Homeland Sec. to Minority Committee Staff (July 9, 2014).

[243] *See supra* Part III.

[244] Minority Committee Staff interview (Jun. 19, 2013); Minority Committee Staff interview, *supra* note 182.

[245] Minority Committee Staff interview, *supra* note 244; Minority Committee Staff interview, *supra* note 182.

[246] *See* Letter from Brian de Vallance, *supra* note 242; Minority Committee Staff interview, *supra* note 235.

[247] Minority Committee Staff interview, *supra* note 244; Minority Committee Staff interview, *supra* note 182.

[248] *See infra* Part V. D. 1.

[249] *See supra* Part III.

[250] *E.g.*, Minority Committee Staff interview, *supra* note 233; OIG-13-55, *supra* note 8, at 13–17 (noting that industry officials were not consulted in development of the data entry tool for the Site Security Plan, leading industry to develop Alternative Security Programs); *see also supra* note 70 and accompanying text; *infra* Part V. C.

[251] *E.g.*, HSSAI REPORT, *supra* note 12, at 16.

[252] *See* HSSAI REPORT, *supra* note 12, at 13, 65.

[253] Heritage Foundation Panel, *supra* note 235 (speech of Jamie Conrad).

[254] HSSAI REPORT, *supra* note 12, at 29.

[255] *E.g.*, *id.* at 13, 65.

[256] *Id.* at 2.

[257] *Id.* at 29 (emphasis added).

[258] *Id.* at 12; Briefing to Minority Committee Staff, *supra* note 179.

[259] GAO-13-353, *supra* note 4, at 27–31.

[260] *Id*.

[261] *Id.* at 30.

[262] *Id*.

[263] DHS Peer Review Response, *supra* note 101, at 1.

[264] *See supra* Part V. D. 1.

[265] *See, e.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (prepared statement of Tim Scott, Chief Security Officer, Dow Chemical Company, appearing on behalf of Dow and the American Chemistry Council); *id.* (testimony of Anna Fendley, Legislative Representative, United Steelworkers International Union); Minority Committee Staff interview (May 22, 2014); Minority Committee Staff interview, *supra* note 188.

[266] Dep't of Homeland Sec., Briefing to Minority Committee Staff (Apr. 5, 2013).

[267] *See, e.g.*, HSSAI REPORT, *supra* note 12, at 51; *see also, e.g.*, Letter from Ann M. Beauchesne, *supra* note 105, at 3 (need to leverage industry expertise).

[268] Minority Committee Staff interview, *supra* note 143.

[269] DHS has preliminarily determined 4,011 facilities to be high risk and assigned them a preliminary tier. Of those, as of June 30, 2014, DHS had finally determined 3,254 to be high risk and assigned a final tier. The remaining 757 are awaiting a final determination from the Department as to their final tier. Minority Committee Staff analysis of: Chemical Facility Anti-Terrorism Standards, 6 C.F.R. pt. 27, app. A; DEP'T OF HOMELAND SEC., CSAT USER REGISTRATION: USER GUIDE (2011); DEP'T OF HOMELAND SEC., SAFEGUARDING INFORMATION DESIGNATED AS CHEMICAL-TERRORISM VULNERABILITY INFORMATION (CVI): REVISED PROCEDURAL MANUAL (2008); DEP'T OF HOMELAND SEC., DHS FORM 9007, CSAT TOP-SCREEN (2009); DEP'T OF HOMELAND SEC., CSAT TOP-SCREEN SURVEY APPLICATION: USER GUIDE (2010); DEP'T OF HOMELAND SEC., DHS FORM 9015, CSAT SECURITY VULNERABILITY ASSESSMENT: QUESTIONS (2008); DEP'T OF HOMELAND SEC., CSAT SECURITY VULNERABILITY ASSESSMENT APPLICATION: INSTRUCTIONS (2011); DEP'T OF HOMELAND SEC., CSAT SITE SECURITY PLAN: QUESTIONS (2011); RISK-BASED PERFORMANCE STANDARDS, *supra* note 110; and DEP'T OF HOMELAND SEC., CSAT SITE SECURITY PLAN INSTRUCTIONS (2009).

[270] *See supra* Part I. A.

[271] Minority Committee Staff analysis of: 6 C.F.R. pt. 27, app. A; CSAT USER REGISTRATION, *supra* note 269; SAFEGUARDING INFORMATION DESIGNATED AS CHEMICAL-TERRORISM VULNERABILITY INFORMATION (CVI), *supra* note 269; CSAT TOP-SCREEN, *supra* note 269; CSAT TOP-SCREEN SURVEY APPLICATION, *supra* note 269.

[272] Minority Committee Staff analysis of: CSAT SECURITY VULNERABILITY ASSESSMENT, *supra* note 269; CSAT SECURITY VULNERABILITY ASSESSMENT APPLICATION: INSTRUCTIONS, *supra* note 269.

[273] Minority Committee Staff analysis of: CSAT SITE SECURITY PLAN, *supra* note 269; RISK-BASED PERFORMANCE STANDARDS, *supra* note 110; and CSAT SITE SECURITY PLAN INSTRUCTIONS, *supra* note 269.

[274] This sample was not evaluated for statistical comparison or representative value.

[275] Minority Committee Staff analysis of Chemical Vulnerability Information provided by DHS on Mar. 26, 2014.

[276] E-mail, *supra* note 242.

[277] *Id.*; Dep't of Homeland Sec., Briefing to Minority Committee Staff (July 7, 2014).

[278] Minority Committee Staff analysis, *supra* note 275.

[279] *Id*.

[280] *See, e.g.,* Minority Committee Staff interview (June 19, 2013).

[281] *E.g.,* Minority Committee Staff interview (May 16, 2013).

[282] Minority Committee Staff analysis, *supra* note 275.

[283] *Id*.

[284] Minority Committee Staff interview (Apr. 30, 2014).

[285] Minority Committee Staff interview, *supra* note 233.

[286] *Id*.

[287] *Id*.

[288] *Id.*; *see also, e.g.,* Patrick Coyle, *Latest CRS Report on CFATS*, CHEMICAL FACILITY SECURITY NEWS, Jan. 30, 2014, http://chemical-facility-security-news.blogspot.com/2014/01/latest-crs-report-on-cfats.html; Minority Committee Staff interview, *supra* note 279.

[289] Minority Committee Staff interview, *supra* note 233.

[290] *E.g.*, Perimeter Security Market by System & Deployment – Worldwide Market Forecasts and Analysis to 2018, PR Newswire (Apr. 25, 2014).

[291] *See, e.g.*, SMITH & WESSON, 2010 ANNUAL REPORT 4 (2010) ("A key driver for our new product development comes from security regulations being considered by the Department of Homeland Security. As these Chemical Facility Anti-Terrorism Standards — or CFATS — evolve from today's "guidelines" into tomorrow's "standards," they will affect many facilities across our nation. At [Smith & Wesson's perimeter security solutions division], we continue to develop new [perimeter security] products ... which will meet the CFATS standards and will allow us to address an even wider array of customer requirements."); JOHN C. FANNIN III, ADT ADVANCED INTEGRATION, UNDERSTANDING CFATS: WHAT IT MEANS TO YOUR BUSINESS (2009); ROBERT HOPE & KATHRYN BARTUNEK, BURNS & MCDONNELL, UNDERSTANDING CHEMICAL FACILITY ANTI-TERRORISM STANDARDS COMPLIANCE (2009); PRICEWATERHOUSECOOPERS, CHEMICAL FACILITY ANTI-TERRORISM STANDARDS (CFATS) (2009).

[292] RESEARCH & MARKETS, PERIMETER SECURITY MARKET BY SYSTEM & DEPLOYMENT - WORLDWIDE MARKET FORECASTS AND ANALYSIS 2013-2018 (2014); IMS RESEARCH, WORLD MARKET FOR PERIMETER SECURITY EQUIPMENT (2010).

[293] *See, e.g.*, THE FERTILIZER INSTITUTE, REGULATORY COMPLIANCE (2013) *available at* http://www.tfi.org/sites/default/files/documents/regulatorycompliancefactsheet.pdf.

[294] *See, e.g.*, *West Fertilizer, Off the Grid: The Problem of Unidentified Chemical Facilities: Hearing Before the Subcomm. on Cybersecurity, Infrastructure Protection, and Security Technologies of the H. Comm. on Homeland Security*, 113th Cong. 102 (Aug. 1, 2013) (prepared statement of Timothy J. Scott, Chief Security Officer and Corporate Director, Dow Chemical); Minority Committee Staff interview, *supra* note 188.

[295] RISK-BASED PERFORMANCE STANDARDS, *supra* note 110, at 96–100. Because of the complexities in implementing personnel surety, DHS only recently issued a proposal on how facilities could meet Risk-Based Performance Standard number 12. Because RBPS 12 has yet to be implemented, and facilities can only implement some parts of it with the federal government's

assistance, all security plans approved to date have been only conditionally approved, with the condition being that they come into compliance with the personnel surety requirements once promulgated.

[296] *See, e.g.*, Information Collection Request: Chemical Facility Anti-Terrorism Standards Personnel Surety Program, 78 Fed. Reg. 17,680, 17,681 (Mar. 22, 2013).

[297] *See id.* at 17,680–701.

[298] Full name, date of birth, ID card number, sex, place of birth, and citizenship.

[299] *See* Information Collection Request: Chemical Facility Anti-Terrorism Standards Personnel Surety Program, 78 Fed. Reg. at 17,680.

[300] *Compare id.* at 17,685 at tbl. 1, *with*, *id.* at 17,686, at tbl. 2.

[301] U.S. DEP'T OF HOMELAND SECURITY, PRIVACY IMPACT ASSESSMENT FOR THE CHEMICAL FACILITY ANTI-TERRORISM STANDARDS (CFATS) PERSONNEL SURETY PROGRAM, DHS/NPPD/PIA-018 at 13, 16 (2011).

[302] *Id*.

[303] *Id*.

[304] *See, e.g.*, *Charting a Path Forward for the Chemical Facilities Anti-Terrorism Standards Program: Hearing Before the S. Comm. on Homeland Security & Governmental Affairs*, *supra* note 12 (prepared statement of Anna Fendley, Legislative Representative, United Steelworkers International Union).

[305] *E.g.*, Minority Committee Staff interview (May 9, 2013); Minority Committee Staff interview, *supra* note 147.

[306] Minority Committee Staff interview, *supra* note 147.

[307] Minority Committee Staff interview, *supra* note 305.

[308] *Id.*; Hazardous Materials Transportation Act, codified, as amended, at 49 U.S.C. § 5101 *et seq*.

[309] § 5121 (b)(2) (2011).

[310] U.S. Department of Transportation Compromise Agreement (on file with Committee); Minority Committee Staff interview (May 16, 2013).

[311] Minority Committee Staff interview, *supra* note 280.

[312] *Id*.

[313] *Id*.

[314] *Id.*

[315] Chemical Facility Anti-Terrorism Standards (CFATS) Chemical-Terrorism Vulnerability Information (CVI), 78 Fed. Reg. 16,698, 16,699 (Mar. 18, 2013) (estimating total burden of Chemical-terrorism Vulnerability Information Authorization at 1 hour).

[316] U.S. Department of Transportation Compromise Agreement (on file with Committee); Minority Committee Staff interview, supra note 280.

[317] Minority Committee Staff interview, supra note 109.

[318] *See supra* Part II.

[319] *See supra* Part II. B.

[320] *See supra* Part III.

[321] *See supra* Part IV.

[322] *See supra* Part V. C–D.

[323] *See supra* Part V. A–B.

[324] The backlog is predominately facilities tiered three or four.