



September 2020

CHEMICAL SECURITY

DHS Could Use Available Data to Better Plan Outreach to Facilities Excluded from Anti-Terrorism Standards

GAO Highlights

Highlights of [GAO-20-722](#), a report to the Chairman, Committee on Homeland Security, House of Representatives

Why GAO Did This Study

Facilities that produce, use, or store hazardous chemicals could be targeted or used by terrorists to inflict mass casualties and damage. DHS established the CFATS program to assess the risk posed by facilities with threshold quantities of hazardous chemicals of interest and inspect them to ensure compliance with DHS standards. However, certain types of facilities subject to other regulatory programs are excluded from the CFATS program by statute. Excluded facilities include facilities regulated under the MTSA program, public water systems, and wastewater treatment works.

GAO was asked to review issues related to excluded facilities. This report addresses, among other things, the extent to which (1) selected federal programs that regulate excluded facilities contain requirements or guidance that align with CFATS standards, and (2) DHS conducts outreach to excluded facilities. GAO analyzed the most recent available data on excluded facilities from DHS, EPA, and other agencies; reviewed and analyzed statutes, regulations, and program guidance; and interviewed agency officials.

What GAO Recommends

GAO recommends that DHS assess EPA data when planning outreach to public water system and wastewater treatment works facilities. DHS concurred with GAO's recommendation.

View [GAO-20-722](#). For more information, contact Nathan Anderson at (206) 287-4804 or AndersonN@gao.gov.

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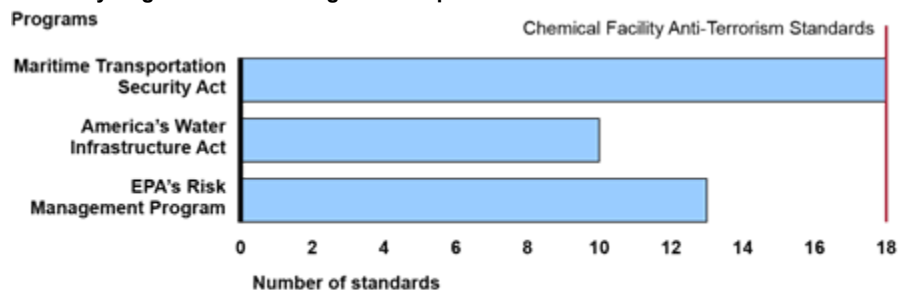
DHS Could Use Available Data to Better Plan Outreach to Facilities Excluded from Anti-Terrorism Standards

What GAO Found

Certain facilities excluded from the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) program are regulated by other programs containing requirements or guidance that generally align with at least half of the CFATS 18 standards. For example,

- the U.S. Coast Guard regulates about 3,000 excluded facilities under the Maritime Transportation Security Act of 2002 (MTSA). The MTSA program—designed to deter a maritime transportation security incident—contains requirements or guidelines that generally align with CFATS' standards (e.g., perimeter security), according to GAO's analysis; and
- there are about 150,000 public water systems and more than 25,000 wastewater treatment works regulated by the U.S. Environmental Protection Agency (EPA) that are excluded from the CFATS program. EPA's Risk Management Program regulates certain facilities for accidental chemical releases. Also, the America's Water Infrastructure Act of 2018 program requires certain public water systems to develop risk assessments and emergency response plans. GAO found that these programs include requirements or guidance that generally align with over half of CFATS' standards (see figure) but do not align on elements such as employee background checks.

Number of Department of Homeland Security Chemical Facility Anti-Terrorism Standards That Generally Align with Select Programs' Requirements or Guidance



Source: GAO analysis of statutes and Department of Homeland Security and Environmental Protection Agency (EPA) regulations and guidance. | GAO-20-722

DHS has conducted outreach to hundreds of excluded water and wastewater facilities but has not assessed available EPA data that may help better inform outreach planning decisions. Through the Protective Security Advisor Program, DHS conducted voluntary outreach security assessments with 389 water and wastewater facilities from March 2017 to April 2020. GAO found that there are at least 1,600 water and wastewater facilities with threshold quantities of hazardous chemicals and that at least 65 of the 389 outreach security assessments involved such facilities. DHS receives data monthly from EPA that identify facilities with threshold quantities of hazardous chemicals but has not assessed the data to inform Protective Security Advisors Program outreach planning. By assessing EPA data when planning outreach to public water system and wastewater treatment works facilities, DHS could help better ensure that it is allocating resources to provide the greatest possible risk reduction.

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Abbreviations

AWIA	America's Water Infrastructure Act of 2018
CISA	Cybersecurity and Infrastructure Security Agency
CFATS	Chemical Facility Anti-Terrorism Standards
DHS	Department of Homeland Security
EPA	U.S. Environmental Protection Agency
Hazmat	hazardous material
MARSEC	maritime security
MTSA	Maritime Transportation Security Act of 2002
RMP	Risk Management Program
TWIC	Transportation Worker Identification Credential
U.S. Coast Guard	Coast Guard
Water Infrastructure Act	America's Water Infrastructure Act of 2018

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September 29, 2020

The Honorable Bennie Thompson
Chairman
Committee on Homeland Security
House of Representatives

Dear Mr. Chairman:

The United States has hundreds of thousands of facilities that produce, use, or store hazardous chemicals that, if not properly safeguarded, could possibly be used by terrorists to inflict mass casualties and damage. These chemicals, if released from a facility or stolen or diverted and used to create improvised explosive devices, chemical weapons, or other weapons, could cause significant harm. Past incidents in the United States and overseas demonstrate the danger these chemicals pose. For example, in August 2020, a warehouse fire caused an explosion of ammonium nitrate in Lebanon, which killed dozens and injured thousands.¹ In April 2018, attacks using chlorine in Syria resulted in dozens of deaths and hundreds of injuries. In November 2019, an accidental explosion at a waterfront Texas chemical plant that manufactures butadiene resulted in mandatory evacuations for thousands of residents within a 4-mile radius.²

The Department of Homeland Security (DHS) established its Chemical Facility Anti-Terrorism Standards (CFATS) program to assess the risks posed by U.S. chemical facilities and classify those designated as high-risk, among other things. DHS's Cybersecurity and Infrastructure Security Agency (CISA) manages the program. DHS established in regulation the chemicals it considers to be potentially dangerous and posing a security risk—known as chemicals of interest. The CFATS program generally requires any facility in possession of a chemical of interest above a certain threshold quantity to report its chemical holdings and other data to DHS. After receiving and assessing this information, DHS determines a

¹In the United States, the principal uses for ammonium nitrate are as a fertilizer or as part of an explosive mixture, according to the Department of Homeland Security.

²The major use of butadiene is in the production of tires, according to the American Chemistry Council. Butadiene is also consumed in the manufacture of polymers, latexes, and plastics.

facility's risk level. High-risk facilities must implement security measures that meet the CFATS program's 18 risk-based performance standards.³

However, not all facilities that possess a chemical of interest above the set threshold quantity are regulated by the CFATS program. Certain types of facilities have been excluded by law from the CFATS program since the program's inception in 2007.⁴ Specifically, the statute excludes all facilities defined as a public water system or wastewater treatment works, which are regulated by the U.S. Environmental Protection Agency (EPA). The statute also excludes facilities owned or operated by the Department of Defense or the Department of Energy, regulated by the Nuclear Regulatory Commission, or regulated under the Maritime Transportation Security Act of 2002 (MTSA) by the U.S. Coast Guard (Coast Guard).⁵

Although DHS does not regulate excluded facilities under the CFATS program, the department's voluntary Protective Security Advisor Program helps identify potential security actions at all types of critical infrastructure facilities, including offering and conducting voluntary security surveys and vulnerability assessments. We previously reported on various aspects of the CFATS and Protective Security Advisor programs. We made a number of recommendations to strengthen the CFATS program to include, among other things, that DHS enhance its risk assessment approach to incorporate all elements of risk, document processes and procedures for managing compliance with site security plans, and

³The 18 risk-based performance standards identify areas for which a facility's security posture is to be examined, such as perimeter security, access control, and cybersecurity. 6 C.F.R. § 27.230.

⁴See Department of Homeland Security Appropriations Act, 2007, Pub. L. No. 109-295, § 550, 120 Stat. 1355, 1388 (2006). The Protecting and Securing Chemical Facilities from Terrorist Attacks Act of 2014 (CFATS Act of 2014) codified the exclusions. 6 U.S.C. § 621(4).

⁵See Pub. L. No. 107-295, 116 Stat. 2064.

measure reduction in vulnerability of high-risk facilities.⁶ Further, we recommended, among other things, that DHS develop performance goals for appropriate levels of participation in Protective Security Advisor security surveys and vulnerability assessments; better ensure the timely delivery of surveys and assessments results to asset owners and operators; and better coordinate vulnerability assessments both within DHS and with other critical infrastructure partners, including EPA.⁷ DHS

⁶GAO, *Critical Infrastructure Protection: DHS Is Taking Action to Better Manage Its Chemical Security Program, but It Is Too Early to Assess Results*, [GAO-12-515T](#) (Washington, D.C.: July 26, 2012); *Critical Infrastructure Protection: DHS Efforts to Assess Chemical Security Risk and Gather Feedback on Facility Outreach Can Be Strengthened*, [GAO-13-353](#) (Washington, D.C.: Apr. 5, 2013); *Critical Infrastructure Protection: DHS Efforts to Identify, Prioritize, Assess, and Inspect Chemical Facilities*, [GAO-14-365T](#) (Washington, D.C.: Feb. 27, 2014); *Critical Infrastructure Protection: Observations on DHS Efforts to Implement and Manage Its Chemical Security Program*, [GAO-14-608T](#) (Washington, D.C.: May 14, 2014); *Critical Infrastructure Protection: DHS Action Needed to Verify Some Chemical Facility Information and Manage Compliance Process*, [GAO-15-614](#) (Washington, D.C., July 22, 2015); *Critical Infrastructure Protection: Improvements Needed for DHS's Chemical Facility Whistleblower Report Process*, [GAO-16-572](#) (Washington, D.C.: July 12, 2016); *Critical Infrastructure Protection: DHS Has Fully Implemented Its Chemical Security Expedited Approval Program and Participation To Date Has Been Limited*, [GAO-17-502](#) (Washington, D.C.: June 29, 2017); and *Critical Infrastructure Protection: DHS Should Take Actions to Measure Reduction in Chemical Facility Vulnerability and Share Information with First Responders*, [GAO-18-538](#) (Washington, D.C.: June 29, 2017); *Critical Infrastructure Protection: Actions Needed to Enhance DHS Oversight of Cybersecurity at High-Risk Chemical Facilities*, [GAO-20-453](#) (Washington, D.C.: May 14, 2020).

⁷See, for example, GAO, *Critical Infrastructure Protection: DHS Could Better Manage Security Surveys and Vulnerability Assessments*, [GAO-12-378](#) (Washington, D.C.: May 31, 2012); *Critical Infrastructure Protection: DHS Action Needed to Enhance Integration and Coordination of Vulnerability Assessment Efforts*, [GAO-14-507](#) (Washington, D.C.: Sept. 15, 2014); and *Critical Infrastructure Protection: DHS Risk Assessments Inform Owner and Operator Protection Efforts and Departmental Strategic Planning*, [GAO-18-62](#) (Washington, D.C.: Oct. 30, 2017).

has either fully implemented them or taken action to begin addressing them.⁸

You asked us to review issues related to excluded facilities. This report (1) describes the number and types of facilities excluded under the CFATS program, (2) analyzes the extent to which selected federal programs that regulate excluded facilities contain requirements or guidance that align with the CFATS standards, and (3) analyzes the extent to which DHS conducts outreach to excluded facilities.

To address our first objective, we developed counts of excluded facilities by exclusion type (e.g., MTSA-regulated) by obtaining the most recent available data and information from the respective responsible agencies. Specifically, we focused on the MTSA, public water system, wastewater treatment works, Department of Energy, and Nuclear Regulatory Commission exclusion types.⁹

- For MTSA-regulated facilities, we obtained and analyzed Coast Guard facility data, as of December 2019.
- For public water systems and wastewater treatment works, we obtained and analyzed EPA data on (1) public water systems, as of February 2020; (2) publicly-owned wastewater treatment works, as of

⁸For example, DHS developed a “second generation” risk assessment approach that incorporates revisions to the threat, vulnerability, and consequence scoring methods to better cover the full range of chemical security issues regulated by the CFATS program. Further, DHS developed and implemented two new CFATS program performance measures intended to help measure reduction in vulnerability of high-risk facilities. DHS began reporting the measures for the first quarter of fiscal year 2019, and we continue to monitor the results. In addition, in 2012, DHS developed timeframes and milestones for delivering the results of Protective Security Advisor Program security surveys and vulnerability assessments to critical infrastructure owners and operators that reduced the number of overdue deliveries from 258 in July 2012 to 22 in September 2013 to zero by September 2014.

⁹Facilities owned and operated by the Department of Defense are also excluded facilities. However, the scope of our review focused on exclusions pertaining to civilian facilities.

2012; and (3) privately owned wastewater treatment works, as of March 2020.¹⁰

- We obtained and analyzed lists of excluded facilities manually compiled by the Nuclear Regulatory Commission and Department of Energy in December 2019 and January 2020, respectively.¹¹

In addition, for all exclusion types in our scope, we identified the number of excluded facilities that are required to submit risk management plans to EPA as an indicator for whether a facility has threshold quantities of CFATS chemicals of interest. The Coast Guard, the Nuclear Regulatory Commission, and the Department of Energy generally do not maintain information on the types of chemicals that facilities produce, use, or store or their quantities in centralized databases.¹² However, EPA regulates facilities for some of the same chemicals at the same threshold quantities as the CFATS program's release attack scenario under its Risk

¹⁰Publicly owned wastewater treatment works data are from the 2012 Clean Watersheds Needs Survey—a comprehensive assessment of the capital needs to meet the water quality goals set in the Clean Water Act. The survey was the most recent available at the time of our review. However, according to EPA officials, it is likely that the total number of publicly-owned wastewater treatment works is higher than the number in the 2012 survey. Therefore, for purposes of this report, facility counts using these data are rounded to the nearest thousand.

¹¹The same facility could be in multiple datasets. For example, a MTSA-regulated facility may have a wastewater treatment works as part of its operations.

¹²According to the Department of Energy, all Department of Energy sites are required to identify and prioritize all chemical assets on their respective sites. Department of Energy program offices and field sites maintain lists, logs and/or databases with information on the types and inventories of chemicals that their facilities produce, use, and store.

Management Program.¹³ We manually searched EPA's Facility Registry Service on facility names and addresses from the lists provided by the Department of Energy and the Nuclear Regulatory Commission to determine the extent to which the Risk Management Program covers these facilities.¹⁴ Further, due to the large number of facilities, we randomly sampled Coast Guard data to compare with EPA data to estimate the number of MTSA-regulated facilities required to submit risk management plans.¹⁵ We manually searched EPA's Facility Registry Service on facility names and addresses from this sample. We also analyzed the North American Industry Classification System codes in the Risk Management Program data to identify the public water systems and

¹³The Risk Management Program regulates certain facilities for accidental releases of chemicals and requires them to submit risk management plans. The Risk Management Program regulates 137 of the 322 chemicals of interest regulated by the CFATS program. However, there are differences in how the programs measure quantities of chemicals. Specifically, the Risk Management Program requires facilities to report the amount of a chemical in a process, and the CFATS program requires facilities to report on what can be stored on the entire site. A quantity reported to the Risk Management Program based on a single process can be assumed to trigger the CFATS program's facility total threshold, but the reverse is not true, according to the Chemical Facility Safety and Security Working Group report *Actions to Improve Chemical Facility Safety and Security—A Shared Commitment, Report for the President* (May 2014). See Exec. Order No. 13,650, 78 Fed. Reg. 48,029, § 2(c) (directing the submission of a status report within 270 days of the date of the Executive Order). The Executive Order established a federal interagency working group—lead by EPA, the Department of Labor (DOL), and DHS—to improve chemical facility safety and security in coordination with owners and operators. Of note, the CFATS program's risk assessment methodology is based on a range of potential attack scenarios, including both the theft/diversion and release of chemicals with the potential for impacts within and beyond a facility. The Risk Management Program risk assessment, in comparison, is based specifically on a release scenario which has a higher threshold quantity for certain regulated chemicals than the theft/diversion scenario accounted for by the CFATS program. As a result, the number of facilities we identified is a minimum.

¹⁴The Facility Registry Service integrates facility data from the EPA's national program systems (including Risk Management Program data), other federal agencies, and state and tribal master facility records and provides EPA with a centrally managed, single source of comprehensive and authoritative information on facilities.

¹⁵All percentage estimates from the sample have a margin of error of plus or minus 7 percentage points at the 95-percent confidence interval.

wastewater treatment works that are required to submit risk management plans to EPA.¹⁶

As part of our data analysis, we took steps to assess the reliability of each data source, including reviewing the data for missing data or obvious errors, and interviewing managers of the various data systems. During our assessment, we found some inconsistencies with certain data and rounded the information for reporting purposes as a result.¹⁷ We found the data sources to be sufficiently reliable for reporting the approximate number of excluded facilities and their characteristics, and to report the minimum number of facilities by exclusion type that have threshold quantities of CFATS chemicals of interest.

We also interviewed DHS CISA, Coast Guard, Department of Energy, EPA, and Nuclear Regulatory Commission agency officials, as well as representatives from seven industry associations, to understand which facilities are excluded under the CFATS program and the extent to which excluded facilities have threshold quantities of CFATS chemicals of interest. We selected industry associations that represent industries that cover different types of CFATS exclusion types, among other criteria. The information obtained from our association interviews is not generalizable but provides insights into the number of excluded facilities and whether they have threshold quantities of CFATS chemicals of interest.

To address our second objective, we reviewed statutes and programs' regulations, guidance, and other materials. We selected the MTSA, public water systems, and wastewater treatment works exclusion types because

¹⁶The North American Industry Classification System is the standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. Code 22131 pertains to water supply and irrigation systems (a proxy for public water systems) and code 22132 pertains to sewage treatment facilities (a proxy for wastewater treatment works).

¹⁷Specifically, during our assessment of data used to determine counts of MTSA-regulated facilities, we found some inconsistencies in the data field specifying whether a facility is regulated by MTSA. We rounded this information to the nearest thousand for reporting purposes. In addition, EPA officials stated that there may be missing data or stale data in the databases we analyzed to develop counts of excluded facilities. We rounded this information to the nearest thousand for reporting purposes. Further, Nuclear Regulatory Commission officials stated that they could not provide precise counts of certain facilities partially excluded from the CFATS program, so we rounded those counts to the nearest thousand.

they comprise over 99 percent of the civilian excluded facilities.¹⁸ For MTSA-regulated facilities, we reviewed the Coast Guard's implementation of the MTSA program. For public water systems and wastewater treatment works, we reviewed EPA's implementation of section 2013 of the America's Water Infrastructure Act of 2018 (Water Infrastructure Act)¹⁹ and the Risk Management Program. We compared the MTSA program, the Water Infrastructure Act program, and the Risk Management Program requirements and guidance with the CFATS program's 18 risk-based performance standards (CFATS standards) to determine whether they generally align.²⁰ We considered general alignment to occur when statutes, programs' regulations, guidance, and other materials require or authorize actions that are similar to actions that facilities may take pursuant to the CFATS standards, even in limited circumstances. Further, we considered program requirements and guidance to generally align with CFATS standards when actions required or authorized under the program have a different purpose or goal but may have the same effect as actions taken pursuant to the CFATS standard. We supplemented our independent analyses with written responses from each program. In addition, we analyzed the voluntary American Water Works Association water and wastewater standard to determine whether its elements align with the CFATS program standards.²¹ Further, we interviewed Coast Guard and EPA officials and the seven industry associations to gain additional understanding of which chemical

¹⁸The scope of this objective did not include the Department of Defense, Department of Energy, or Nuclear Regulatory Commission exclusion types.

¹⁹42 U.S.C. § 300i-2.

²⁰Specifically, three analysts independently reviewed the programs' regulations, guidance, and other materials to determine if the programs contained requirements or guidance that generally aligned with each of the 18 CFATS standards. For the Water Infrastructure Act, we reviewed the statute, as there are no corresponding regulations. We also reviewed, among other documents, U.S. Coast Guard, *Navigation and Vessel Inspection Circular No. 03-03, change 2: Implementation Guidance for the Regulations Mandated by the Maritime Transportation Security Act of 2002 (MTSA) for Facilities* (Washington, D.C.: Feb. 28, 2009); U.S. Environmental Protection Agency, *Guidance for Conducting Risk Management Program Inspections under Clean Air Act Section 112(r)*, EPA 550-K-11-001 (Washington, D.C.: January 2011); and EPA, *General Guidance on Risk Management Programs for Chemical Accident Prevention* (40 CFR part 68), EPA 555-B-04-001 (Washington, D.C.: March 2009). The three analysts compared their results and resolved any differences, and a senior attorney reviewed the unified assessment and supporting regulations, guidance, and other materials.

²¹American National Standards Institute and American Water Works Association, *AWWA Management Standard: Security Practices for Operation and Management*, ANSI/AWWA G430-14 (Denver, CO.: June 8, 2014).

regulatory programs apply to certain types of excluded facilities and to gain their perspectives on whether these programs have requirements or guidance that generally align with the CFATS standards. The information obtained from our interviews is not generalizable, but provide insights into the chemical regulatory programs that apply to each exclusion type.

To address our third objective, we analyzed DHS data on the voluntary security surveys and vulnerability assessments Protective Security Advisors conducted at critical infrastructure facilities from March 1, 2017, through April 6, 2020—the most recent data available at the time of our review. We analyzed these data to determine the extent to which such outreach visits occurred at water and wastewater facilities.²² We also manually matched the names of facilities Protective Security Advisors visited with the facilities regulated by EPA under the Risk Management Program to determine the extent to which these facilities have threshold quantities of CFATS chemicals of interest. To assess the reliability of the Protective Security Advisor Program data, we reviewed program documentation on system controls and interviewed knowledgeable DHS officials. We concluded that DHS's data on outreach visits to critical infrastructure facilities were sufficiently reliable to provide counts (over the period of our analysis) of (1) the number of outreach visits conducted by Protective Security Advisors to critical infrastructure facilities, and (2) the number of water and wastewater facilities visited that are regulated by EPA's Risk Management Program.

We also reviewed key Protective Security Advisor Program documents, including the Infrastructure Survey Tool question set.²³ Further, we compared elements of the Infrastructure Survey Tool with CFATS program standards to determine whether they generally align. In addition, we compared the Protective Security Advisor Program's process for selecting facilities to conduct outreach with and offer security surveys and vulnerability assessments to DHS policies and procedures outlined in the *National Infrastructure Protection Plan*.²⁴ We also interviewed Protective Security Advisor Program officials to understand how Protective Security

²²We focused on these exclusion types based on information discussed later in the report.

²³The Infrastructure Survey Tool is a web-based security survey conducted by a Protective Security Advisor in coordination with facility owners and operators to identify the overall security and resilience of a facility.

²⁴Department of Homeland Security, *2013 National Infrastructure Protection Plan, Partnering for Critical Infrastructure Security and Resilience* (Washington, D.C.: December 2013).

Advisors select facilities for their outreach efforts. Further, we met with representatives from three water associations to obtain their perspectives on the Protective Security Advisor Program. The results of our association interviews are not generalizable but provide insights into the potential benefits of Protective Security Advisor outreach to public water system and wastewater treatment works facilities. For more information on our scope and methodology, see appendix I.

We conducted this performance audit from October 2019 to September 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Federal Regulations for Chemical Safety and Security

The body of federal programs governing chemical safety and security has evolved over time to address different risks. Several federal departments and agencies administer these programs, including DHS and EPA; the Nuclear Regulatory Commission; and the Departments of Energy, Justice, Labor, and Transportation. The authorizing statutes generally direct the department or agency to issue regulations to attain statutory objectives. For example, many federal regulations applicable to chemical facilities primarily focus on risks to workers, public safety, human health, and the environment that may originate within a facility as a consequence of how chemicals are used or managed. Other federal regulations focus on security and safety when transporting chemicals. Although some actions that facilities take pursuant to one program may share similarities with or have similar benefits as actions that they take under another program, the purposes of the programs may be fundamentally different. The CFATS program is a more recent development within this broader regulatory framework and focuses exclusively on the chemical security risks of a facility to external and insider threats. Some of the authorizing statutes and regulations, including those for CFATS, exclude facilities subject to other regulatory programs that may prevent potential overlap, duplication, or conflicting requirements.

The CFATS program is intended to ensure the security of the nation's chemical infrastructure by identifying high-risk chemical facilities, assessing the risk posed by them, and requiring the implementation of measures to protect them. Section 550 of the Department of Homeland

Security Appropriations Act, 2007, required DHS to issue regulations establishing risk-based performance standards for chemical facilities that, as determined by DHS, present high levels of security risk. The act required vulnerability assessments and the development and implementation of site security plans for such facilities.²⁵ DHS published the CFATS interim final rule in April 2007. Appendix A to the rule, published in November 2007, lists 322 chemicals of interest and the screening threshold quantities for each.²⁶ According to DHS, facilities that manufacture, store, ship, or otherwise use chemicals of interest above certain threshold quantities and concentrations are generally subject to CFATS reporting requirements.²⁷ CFATS was most recently reauthorized until July 27, 2023.²⁸ The CFATS program received over \$1 billion in appropriations from fiscal year 2007 through fiscal year 2020, according to DHS.

CFATS Regulation and Process

The CFATS regulation outlines a specific process for how CISA is to administer the program. A chemical facility that possesses any of 322 chemicals of interest in quantities that meet or exceed a threshold quantity and concentration is required to complete an online survey. The survey, known as a “Top-Screen,” requires a facility to provide DHS with various data, including the name and location of the facility and the chemicals, quantities, and storage conditions at the site. CISA uses a risk-based approach to evaluate chemical facilities of interest that are required to report under CFATS and determine whether these facilities are high-risk and therefore subject to further requirements under the regulation. The CFATS program’s risk assessment methodology is based on a range of potential attack scenarios generally organized across three security issues depending on the type of risk associated with the chemical of interest: (1) release (toxic, flammable, and explosive) chemicals with the potential for impacts within and beyond a facility; (2) theft or diversion; and (3) sabotage/contamination. If DHS officials determine that a facility is high-risk, the facility must then complete and submit a security vulnerability assessment and site security plan that describe the existing

²⁵Pub. L. No. 109-295, § 550, 120 Stat. at 1388-89.

²⁶72 Fed. Reg. 17,688 (Apr. 9, 2007) (codified as amended at 6 C.F.R. pt. 27); 72 Fed. Reg. 65,396 (Nov. 20, 2007) (codified at 6 C.F.R. pt. 27, App. A).

²⁷Such facilities can include food-manufacturing facilities that use chemicals of interest in the manufacturing process; universities that use the chemicals to do experiments; or warehouses that store ammonium nitrate, among others. Under the CFATS Act of 2014, such a facility may be recognized as a “chemical facility of interest.” See 6 U.S.C. § 621(2).

²⁸Pub. L. No. 116-150, 134 Stat. 679 (2020).

and planned security measures to be implemented to be in compliance with the applicable risk-based performance standards. Table 1 identifies these 18 standards.

Table 1: Chemical Facility Anti-Terrorism Standards Program Risk-Based Performance Standards

• Restrict area perimeter.	• Maintain effective monitoring, communications and warning systems.
• Secure site assets.	• Ensure proper security training.
• Screen and control access.	• Perform employee background checks.
• Deter, detect, and delay an attack.	• Escalate the level of protective measures for periods of elevated threat.
• Secure and monitor the shipping, receipt, and storage of hazardous materials.	• Address specific threats, vulnerabilities or risks identified by the Department of Homeland Security (DHS).
• Deter theft and diversion of potentially dangerous chemicals.	• Report significant security incidents to DHS and to local law enforcement officials.
• Deter insider sabotage.	• Identify, investigate, report, and maintain records of significant security incidents and suspicious activities.
• Deter cyber sabotage.	• Establish officials and an organization responsible for security.
• Develop and exercise an emergency response plan.	• Maintain appropriate security-related records.

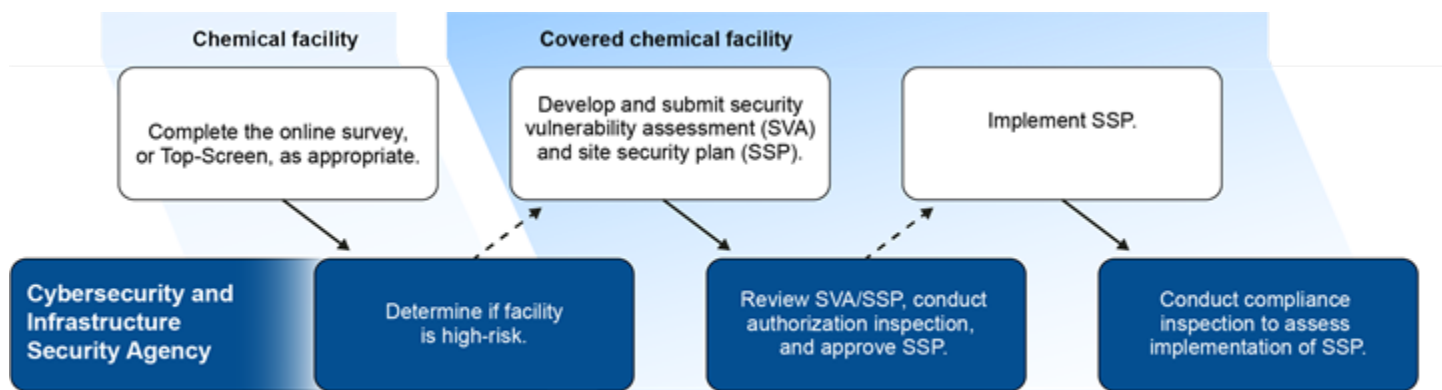
Source: 6 C.F.R. § 27.230. | GAO-20-722

Prior to approving a facility’s site security plan, CFATS inspectors are to conduct an authorization inspection at the facility to verify and validate that the plan’s content is accurate and complete. Inspectors are to ensure that existing and planned equipment, processes, and procedures are appropriate and sufficient to meet the established requirements of the risk-based performance standards.²⁹ Lastly, inspectors are to assist the facility in resolving any potential gaps identified. After the facility’s site security plan is approved, the facility enters into the CFATS compliance cycle, which includes regular and recurring compliance inspections. As of December 2019, DHS reviewed about 48,000 Top-Screens submitted by facilities and determined that about 3,300 facilities were high-risk,

²⁹The CFATS standards are not necessarily discrete security standards, according to DHS officials, and DHS has grouped them into five security objectives—detection, delay, response, cybersecurity, and security management. According to CISA officials, the CFATS program looks collectively at a facility’s efforts to improve its security posture, noting that not all standards necessarily apply to all facilities.

according to our analysis. Figure 1 illustrates the CFATS regulatory process.

Figure 1: Department of Homeland Security’s Chemical Facility Anti-Terrorism Standards (CFATS) Regulatory Process



— — → Further steps dependent upon Cybersecurity and Infrastructure Security Agency’s risk determination

Source: GAO analysis of Chemical Facility Anti-Terrorism Standards regulatory process. | GAO-20-722

Note: A chemical facility that possesses any of 322 chemicals of interest in quantities that meet or exceed a threshold quantity and concentration is required to complete a Top-Screen.

Excluded Facilities

Not all facilities with chemicals of interest above certain threshold quantities are required to complete a Top-Screen. Consistent with law and regulation, facilities regulated under MTSA, public water systems or wastewater treatment works, facilities owned and operated by the Department of Defense or the Department of Energy, and facilities subject to regulation by the Nuclear Regulatory Commission are generally not subject to regulation under CFATS.³⁰ An entire facility may meet the definition of an excluded facility (e.g., a city’s water treatment plant or site owned by the Department of Energy) and not be required to complete

³⁰ 6 U.S.C. § 621(4). Under the law, public water systems is defined by section 1401 of the Safe Drinking Water Act, Public Law 93-523, as amended, and treatment works is defined in section 212 of the Federal Water Pollution Control Act, Public Law 92-500, as amended.

Top-Screens. DHS refers to these facilities as fully excluded.³¹ However, a facility may also be partially excluded from CFATS. For example, there may be facilities for which the wastewater treatment works is only one asset contained within a larger facility (e.g., a paper mill). In those cases, the facility is only required to complete a Top-Screen for the portion of the facility that is not excluded under CFATS.

Protective Security Advisor Program

Although DHS does not regulate facilities excluded from the CFATS program, CISA's Protective Security Advisor Program officials offer and conduct voluntary security surveys and vulnerability assessments to owners and operators of all types of critical infrastructure to help identify potential security actions—including to excluded facilities.³² The Protective Security Advisor Program was established in 2004 to proactively engage with federal, state, tribal, territorial, and local government partners and members of the private sector stakeholder community to protect critical infrastructure.³³

The Protective Security Advisor Program does not exclude any types of facilities or critical infrastructure from its engagement efforts, although the program typically focuses on facilities that are not otherwise regulated, according to DHS officials. The program's Protective Security Advisors

³¹Fully excluded facilities are not required to complete a Top-Screen, but they may choose to do so and identify their applicable exclusion. CISA has established standard operating procedures to determine whether a chemical facility in possession of one or more chemicals of interest at or above the threshold quantity is excluded from regulation. The procedures apply to facilities that complete Top-Screens as well as facilities identified through stakeholder outreach and interagency coordination as potentially noncompliant facilities. However, many chemicals unique to the Department of Energy and the nuclear industry are not included in the CFATS program's chemicals of interest list and would not require the completion of a Top-Screen. The Department of Energy's list of hazardous chemicals contains chemicals and lower concentrations of chemicals not found in the CFATS program's chemical of interest list. The Nuclear Regulatory Commission also regulates the nuclear industry for chemicals that are not CFATS chemicals of interest.

³²According to DHS, vulnerabilities may be associated with physical factors (e.g., no barriers or alarm systems); cyber factors (e.g., lack of a firewall); or human factors (e.g., untrained guards). A vulnerability assessment involves the evaluation of specific threats to the asset (e.g., facility), system, or network under review to identify areas of weakness that could result in consequences of concern.

³³According to DHS, this mission is directly aligned with the Homeland Security Act of 2002, as amended. Pursuant to the act, DHS is to, among other things, carry out comprehensive vulnerability assessments of critical infrastructure; integrate relevant information, analyses, and assessments from within DHS and from critical infrastructure partners; and use the information collected to identify priorities for protective and support measures. See 6 U.S.C. § 121.

are trained experts in critical infrastructure protection and vulnerability mitigation who, among other things, advise and assist state, local, and private sector officials and critical infrastructure facility owners and operators. According to DHS's 2021 budget justification, CISA has 116 Protective Security Advisors across the United States. Regional Directors, who facilitate local field activities in coordination with other DHS offices, oversee and manage Protective Security Advisors in their respective region. The advisors are to, among other things, conduct voluntary security surveys and vulnerability assessments during outreach visits with critical infrastructure assets and facilities within their respective regions.³⁴

Thousands of Facilities Are Excluded Under the CFATS Program, Some of Which Have Threshold Quantities of Potentially Dangerous Chemicals

Thousands of facilities are excluded facilities under the CFATS program, including approximately 3,000 waterfront facilities regulated under MTSA, about 150,000 public water systems, and over 25,000 wastewater treatment works. In addition, there are about 150 excluded facilities either regulated by the Nuclear Regulatory Commission (e.g., nuclear power plant facilities) or owned or operated by the Department of Energy (e.g., national laboratories). At least 1,800 of these excluded facilities have threshold quantities of chemicals of interest, which the CFATS program considers potentially dangerous and may present a security risk.

MTSA-regulated waterfront facilities. The Coast Guard regulates about 3,000 waterfront facilities³⁵ under MTSA that are excluded facilities under

³⁴The voluntary efforts include the Enhanced Critical Infrastructure Protection security surveys and Site Assist Visit vulnerability assessments. The security surveys are voluntary, half to full-day surveys DHS conducts to assess overall facility security and increase security awareness, the results of which are presented to critical infrastructure owners and operators in a way that allows them to see how their facility's security measures compare to those of similar facilities. Vulnerability assessments can take up to 3 days to complete. These assessments identify security gaps at assets and are used to provide options to enhance protective measures and resilience to critical infrastructure owners and operators.

³⁵The Coast Guard generally categorizes MTSA-regulated facilities as waterfront facilities. For the purposes of our review, we refer to all MTSA-regulated facilities as waterfront facilities, which comprise over 90 percent of the MTSA-regulated facilities. Other categories of facilities include marinas and barge fleeting-areas—locations where individual barges are moored but not in transport.

the CFATS program.³⁶ About 700 of these facilities have the capability to handle potentially dangerous cargo or hazardous material, such as ammonia, chlorine, and ammonium nitrate, according to our analysis of Coast Guard data. More than 700 other facilities are designated for passengers or recreation (e.g., cruise ship terminals).³⁷ The purpose of the remaining facilities varies and includes commercial fishing, oil and gas, and ship repair facilities. According to Coast Guard and CISA officials and association representatives we interviewed, there are a handful of facilities regulated by both the CFATS and MTSA programs. In these instances, the facility owner chooses to have each program regulate distinct areas of the facility. For example, Coast Guard officials stated that at one facility divided by a highway, the waterside part of the facility is regulated by the MTSA program and the landside is regulated by the CFATS program.

Certain MTSA-regulated facilities have threshold quantities of CFATS chemicals of interest. The Coast Guard generally does not maintain information on the types of chemicals that MTSA-regulated facilities produce, use, or store or their quantities in its database. However, EPA regulates facilities for some of the same chemicals at the same threshold quantities as the CFATS program's chemical release attack scenario under its Risk Management Program.³⁸ We estimate that at least 195 (or about 7 percent) of about 3,000 waterfront facilities regulated under

³⁶MTSA required the Coast Guard to issue regulations requiring facility security plans from owners and operators of structures or facilities of any kind located in, on, under, or adjacent to any waters subject to the jurisdiction of the United States that the Secretary of Homeland Security believes may be involved in a transportation security incident. Shipyards and any facilities owned or operated by the Department of Defense are exempted. 46 U.S.C. § 70103(c). A transportation security incident is an incident resulting in a significant loss of life, environmental damage, or transportation or economic disruption in a particular area. 33 C.F.R. § 101.105. The Coast Guard issued regulations identifying the types of facilities to be covered by the MTSA program. For example, the MTSA regulations apply to, among other things, waterfront facilities handling liquefied natural gas and liquefied hazardous gas; waterfront facilities transferring oil or hazardous material in bulk; and facilities that receive cargo vessels larger than 100 gross registered tons, with some exceptions. 46 C.F.R. § 105.105.

³⁷A facility can have multiple designations. For example, we identified 20 facilities that the Coast Guard categorized as handling hazardous material and designated for either passengers or recreation.

³⁸The Risk Management Program risk assessment is based on a release attack scenario which has a higher threshold quantity for certain regulated chemicals than the theft/diversion scenario accounted for by the CFATS program. As a result, the number of facilities we identified is a minimum.

MTSA have threshold quantities of CFATS chemicals of interest.³⁹ Facilities in our sample with such chemicals included a petrochemical plant on the Houston Ship Channel, a fertilizer manufacturer on the Tennessee River, and a petroleum terminal at a port in Oregon. Because these facilities are excluded from the CFATS program, they are not required to submit a Top-Screen to determine if they are high-risk. However, according to Coast Guard officials, many MTSA-regulated facilities handle dangerous cargo on an intermittent basis, if at all, even though they may have received authorization to do so, with cargo arriving one day and loaded on a vessel soon after. We also found that none of the 24 passenger or recreation facilities in our sample were regulated by EPA's Risk Management Program, and Coast Guard officials confirmed that these facilities were unlikely to have chemicals.

Public Water Systems and Wastewater Treatment Works. There are about 150,000 public water systems and over 25,000 wastewater treatment works that are excluded facilities under the CFATS program, according to EPA's data.⁴⁰ These facilities may use chemicals, such as chlorine, to disinfect water. About one-third of the water systems are community water systems that serve people year-round in their residences, while the remaining are noncommunity water systems that do not serve the same population year-round (e.g., schools, office buildings, gas stations, and campgrounds).⁴¹ Over half of the approximately 25,000 wastewater treatment works are publicly owned, and the remainder are

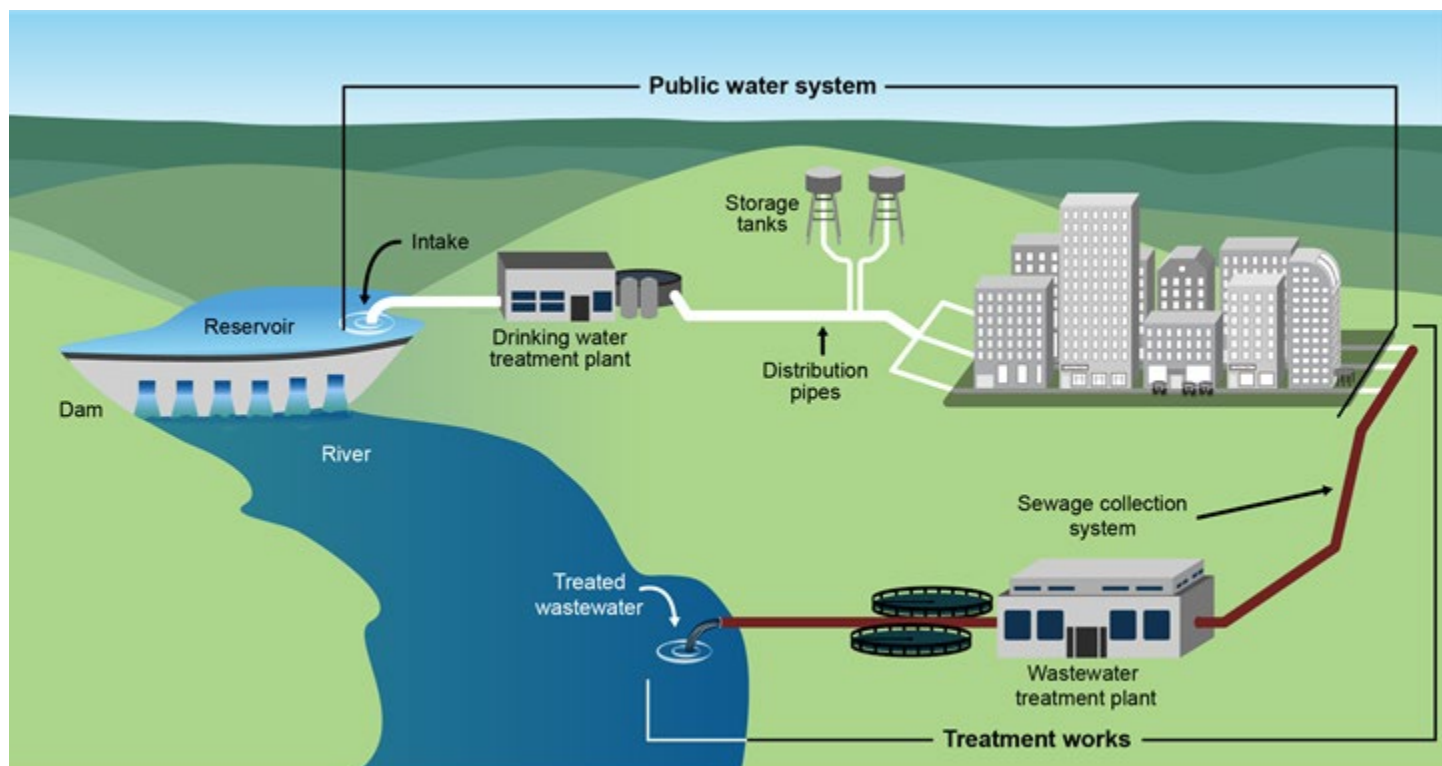
³⁹We analyzed a random sample of 115 active MTSA-regulated facilities from the population of 2,942 active MTSA-regulated maritime facilities. The estimate from our statistical sample is 12 percent (or 351 facilities). The associated 95-percent confidence interval margin of error is plus or minus 7 percentage points (195 to 568 facilities). Because of different methods to calculate threshold quantities of chemicals and because the Risk Management Program regulates only 43 percent of the chemicals of interest regulated by CFATS, these estimates represent the minimum number of facilities regulated under MTSA that have threshold quantities of CFATS chemicals of interest.

⁴⁰A public water system is a system for the provision of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves at least 25 individuals. A wastewater treatment works is any device or system used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. In addition, wastewater treatment works means any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste. According to DHS officials, wastewater treatment facilities that are excluded from the CFATS program must have a National Pollution Discharge Elimination System permit from EPA.

⁴¹Of the about 150,000 public water systems, approximately 50,000 are community water systems, according to EPA's data.

privately operated (e.g., part of iron and steel mills, pulp and paper mills, or organic chemical producer operations).⁴² Community water systems may include publicly owned wastewater treatment plants, according to our analysis of EPA data and representatives from the three water associations we met with. Figure 2 below illustrates the possible interconnectivity between public water system and wastewater infrastructures. The figure also shows that one public water system can include multiple facilities (e.g., the water treatment plant and storage tanks).

Figure 2: Key Components of Public Water System and Wastewater Infrastructure



Sources: GAO (graphic) and U.S. Environmental Protection Agency and Department of Homeland Security (information). | GAO-20-722

While an entire facility may be construed as either a public water system or wastewater treatment works (e.g., municipal water or wastewater

⁴²There are more than 14,000 publicly owned wastewater treatment works in the United States, as of 2012—the most recent data available, according to EPA officials. In addition, there are about 11,000 privately operated wastewater treatment works, as of March 2020.

treatment plants), there may be facilities for which the public water system or wastewater treatment works is only one asset contained within a larger facility. In those cases, the facility is not a fully excluded facility under the CFATS program and must complete a Top-Screen for the portion of the facility that is not a public water system. For example, according to DHS officials, the chlorine used as a disinfectant for a university's public water system would be excluded from the CFATS program. However, the university would be required to complete a Top-Screen for chlorine used for the aquatic center and the propane used for heating if stored in quantities that meet or exceed CFATS program thresholds. Public water systems or wastewater treatment works may also be included in processes at other types of CFATS-excluded facilities, such as waterfront facilities regulated by the MTSA program.

Some of the approximately 175,000 public water systems and wastewater treatment works use chemicals of interest in quantities that are at or above CFATS program thresholds, according to our analysis of EPA data. We found that more than 1,100 public water system facilities and more than 500 wastewater treatment works facilities are regulated by EPA's Risk Management Program.⁴³ Though excluded under the CFATS program, these facilities have threshold quantities of CFATS chemicals of interest for the chemical release attack scenario (e.g., 2,500 pounds for gaseous chlorine).⁴⁴ According to EPA officials, most community water systems that have these threshold quantities of chemicals are on the larger size and service over 3,300 people.

The CFATS program has a different threshold quantity for the theft/diversion attack scenario for certain chemicals of interest used by public water system and wastewater treatment works facilities (e.g., 500 pounds for gaseous chlorine). One hundred of 129 community water systems that responded to a 2017 American Water Works Association survey stated that they store greater than 500 pounds of gaseous chlorine

⁴³The Risk Management Program does not address the theft/diversion or sabotage attack scenarios, which the CFATS program addresses, and the CFATS program can regulate lower threshold quantities for these scenarios than the release attack scenario. As a result, our counts are a minimum.

⁴⁴EPA officials stated that the vast majority of public water systems and wastewater treatment works facilities regulated by the Risk Management Program use chemicals that are also covered by the CFATS program, including chlorine, ammonia, and sulfur dioxide. The notable exception is potassium permanganate, which is included in the CFATS program but not the Risk Management Program.

at their facilities.⁴⁵ Although the results of the survey are not generalizable to the entire industry, it shows that some of the approximately 50,000 community water systems nationwide may have quantities of a CFATS chemical of interest below the 2,500-pound limit regulated by the Risk Management Program but above the 500-pound threshold for the CFATS theft/diversion attack scenario.⁴⁶

Not all public water systems and wastewater treatment works facilities use chemicals that are regulated by the CFATS program, however. According to representatives from two water associations, many public water systems and wastewater treatment works facilities use other chemicals or processes that do not involve CFATS chemicals of interest.

Nuclear Regulatory Commission Facilities. There are 69 facilities regulated by the Nuclear Regulatory Commission that are fully excluded under the CFATS program, as of December 2019.⁴⁷ Sixty are nuclear power plant facilities and nine are fuel cycle facilities that produce nuclear fuel.⁴⁸ In addition, according to the Nuclear Regulatory Commission, there are 31 research and test reactors—primarily at universities—and about 1,500 facilities licensed to use radioactive materials (e.g., hospitals) that

⁴⁵American Water Works Association, *2017 Water Utility Disinfection Survey Report* (Washington, D.C.: April 2018).

⁴⁶In 2008, DHS commissioned a White Paper to identify the strategy the department could implement to regulate water and wastewater facilities under the CFATS program if the program's statutory exclusions were eliminated. DHS estimated that several thousand of these facilities had threshold quantities of CFATS chemicals of interest (for both the release and threat/diversion attack scenarios), many of which the CFATS program would categorize as high-risk. DHS updated the White Paper in 2018 to reflect changes in the way CISA determines high-risk facilities. This revision did not update the estimate of the existing number of water and wastewater facilities and the chemicals they possess. We are not reporting these estimates because, among other reasons, the data used have not been updated since 2008, and the White Paper stated that the estimates may be high because many facilities had switched away from CFATS chemicals to safer ones that are not chemicals of interest. According to water association officials, this trend has continued over the past decade.

⁴⁷The Nuclear Regulatory Commission has the statutory authority to regulate the security of radiological sources at commercial facilities, and it has primary responsibility for licensing, inspecting, regulating, and enforcing the commercial use of radioactive materials. See 42 U.S.C. § 2201. The CFATS exclusion does not apply to facilities that only have a few radioactive sources and for which Nuclear Regulatory Commission security requirements are not imposed.

⁴⁸The 60 nuclear power plant facilities operate 98 nuclear power reactors. Fuel cycle facilities make nuclear fuel for commercial nuclear reactors or are manufacturing specialty nuclear materials for the U.S. Navy's nuclear fleet.

are partially excluded under the CFATS program. That is, only the area of the facility with enhanced security controls to comply with Nuclear Regulatory Commission regulations is considered an excluded facility under the CFATS program.⁴⁹

Of the 69 facilities regulated by the Nuclear Regulatory Commission that are fully excluded facilities under CFATS, we identified two that are also regulated by EPA's Risk Management Program and therefore have threshold quantities of CFATS chemicals of interest. The two facilities that we identified use ammonia in their processes to develop nuclear fuel, according to the risk management plans they submitted to EPA. A 2011 Sandia National Laboratories study to determine whether additional chemical security requirements were needed at facilities regulated by the Nuclear Regulatory Commission also found that fuel cycle facilities were more likely to have chemicals regulated by the CFATS program than nuclear power plant facilities.⁵⁰ Specifically, as part of the study, Sandia National Laboratories chemical subject matter experts visited selected facilities regulated by the Nuclear Regulatory Commission to assess their chemical inventories. During these visits, these experts found that none of the four nuclear power plants and six of seven fuel cycle facilities they visited had exceeded threshold quantities of CFATS chemicals of interest.⁵¹ In addition, both Nuclear Regulatory Commission and DHS officials stated that partially excluded facilities rarely have threshold quantities of CFATS chemicals of interest.

Department of Energy Facilities. There are about 80 active sites owned by the Department of Energy that are excluded facilities under the CFATS

⁴⁹DHS and the Nuclear Regulatory Commission entered into a memorandum of understanding in March 2011. This agreement clarified the roles and responsibilities between the two agencies, based on their legal authorities, for the security of high-risk chemical facilities subject to DHS regulations and for the security of chemicals at facilities subject to the Nuclear Regulatory Commission regulations.

⁵⁰Sandia National Laboratories, *Assessment of the Chemical Security Posture at Facilities Subject to NRC Regulation* (April 2011). Sandia National Laboratories is a Department of Energy science and engineering laboratory that focuses on national security and technology innovation.

⁵¹Nuclear Regulatory Commission subject matter experts evaluated the security at facilities that exceeded threshold quantities of CFATS chemicals of interest; each facility was determined to have security comparable to the security requirements imposed by the CFATS program.

program, as of January 2020.⁵² These sites include 17 national laboratories; 40 office buildings; six research sites; and four nuclear material production sites, among others.⁵³ In addition, the Department of Energy owns 100 legacy management sites—inactive sites associated with World War II and the Cold War, such as the Rocky Flats Plant in Colorado formerly used to produce plutonium for nuclear weapons.

Of the about 80 active sites owned by the Department of Energy, we found that at least two sites have threshold quantities of CFATS chemicals of interest. According to our review of the sites' risk management plans, one site uses chlorine as a disinfectant for its water supply, and the other facility generates hydrofluoric acid as a by-product of uranium processing.⁵⁴ Department of Energy officials told us some sites are unlikely to have threshold quantities of CFATS chemicals of interest, including office buildings and power administrations. Further, certain legacy management sites have radioactive and chemical waste and hazardous material, but Department of Energy officials stated that these facilities are also unlikely to use or store CFATS chemicals of interest at threshold quantities.

⁵²The Department of Energy manages the U.S.' nuclear infrastructure, administers the country's energy policy, and funds scientific research. The Department of Energy uses the term "facility" to identify specific buildings on Department of Energy "sites," the majority of which contain many facilities, according to Department of Energy officials.

⁵³Other active sites include strategic petroleum and heating oil reserves, field sites, and power administrations.

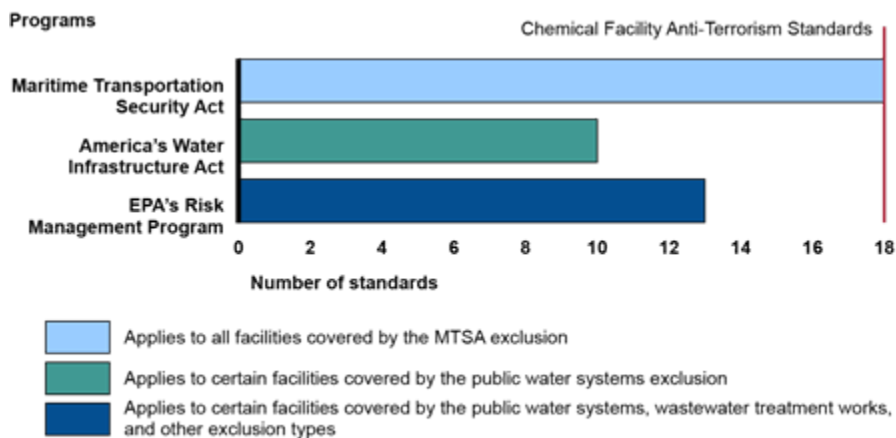
⁵⁴Hydrofluoric acid is a critical component in the production of gasoline and in producing fluorine-containing materials such as refrigerants, pharmaceutical intermediates, and fluoropolymers, according to the American Chemistry Council.

Certain Excluded Facilities Are Covered by Programs Containing Requirements or Guidance That Generally Align with at Least Half of CFATS' Standards

Programs regulating certain waterfront, water, and wastewater facilities contain requirements or guidance that generally align with at least half of the 18 CFATS risk-based performance standards (standards).⁵⁵

Specifically, the MTSA program, which regulates excluded waterfront facilities, contains requirements or guidance that generally align with all of the CFATS standards. Further, the key programs that regulate certain excluded public water systems and wastewater treatment works contain requirements or guidance that generally align with over half of CFATS standards (see fig. 3).

Figure 3: Number of Department of Homeland Security Chemical Facility Anti-Terrorism Standards that Generally Align with Select Programs' Requirements or Guidance



Source: GAO analysis of statutes and Department of Homeland Security and Environmental Protection Agency (EPA) regulations and guidance. | GAO-20-722

⁵⁵We selected the MTSA, public water systems, and wastewater treatment works exclusion types because they comprise over 99 percent of the civilian excluded facilities. According to the Department of Energy, its security directives align with the CFATS standards. Nuclear Regulatory Commission officials stated that Nuclear Regulatory Commission regulations generally exceed CFATS program requirements. According to CISA officials, both the Department of Energy and Nuclear Regulatory Commission regulatory programs provide comparable levels of security to the CFATS program.

Excluded Waterfront Facilities Are Covered by the MTSA Program, Which Contains Requirements or Guidance that Generally Align with CFATS Standards

The approximately 3,000 MTSA-regulated facilities are excluded facilities under the CFATS program, and the MTSA program contains requirements or guidance that generally align with CFATS standards.⁵⁶ The MTSA program is designed to deter a transportation security incident, which can include protecting the nation's ports and waterways from terrorist attacks.⁵⁷ As a result, the security of chemicals transported at or on U.S. waterways is only one aspect of the MTSA program.

Owners or operators of facilities subject to MTSA regulations are required to, among other things, designate a facility security officer, ensure that a facility security risk assessment was conducted, and ensure that a facility security plan is approved and implemented for facilities (such as factories, cargo terminals, and power plants). The basic aim of such plans is to develop measures to mitigate potential vulnerabilities that could otherwise be exploited to kill people, cause environmental damage, or disrupt transportation systems and the economy. Facility security plans encompass a range of security activities, such as access controls and security training, to prevent a security incident. Like the CFATS program, MTSA and its regulations set out requirements that are performance based rather than requiring specific procedures or equipment, thus allowing flexibility for meeting regulatory requirements. For example, a facility's plan must include measures to control access to the facility, but how access should be specifically controlled is not mandated by MTSA or its implementing regulations. To help ensure that facilities are implementing the measures in their security plans, MTSA requires the Coast Guard to conduct annual inspections at each facility.

Based on our assessment of the CFATS and MTSA programs, we found that the MTSA program contains requirements or guidance that generally align with all 18 of the CFATS program standards that facilities regulated

⁵⁶The MTSA program is the primary security program that covers waterfront facilities, according to Coast Guard officials and the three associations we met with that have members with waterfront facilities. However, other federal chemical facility security and safety programs also cover waterfront facilities. These programs include the Transportation Security Administration's rail and pipeline security programs, EPA's Risk Management Program and hazardous waste management program, and the Department of Transportation's hazardous material transportation program. We have ongoing work on the extent and effect of fragmentation, overlap, and duplication of the multiple federal programs that regulate chemical facilities and the mechanisms used to enhance chemical security. We plan to complete this work in January 2021.

⁵⁷The term "transportation security incident" means a security incident resulting in a significant loss of life, environmental damage, transportation system disruption, or economic disruption in a particular area. 33 C.F.R. § 101.105.

as high-risk under the CFATS program are generally required to address (see app. II). For example, under the CFATS program, facilities must provide for a controlled perimeter surrounding the facility or the restricted areas within a facility where critical assets are located. Security measures may include, for example, physical barriers, guard forces, electronic surveillance or security lighting. Meanwhile, a MTSA-regulated facility must have the capability to continuously monitor—through a combination of lighting, security guards, waterborne patrols, automatic intrusion-detection devices, or surveillance equipment—the facility and its approaches, on both land and water, and restricted areas within the facility.

Both programs also require facilities to conduct employee background checks. Under the CFATS program, facilities must perform appropriate background checks for facility personnel and as appropriate, for unescorted visitors with access to restricted areas or critical assets, including measures designed to (1) verify and validate identity; (2) check criminal history; (3) verify and validate legal authorization to work; and (4) identify people with terrorist ties. Similarly, under the MTSA program, employees requiring unescorted access to secure areas of the facility must obtain a Transportation Worker Identification Card, which requires undergoing a security threat assessment to check their criminal history and identify if they have terrorist ties, among other things. Figure 4 shows the presentation of a Transportation Worker Identification Card during a Coast Guard MTSA inspection at a waterfront facility. Such cards are needed to gain unescorted access to secure areas of a MTSA-regulated facility.

Figure 4: Presentation of a Transportation Worker Identification Card during a Coast Guard Inspection of a Waterfront Facility



Source: U.S. Coast Guard. | GAO-20-722

Although the MTSA program requirements or guidance generally align with CFATS program standards, there are differences between the MTSA program's requirements or guidance and certain CFATS standards. For example, the CFATS program requires facilities to implement security measures that help prevent the theft or diversion of potentially dangerous chemicals. According to CFATS program guidance, facilities may address this standard by, among other things, implementing inventory controls, procedural measures such as access restrictions, or physical measures such as locks. The MTSA program does not require waterfront facilities to explicitly focus on theft of chemicals. Coast Guard officials stated that theft and diversion are less of a risk in the movement of cargo than they are when the cargo is stored at a facility long term. In a maritime setting, immediate use of the commodity for an attack during handling presents the most significant risk, officials stated. However, under the MTSA program, storage areas of dangerous goods and hazardous substances are designated as restricted areas and facilities are to monitor and control access to these areas. According to Coast Guard officials, the effect of

these security measures is, in part, to help prevent theft of potentially dangerous chemicals.

Officials from the regulating agencies and industry association representatives we met with agreed with our assessment that the MTSA and CFATS programs generally align. Specifically, both CISA and Coast Guard officials stated that the CFATS and MTSA programs provide commensurate levels of security, although with a different focus. Further, representatives from all three associations we met with that have members regulated by both programs told us that, in their experience, the MTSA program requires a similar level of security as the CFATS program.

Certain Excluded Water and Wastewater Facilities Are Covered by EPA Programs that Contain Requirements or Guidance that Generally Align with Over Half of CFATS' Standards

EPA programs covering certain excluded water and wastewater facilities contain requirements or guidance that generally align with some CFATS standards. Specifically, the Water Infrastructure Act program and the EPA's Risk Management Program are the key federal programs that contain requirements or guidance that may have security benefits for public water systems and wastewater treatment works, according to representatives from the three associations we met with that have members with water or wastewater facilities.⁵⁸ We found that these programs cover certain public water systems and wastewater treatments works facilities and contain requirements or guidance that generally align with over half of the CFATS standards.

⁵⁸Other federal chemical facility security and safety programs also cover certain public water system and wastewater treatment works facilities and include requirements or guidance that may affect facility security. These programs include the Transportation Security Administration's rail security program, EPA's hazardous waste management program, and the Department of Transportation's hazardous material transportation program.

The Water Infrastructure Act Program

General Alignment of America's Water Infrastructure Act Program Requirements or Guidance with Chemical Facility Anti-Terrorism Standards

Generally aligned

- Restrict area perimeter.
- Secure site assets.
- Screen and control access.
- Deter, detect, and delay an attack.
- Secure and monitor the shipping, receipt, and storage of hazardous materials.
- Deter theft and diversion of potentially dangerous chemicals.
- Deter insider sabotage.
- Deter cyber sabotage.
- Develop and exercise an emergency response plan.
- Maintain effective monitoring, communications and warning systems.

Not generally aligned

- Ensure proper security training.
- Perform employee background checks.
- Escalate the level of protective measures for periods of elevated threat.
- Address specific threats, vulnerabilities, or risks.
- Report significant security incidents.
- Identify and investigate significant security incidents and suspicious activities.
- Establish officials and an organization responsible for security.
- Maintain appropriate security-related records.

Source: GAO analysis of statutes and Department of Homeland Security and Environmental Protection Agency regulations and guidance. | GAO-20-722

We found that the Water Infrastructure Act program contains requirements or guidance that generally align with 10 of 18 CFATS standards. The Water Infrastructure Act program, implemented by EPA's Water Security Division within the Office of Ground Water and Drinking Water, requires the approximately 10,400 community water systems that each serve more than 3,300 people (about 7 percent of public water systems) to develop or update risk assessments and emergency response plans.⁵⁹ The focus of the assessments and plans is the risks of a malevolent act or natural hazard on the public health and the safety and supply of drinking water provided to communities and individuals. The law specifies the components that the risk assessments and response plans must address (see table 2). EPA also provides guidance and an emergency response template that includes more detail and examples of measures that facilities may implement to satisfy the statutory requirements.

⁵⁹42 U.S.C. § 300i-2. The assessments and response plans are voluntary for public water systems serving fewer than 3,300 people and wastewater treatment facilities.

Table 2: America’s Water Infrastructure Act of 2018 Risk and Resilience Assessment and Emergency Response Plan Requirements

Risk and resilience assessment components	Emergency response plan components
<ul style="list-style-type: none"> • Risk to the system from malevolent acts and natural hazards. • Resilience of the water facility infrastructure (including pipes, physical barriers, water sources and collection, treatment, storage and distribution, and electronic, computer and other automated systems). • Monitoring practices of the system. • Financial systems (e.g., billing systems). • Use, storage, or handling of various chemicals by the system. • Operation and maintenance of the system. 	<ul style="list-style-type: none"> • Strategies and resources to improve the resilience of the system, including the physical security and cybersecurity of the system. • Plans and procedures that can be implemented, and identification of equipment that can be utilized, in the event of a malevolent act or natural hazard that threatens the ability of the community water system to deliver safe drinking water. • Actions, procedures and equipment which can obviate or significantly lessen the impact of a malevolent act or natural hazard on the public health and the safety and supply of drinking water provided to communities and individuals. • Strategies that can be used to aid in the detection of malevolent acts or natural hazards that threaten the security or resilience of the system.

Source: GAO analysis of the America’s Water Infrastructure Act of 2018 and Environmental Protection Agency guidance. | GAO-20-722

The law also establishes deadlines by which water systems must certify to EPA completion of the risk assessment and response plan.⁶⁰ Further, every 5 years, these water systems must review the risk assessment and submit a recertification to EPA that the assessment has been reviewed and, if necessary, revised. The law provides that the certification must contain only information that identifies the community water system submitting the certification, the date of the certification; and a statement that the community water system has conducted, reviewed, or revised the assessment, as applicable.⁶¹ EPA officials stated that they do not review the risk assessment or independently verify the security measures listed in the emergency response plans.

Based on our review of the Water Infrastructure Act and EPA guidance, we found that the Water Infrastructure Act program contains requirements or guidance that generally align with 10 of the 18 CFATS program

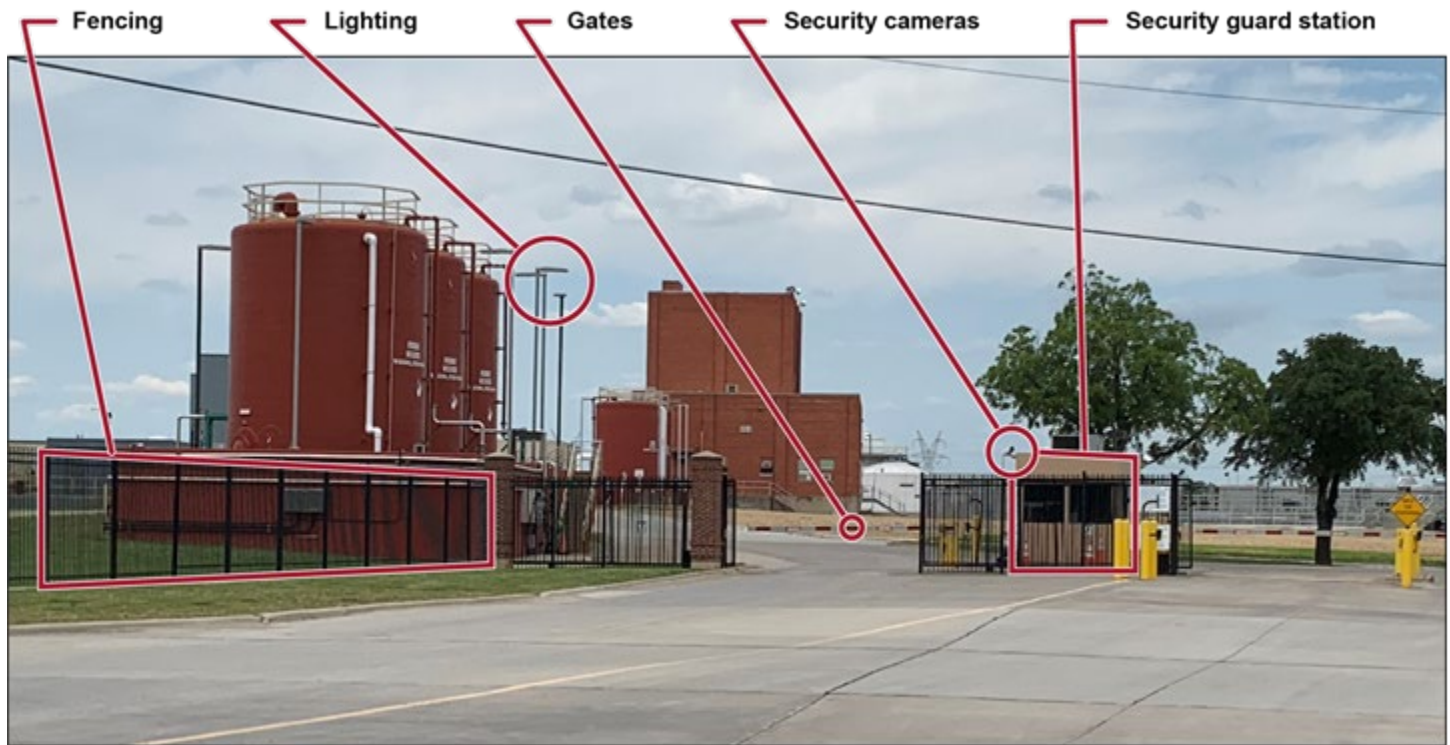
⁶⁰Community water systems serving 100,000 or more are to certify their assessments by March 31, 2020; community water systems serving between 50,000 and 100,000 individuals by December 31, 2020; and community water systems serving between 3,300 and 50,000 individuals by June 30, 2021. 42 U.S.C. § 300i-2(a)(3)(A). Community water systems must develop emergency response plans within 6 months of their certification due dates. 42 U.S.C. § 300i-2(b). Of the 538 community water systems serving more than 100,000 people, 97 percent (519) met the March 31, 2020, statutory deadline, according to EPA. EPA officials stated that they continue to provide compliance assistance to the 19 systems that had not yet certified as of May 2020.

⁶¹33 U.S.C. § 300i-2(a)(4).

standards (see app. II). For example, both programs require development of emergency response plans. Both programs also contain requirements related to cybersecurity. Under the CFATS program, facilities must deter cyber sabotage, including preventing unauthorized on-site or remote access to critical process controls. The Water Infrastructure Act program requires water systems to assess the resilience of computer or other automated systems to malevolent threats and natural disasters. The Water Infrastructure Act program also requires water systems to develop an emergency response plan that includes strategies and resources to improve the resilience of the system, including cybersecurity.

Water Infrastructure Act program requirements or guidance that generally align with CFATS program standards have some notable differences. For example, both programs have response planning requirements. However, the CFATS program requires facilities to exercise (i.e., practice implementing) their emergency response plan whereas the Water Infrastructure Act program does not. Also, Water Infrastructure Act program guidance encourages or mentions some types of security measures that would create general alignment with certain CFATS standards, but those types of measures are not required to be included in emergency response plans. For example, under the CFATS program, facilities must secure and monitor restricted areas or potentially critical targets within the facility. To do so, security measures may include, for example, physical barriers, guard forces, or intrusion-detection systems. The Water Infrastructure Act requires that facilities' emergency response plans contain strategies and resources to improve the resilience of the water system, including the physical security of the system, which could include access control measures. However, unlike the CFATS program, the Water Infrastructure Act program does not impose requirements specific to access control. Rather, EPA guidance suggests that water systems should document their access control procedures, such as key cards that are required to access all buildings, in their emergency response plans. Figure 5 shows a water treatment plant that chose to implement access control and perimeter security measures, which include fencing, lighting, gates, cameras, and a guard station.

Figure 5: Access Control and Perimeter Security Measures at a Water Treatment Plant



Source: GAO. | GAO-20-722

Moreover, the Water Infrastructure Act and associated EPA guidance does not align with eight CFATS program standards, including: training; employee background checks; elevated threats; and maintenance of security-related records, among others. For example, under the CFATS program, facilities must ensure proper security and response training, exercise, and drills of facility personnel so they are better able to identify and respond to suspicious behavior, attempts to enter or attack a facility, or other malevolent acts by insiders or intruders. The Water Infrastructure Act program does not contain requirements or guidance on security training, exercises, and drills. In addition, under the CFATS program, facilities must maintain appropriate records that address the creation, maintenance, protection, storage, and disposal of appropriate security-related records and the activities required to make these records available to DHS upon request. The Water Infrastructure Act program and associated EPA guidance do not address the maintenance of security-related records.

EPA's Risk Management Program

General Alignment of EPA's Risk Management Program Requirements or Guidance with Chemical Facility Anti-Terrorism Standards

Generally aligned

- Restrict area perimeter.
- Secure site assets.
- Screen and control access.
- Deter, detect, and delay an attack.
- Secure and monitor the shipping, receipt, and storage of hazardous materials.
- Deter theft and diversion of potentially dangerous chemicals.
- Deter insider sabotage.
- Develop and exercise an emergency response plan.
- Maintain effective monitoring, communications and warning systems.
- Report significant security incidents.
- Identify and investigate significant security incidents and suspicious activities.
- Establish officials and an organization responsible for security.
- Maintain appropriate security-related records.

Not generally aligned

- Deter cyber sabotage.
- Ensure proper security training.
- Perform employee background checks.
- Escalate the level of protective measures for periods of elevated threat.
- Address specific threats, vulnerabilities, or risks.

Source: GAO analysis of statutes and Department of Homeland Security and Environmental Protection Agency (EPA) regulations and guidance. | GAO-20-722

We found that EPA's Risk Management Program, which applies to more than 1,600 public water systems and wastewater treatment works facilities (less than 1 percent of the nationwide total), as of January 2020, contains requirements or guidance that generally align with 13 of 18 CFATS standards.⁶² The 1990 Clean Air Act Amendments require EPA to publish regulations and guidance for chemical accident prevention at facilities that use certain hazardous substances, including the chlorine often used as a disinfectant at public water system and wastewater treatment works facilities.⁶³ Facilities holding more than a threshold quantity of a regulated hazardous substance in a process are required to comply with EPA's Risk Management Program regulations.⁶⁴ EPA has classified affected Risk Management Program processes into three distinct "Program Levels" to ensure that individual processes are subject to requirements that appropriately match their size and the risks they pose. As a result, different facilities covered by the regulations may have different requirements depending on their processes. Program Level 1

⁶²As discussed below, Risk Management Program requirements or guidance that generally align with eight of the 13 CFATS program standards do not apply to all 1,600 regulated public water system and wastewater treatment works facilities.

⁶³Pub. L. No. 101-549, § 301, 104 Stat. 2399 (1990) (codified at 42 U.S.C. § 7412(r)(7)).

⁶⁴40 C.F.R. § 68.10. EPA regulations define process as any activity involving a regulated substance, including any use, storage, manufacturing, handling, or on-site movement of such substances, or combination of these activities. 40 C.F.R. § 68.3. Threshold quantities of hazardous substances regulated under the Risk Management Program are listed in 40 C.F.R. § 68.130.

has the least stringent requirements of the three levels, whereas Program Level 3 has the most stringent requirements.⁶⁵

In general, risk management plans are to summarize the potential effects of accidental releases of certain chemicals, including an evaluation of the off-site effects of a worst-case release scenario, and the facility's emergency response program to prevent releases and mitigate any damage.⁶⁶ Facilities are to revise and resubmit risk management plans to EPA at least every 5 years, and EPA is required to review them and require revisions, if necessary. According to EPA inspection guidance, EPA inspectors are to inspect every facility regulated by the Risk Management Program periodically but should inspect high-risk facilities more frequently. EPA policy requires the prioritization of high-risk facilities, which include facilities with a large residential population around the facility, facilities with a history of significant accidental releases, and facilities with very large quantities of regulated substances.

We found that the Risk Management Program contains requirements or guidance that generally align with 13 of the 18 CFATS standards (see app. II). The purpose of the Risk Management Program is to prevent accidental releases of substances that can cause serious harm to the public and the environment from short-term exposures and to mitigate the severity of releases that do occur. The Risk Management Program regulations were not designed to prevent release incidents caused by criminal activity, according to EPA officials. Nevertheless, certain provisions of the regulation may have the benefit of enhancing security and improving response to security-related incidents. For example, under the CFATS program, facilities must secure and monitor restricted areas or potentially critical targets (i.e., critical assets) within the facility. Security measures may include, for example, physical barriers, guard forces, or intrusion-detection systems, according to CFATS program guidance. Facilities must also control access to the facility and to restricted areas within the facility through the identification, screening, and inspection of individuals and vehicles. In comparison, the Risk Management Program requires Program Level 3 facilities to develop and implement safe work practices to provide for the control of hazards during operations, such as

⁶⁵A facility can have multiple regulated processes, which can be classified under different Risk Management Program levels.

⁶⁶40 C.F.R. § 68.12. Facilities with Program Level 1 processes are not required to develop an emergency response program.

control over entrances into the facility by employees.⁶⁷ EPA officials stated that this requirement is designed to secure assets in a manner that will control chemical process hazards at facilities and to prevent inadvertent or unauthorized entry to areas with chemicals by support personnel whose jobs may not require such access.

Both the CFATS program and the Risk Management Program also contain requirements or guidance for shipping or storing chemicals. Specifically, the CFATS program requires facilities to secure and monitor the shipping, receipt, and storage of hazardous materials to help a facility minimize the risk of theft or diversion of any of its hazardous materials. Under the Risk Management Program, Program Level 3 facilities are required to develop and implement written operating procedures to address and provide clear instructions for quality control of raw materials and for control of hazardous material inventories. This requirement is designed to provide quality control of chemicals for safety and health considerations, such as potential leaks or exposure to operators, according to EPA officials. These officials also stated that EPA inspectors may view chemical delivery receipts, inventory lists, or equipment inspection logs to determine how chemicals levels are monitored and managed.

Although Risk Management Program requirements or guidance generally align with 13 of 18 CFATS standards, not all 13 are applied to all facilities. For example, Risk Management Program requirements or guidance that generally align with eight CFATS program standards only apply to the highest risk (Program Level 3) processes.⁶⁸ Thus, public water systems and wastewater treatment works regulated by Program Levels 1 and 2 of the Risk Management Program are subject to requirements or guidance that generally align with only five CFATS standards. EPA has categorized about half (over 900 out of about 1,900) of the regulated processes at water systems or wastewater treatment works facilities as Program Level 3 processes, as of January 2020.

⁶⁷According to our analysis, this Risk Management Program requirement generally aligns with six CFATS standards—restrict area perimeter; secure site assets; screen and control access; deter, detect, and delay; theft and diversion; and sabotage.

⁶⁸These standards are: restricting a facility's perimeter; securing site assets; deter, detect, and delay an attack; screening and controlling access to a facility or restricted areas; securing and monitoring the shipping, receipt, and storage of hazardous materials for the facility; deter theft and diversion of potentially dangerous chemicals; deter insider sabotage; and maintaining effective monitoring, communications and warning systems.

In addition, Risk Management Program requirements or guidance that generally align with CFATS program standards may still have differences from the CFATS standards. For example, under the CFATS program, facilities must report significant security incidents to DHS and to local law enforcement officials. Meanwhile, the Risk Management Program requires facilities to include in their risk management plan a 5-year accident history of all accidental chemical releases that resulted in deaths, injuries, or significant property damage on site or known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage. While this requirement does not specifically require facilities to report significant security incidents, some facilities may include security incidents if they result in an accidental release, according to EPA officials. Further, under the CFATS program, facilities must deter insider sabotage to prevent the facility's property and activities from being used by a potential terrorist against the facility through, among other things, background checks, visitor controls, and restriction of access to certain areas of the facility through physical security measures, and cybersecurity measures. As discussed above, the Risk Management Program contains a Program Level 3 requirement related to control over entrances into the facility by employees, which is intended to prevent inadvertent or unauthorized entry to areas with chemicals by support personnel whose jobs may not require such access, according to EPA officials, and could also deter sabotage. However, the Risk Management Program requirements and guidance do not address the other aspects of the CFATS standard.

The program also does not contain requirements or guidance that address five of the 18 CFATS program standards. For example, the CFATS program has standards requiring facilities to address cybersecurity and implement employee background checks. The Risk Management Program does not contain requirements or guidance that align these standards.

Program Overlap and Voluntary Standards

Facilities are often subject to multiple regulatory programs, and the more than 1,100 public water system facilities regulated by the Risk Management Program are also generally regulated by Water Infrastructure Act program, according to EPA officials. Considered together, these two programs contain requirements or guidance that

generally align with 14 of 18 CFATS standards.⁶⁹ Neither the Risk Management Program nor the Water Infrastructure Act program contain requirements or guidance that generally align with four CFATS standards. These are (1) security training; (2) employee background checks; (3) specific threats, vulnerabilities, or risks that are new or may not have been previously identified; or (4) escalating the level of protective measures for periods of elevated threats.

According to representatives from the three water associations we met with, in the absence of the identified exclusions, the CFATS program would be potentially duplicative or redundant with the Risk Management Program and the Water Infrastructure Act program. For example, representatives from two of these associations stated that the CFATS program and the Risk Management Program both contain access control and perimeter security requirements, and the Water Infrastructure Act requires facilities to include physical security measures in their emergency response plans. These representatives further stated that the Water Infrastructure Act's requirement to assess the risks posed by malevolent acts and include plans and procedures to prevent or respond to such acts aligns with the CFATS standards in a duplicative way. Further, representatives from one association stated that if their members were not excluded from CFATS, it would impose an additional regulatory burden but provide no additional security benefit because some water utilities are already subject to the Risk Management Program and Water Infrastructure Act program.

Water association representatives also noted that, in addition to complying with the EPA program requirements, water and wastewater facilities may also implement the voluntary American Water Works

⁶⁹The Water Infrastructure Act program contains requirements or guidance that generally align with one CFATS standard that the Risk Management Program requirements or guidance does not address (cybersecurity). The Risk Management Program contains requirements or guidance that generally align with four CFATS standards that the Water Infrastructure Act program does not address (reporting of significant security incidents, significant security incidents and suspicious activities, officials and organization, and records). See appendix II. As discussed above, Risk Management Program requirements or guidance that generally align with eight CFATS program standards only apply to public water system and wastewater treatment works facilities with Program Level 3 processes.

Association's security practices management standard.⁷⁰ According to representatives from two of the three water associations we met with, the Risk Management Program and Water Infrastructure Act program, when combined with voluntary standards that water and wastewater facilities may choose to implement, cover all of the CFATS standards.⁷¹ We found that the standard contains elements that generally align with all of the 18 CFATS standards, which include the four CFATS standards that neither the Risk Management Program nor the Water Infrastructure Act program contained. For example, the standard recommends that public water systems and wastewater treatment works facilities train employees in security awareness, individual responsibility, and appropriate responses. Further, the standard also calls for facilities to monitor available threat information and escalate security procedures in response to threats.

EPA and DHS program officials and representatives from the chemical associations we met with had different views on the EPA programs and voluntary water standards than the representatives from the water associations. Specifically, EPA Risk Management Program and Water Infrastructure Act program officials stated that neither the Risk Management Program nor the Water Infrastructure Act program requires facilities to implement the same level of security measures as the CFATS program. According to DHS, public water systems and wastewater treatment work facilities are frequently subject to safety regulations that may have some tangential security value. However, according to the department, in most cases, these facilities are not required to implement security measures commensurate to their level of security risk. In addition, according to DHS officials, the Water Infrastructure Act program alignment with CFATS standards may not reflect the level of security achieved because, unlike the CFATS program, the Water Infrastructure

⁷⁰American National Standards Institute and American Water Works Association, *AWWA Management Standard: Security Practices for Operation and Management*. The purpose of this standard is to define the minimum requirements for a protective security program for a water or wastewater utility that will promote the protection of employee safety, public health, public safety (including protection from acts of terrorism), and public confidence. Topics covered include security culture, defined security roles and employee expectations, vulnerability assessment, resources dedicated to security and security implementation, access control and intrusion detection, monitoring and surveillance, and information protection and continuity.

⁷¹The remaining water association was not familiar with all of the CFATS standards and how they might align with Risk Management Program and Water Infrastructure Act program requirements or guidance.

Act program does not include verification measures.⁷² Representatives from all three of the chemical associations we met with that have members regulated by the CFATS program and the Risk Management Program agreed that the Risk Management Program does not require the same level of security measures as the CFATS program. Further, according to EPA officials, the voluntary water and wastewater standards are not as comprehensive as the CFATS program's 18 standards. Moreover, it is unclear the extent to which public water systems and wastewater treatment works implement the standard because its use is entirely voluntary.

While the EPA programs were established by statute to address different risks and accomplish different purposes than the CFATS program, according to our analysis, the Risk Management Program and Water Infrastructure Act programs contain requirements or guidance that generally align with 14 of the 18 CFATS standards. As discussed above, there are about 150,000 public water systems and 25,000 wastewater treatment works, and about 1,100 public water systems facilities are regulated by both programs. Unlike the CFATS program, however, neither EPA program is exclusively focused on chemical security. Specifically, the Water Infrastructure Act program requires certain public water systems to assess the risk to the system from both malevolent acts and natural hazards (e.g., hurricanes) and incorporate these assessments into emergency response plans. The purpose of the Risk Management Program is to prevent accidental releases of substances that can cause serious harm to the public and the environment from short-term exposures and to mitigate the severity of releases that do occur. The CFATS program is focused on external and insider threats to facilities that produce, use, or store hazardous chemicals at or above a designated threshold quantity that could be used by terrorists to inflict mass casualties and damage. The CFATS program addresses the security of hazardous chemicals more comprehensively than do the programs for water and wastewater facilities.

⁷²While we evaluated general alignment with the CFATS standards, we are not making a determination about the effectiveness of each program or the relative security of facilities regulated by each program.

DHS Has Conducted Outreach to Excluded Water and Wastewater Facilities but Has Not Assessed Available Chemical Data to Inform Its Selections

DHS has conducted outreach to hundreds of excluded water and wastewater facilities to identify potential security actions, but has not assessed available EPA chemical data to help inform decisions on planning and conducting outreach visits. Many water and wastewater treatment facilities may present attractive terrorist targets due to their large stores of potentially high-risk chemicals and their proximities to population centers, according to a Chemical Facility Safety and Security Working Group report.⁷³ Although DHS does not regulate these facilities under the CFATS program, Protective Security Advisors plan and conduct nonregulatory outreach activities to provide them with access to critical infrastructure security and resilience resources. Specifically, Protective Security Advisors visit some excluded facilities to conduct voluntary security surveys and vulnerability assessments that cover most of the CFATS standards and are designed to help prevent terrorist attacks.

One of the key assessment tools Protective Security Advisors use is the Infrastructure Survey Tool. This tool is a web-based security survey conducted by a Protective Security Advisor, in coordination with facility owners and operators, to identify the overall security and resilience of a facility. The survey contains more than 100 questions used to gather information on such things as physical security, security forces, security management, information-sharing, and protective measures. The survey results inform owners and operators of potential vulnerabilities facing their asset or system and recommend measures to mitigate those vulnerabilities. We found that the survey contains elements that generally align with 14 of the 18 CFATS program standards, including standards that are not addressed by the Risk Management Program or Water

⁷³*Actions to Improve Chemical Facility Safety and Security—A Shared Commitment, Report for the President* (May 2014).

Infrastructure Act program, such as security training and employee background checks.⁷⁴

Protective Security Advisors conduct outreach visits to facilities in all 16 critical infrastructure sectors to, among other things, administer the Infrastructure Survey Tool.⁷⁵ For example, according to DHS officials, all Protective Security Advisors conduct outreach to the Water and Wastewater Systems Sector—a critical infrastructure sector with thousands of public water system and wastewater treatment works facilities, which are excluded facilities under the CFATS program. Our analysis of DHS data found that from March 1, 2017, to April 6, 2020, Protective Security Advisors conducted over 9,200 outreach visits to critical infrastructure facilities to conduct security surveys and vulnerability assessments. Almost 500 of these visits (about 5 percent) were to facilities in the Water and Wastewater Systems critical infrastructure sector (see fig. 6).⁷⁶ According to DHS officials, Protective Security

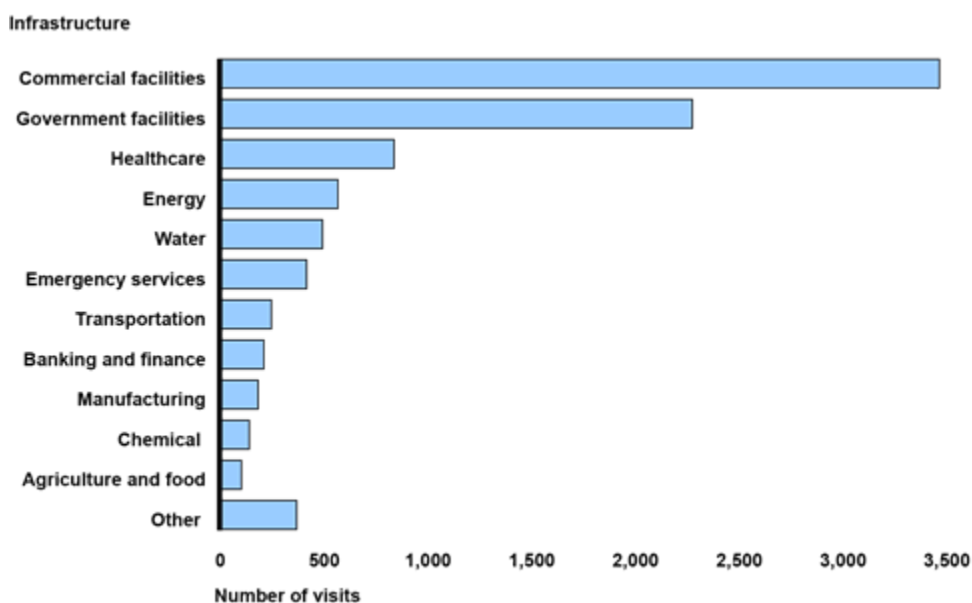
⁷⁴The Infrastructure Survey Tool does not contain elements that generally align with the following four CFATS standards: (1) shipping, receipt, and storage; (2) specific threats, vulnerabilities, or risks; (3) significant security incidents and suspicious activities; and (4) records. According to DHS officials, Protective Security Advisors perform a broad, all-hazards security assessment, which is different from a CFATS inspection that is focused only on chemical security at a particular facility. While some elements of the Infrastructure Survey Tool generally align with the CFATS standards, it is not intended to cover all of them, according to DHS officials. In addition, DHS is taking steps to address our September 2014 recommendation to develop and provide guidance for what areas should be included in critical infrastructure vulnerability assessments (see [GAO-14-507](#)). Specifically, in May 2019, CISA launched a working group with the primary objective of creating vulnerability assessment guidance for use government-wide. Planning documentation for this working group indicates the guidance will be developed in consultation with other federal stakeholders with completion expected in September 2020.

⁷⁵On February 12, 2013, the President issued Presidential Policy Directive/PPD-21: *Critical Infrastructure Security and Resilience*, which identified 16 critical infrastructure sectors whose assets, systems, and networks, whether physical or virtual, are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, or national public health or safety. The 16 critical infrastructure sectors are Chemical; Commercial Facilities; Communications; Critical Manufacturing; Dams; Defense Industrial Base; Emergency Services; Energy; Financial Services; Food and Agriculture; Government Facilities; Health Care and Public Health; Information Technology; Nuclear Reactors, Materials, and Waste; Transportation Systems; and Water and Wastewater Systems.

⁷⁶Of the approximately 500 visits to conduct security surveys and vulnerability assessments, over 70 were classified as Regulatory, Oversight, or Industry Organization entities, which may represent the public water system as a whole and not a particular facility.

Advisors generally conduct outreach visits with facilities that are not otherwise regulated.

Figure 6: Department of Homeland Security (DHS) Protective Security Advisor Program Outreach Visits That Included Security Assessments, by Critical Infrastructure Sector, March 2017 to April 2020



Source: GAO analysis of DHS Protective Security Advisor Program data. | GAO-20-722

Note: Critical infrastructure sectors are defined in Presidential Policy Directive/PPD-21: Critical Infrastructure Security and Resilience (Feb. 12, 2013).

Representatives from all three water associations we met with stated that their members benefit from Protective Security Advisor outreach. For example, according to representatives from one association, Protective Security Advisors' outreach on security surveys and vulnerability assessments have improved members' security posture.

However, we found that most outreach visits to water and wastewater facilities that included security surveys or vulnerability assessments were not to facilities with the largest amounts of threshold quantities of chemicals of interest—the key driver of risk for the CFATS program. Specifically, 17 percent of the water and wastewater facilities visited (65

of 389) were to facilities covered by EPA's Risk Management Program.⁷⁷ As discussed above, the Risk Management Program regulates more than 1,600 public water system and wastewater treatment works facilities for many of the same chemicals at the same threshold quantities as the CFATS program's chemical release attack scenario.⁷⁸ Although additional public water system and wastewater treatment works facilities may store quantities of CFATS chemicals of interest that meet or exceed the threshold quantity for the CFATS program's theft/diversion attack scenario, many others do not use any chemicals that the CFATS program regulates.

A key step in DHS's critical infrastructure risk management framework is to assess and analyze risks. DHS's *National Infrastructure Protection Plan* states that to assess risk effectively, critical infrastructure partners—including government agencies—need timely, reliable, and actionable information regarding threats, vulnerabilities, and consequences.⁷⁹ The plan also states that to ensure that situational awareness capabilities keep pace with a dynamic and evolving risk environment, the critical infrastructure community must continue to improve practices for sharing information and applying the knowledge gained through changes in policy, process, and culture.

DHS officials stated that Protective Security Advisors are a limited resource and that, as such, they do not have the capability to conduct additional voluntary security surveys or vulnerability assessments beyond the current workload. In addition, according to DHS's fiscal year 2021 budget justification, the demand for Protective Security Advisor services far exceeds what can be provided. Further, DHS officials stated that the presence of CFATS chemicals of interest at a public water system or wastewater treatment works is only one risk factor. For example, the

⁷⁷As previously discussed, the Risk Management Program does not address the theft/diversion or sabotage attack scenarios, which the CFATS program addresses, and the CFATS program can regulate lower threshold quantities for these scenarios than the release attack scenario. As a result, our counts are a minimum.

⁷⁸Protective Security Advisors conducted 500 outreach visits to the 389 water and wastewater facilities. The Risk Management Program regulates 137 of the 322 chemicals of interest regulated by the CFATS program. However, EPA officials stated that the vast majority of public water systems and wastewater treatment works facilities regulated by the Risk Management Program use chemicals that are also covered by the CFATS program, including chlorine, ammonia, and sulfur dioxide.

⁷⁹Department of Homeland Security, *2013 National Infrastructure Protection Plan, Partnering for Critical Infrastructure Security and Resilience* (Washington, D.C.: December 2013).

water collection and distribution portions of a water system generally do not have chemicals but could be vulnerable to terrorists and warrant outreach visits.

DHS officials stated that while DHS and CISA headquarters' officials have identified a few national-level priorities (e.g., public spaces, schools, and hospitals), Protective Security Advisors generally decide which critical infrastructure facilities to reach out to with managers in their field offices and partners at the local level. Additionally, some Protective Security Advisors may have a better relationship with a certain sector or subsector of facilities (e.g., water or wastewater) than others, which can result in a disparity in the types of facilities visited from state to state, according to DHS officials.

Although CISA receives Risk Management Program data from EPA on a monthly basis and reviews it to identify facilities that have not complied with CFATS program reporting requirements, CISA has not assessed available EPA data to help Protective Security Advisors plan outreach to critical infrastructure facilities. While Protective Security Advisors do conduct voluntary security surveys or vulnerability assessments with some water and wastewater facilities, they have not conducted outreach with many of the water and wastewater facilities that have threshold quantities of CFATS chemicals of interest, even though CISA receives information regularly from EPA that identifies some of these facilities. The CFATS program considers threshold quantities of these chemicals to be potentially dangerous, and they may present a security risk. Water and wastewater facilities are excluded facilities under the CFATS program and therefore are generally not required to submit Top-Screens. As a result, DHS has limited information on the security posture of these facilities.

Moreover, the regulatory programs that do cover these facilities—EPA's Risk Management Program and the Water Infrastructure Act program—were not established for the specific purpose of mitigating chemical security risks, although these programs each contain requirements or guidance that generally align with over half of the 18 CFATS standards, as discussed above.⁸⁰ For example, while both the Risk Management Program and the Water Infrastructure Act contain requirements or guidance that generally align with the CFATS standards regarding

⁸⁰For example, as noted above, the purpose of the Risk Management Program is to prevent and mitigate the effects of accidental releases of substances that can cause serious harm to the public and the environment.

securing site assets and screening and controlling access, neither program contains requirements or guidance regarding security training or background checks. Furthermore, EPA officials stated that neither program requires facilities to implement the same level of security measures as the CFATS program, and the former EPA Assistant Administrator for Water as well as the former DHS Under Secretary for the National Protection and Programs Directorate (now CISA) have previously testified that the exclusion of public water systems and wastewater treatment works facilities from the CFATS program creates a critical gap in the U.S. chemical security regulatory framework.⁸¹

DHS CISA officials stated that it could be beneficial to direct Protective Security Advisors to focus on facilities with large amounts of CFATS chemicals of interest that DHS does not regulate, such as public water systems and wastewater treatment works. However, these officials also stated that any prioritization effort should (1) account for the fact that such facilities may not be distributed equally across the country and, therefore, would represent different workloads for individual Protective Security Advisors; and (2) be sufficiently flexible to allow Protective Security Advisors to focus on other facilities as different risks arise. By assessing EPA data when planning outreach to public water system and wastewater treatment works, DHS could help better ensure that it is allocating Protective Security Advisor Program resources to provide the greatest possible risk reduction for water and wastewater facilities. Outreach visits by Protective Security Advisors to these facilities would also provide DHS with visibility over their security posture as well as provide these facilities with the opportunity to assess security vulnerabilities that they may not have assessed under the EPA programs, particularly with respect to CFATS standards that the EPA programs do not address.

Conclusions

Individuals intent on gaining access to or using hazardous chemicals to carry out a terrorist attack continue to pose a threat to the security of facilities that use these chemicals as well as to surrounding populations. The body of federal regulations applicable to chemical safety and security has evolved over time. Some of the authorizing statutes and regulations, including those for CFATS, provide various exclusions that may prevent potential overlap, duplication, or conflicting requirements. Public water

⁸¹Peter S. Silva, Assistant Administrator for Water, Environmental Protection Agency and Rand Beers, Under Secretary for the National Protection and Programs Directorate, Department of Homeland Security, *Chemical Security: Assessing Progress and Charting a Path Forward*, testimony before the Senate Committee on Homeland Security and Governmental Affairs, 111th Cong., 2nd Sess., March 3, 2010.

systems and wastewater treatment works are excluded facilities under CFATS, and the key programs that address security at these facilities—EPA’s Risk Management Program and the Water Infrastructure Act program—were not established for the specific purpose of mitigating chemical security risks. Nevertheless, these programs do contain requirements or guidance that align with over half of the 18 CFATS program standards.

DHS Protective Security Advisors visit some public water system and wastewater treatment works facilities to conduct voluntary security surveys and vulnerability assessments that cover many of the CFATS standards. However, these advisors have not conducted such outreach security surveys or vulnerability assessments with most of the public water systems and wastewater treatment works facilities that have threshold quantities of CFATS chemicals of interest for the program’s chemical release attack scenario—the facilities with the largest amounts of these chemicals. Moreover, Protective Security Advisors do not use available EPA data on the water and wastewater treatment facilities that possess threshold quantities of CFATS chemicals of interest to help inform their outreach planning efforts. By assessing EPA data when planning outreach to public water system and wastewater treatment works facilities, DHS could help better ensure that it is allocating Protective Security Advisor Program resources to provide the greatest possible risk reduction.

Recommendation for Executive Action

The Director of DHS’s Cybersecurity and Infrastructure Agency should assess EPA data when planning outreach to public water system and wastewater treatment works facilities (Recommendation 1).

Agency Comments

We provided a draft of our report to DHS, EPA, the Department of Energy, and the Nuclear Regulatory Commission for review and comment. DHS provided written comments, which are reproduced in full in appendix III, stating that it concurred with our recommendation. The Nuclear Regulatory Commission provided written comments, which are reproduced in full in appendix IV, stating that it is in general agreement with the report’s findings.⁸² In emails, an EPA Audit Liaison and Department of Energy Audit Coordinator stated that these agencies did not have any written comments on our draft report. DHS, the Department

⁸²The draft report number was GAO-21-6SU, which is reflected in the DHS and Nuclear Regulatory Commission comments. However, the report number was changed to GAO-20-722 prior to publication. All four agencies concluded that the draft contained no sensitive information, which removed the “SU” from the report number.

of Energy, and the Nuclear Regulatory Commission provided technical comments, which we incorporated as appropriate.

With respect to our recommendation that CISA assess EPA data when planning outreach to public water system and wastewater treatment works facilities, DHS stated that CISA will review EPA data in the future to identify public water system and wastewater treatment works facilities with threshold quantities of CFATS chemicals of interest. Moreover, DHS stated that CISA will consider the results of this analysis when determining which critical infrastructure facilities (including public water system and wastewater treatment works facilities) CISA regional staff will engage with each year.

We are sending this report to interested congressional committees and the Acting Secretary of Homeland Security, the Administrator of the Environmental Protection Agency, the Secretary of Energy, and the Chairman of the Nuclear Regulatory Commission. In addition, the report is available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (206) 287-4804 or AndersonN@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix V.

Sincerely yours,

A handwritten signature in black ink that reads "Nathan Anderson". The signature is written in a cursive, flowing style.

Nathan Anderson
Director
Homeland Security and Justice

Appendix I: Objectives, Scope, and Methodology

This report (1) describes the number and types of excluded facilities under the Department of Homeland Security's (DHS) Chemical Facilities Anti-Terrorism Standards (CFATS) program, (2) analyzes the extent to which selected federal programs that regulate excluded facilities contain requirements or guidance that align with CFATS standards, and (3) analyzes the extent to which DHS conducts outreach to excluded facilities.

To describe the number and types of excluded facilities under the CFATS program, we developed counts of excluded facilities by exclusion type (e.g., facilities regulated under the Maritime Transportation Security Act of 2002 (MTSA)) by obtaining the most recent available data and information from the respective responsible agencies. Specifically, we focused on the MTSA-regulated facilities, public water systems, wastewater treatment works, facilities owned or operated by the Department of Energy, and facilities subject to regulation by the Nuclear Regulatory Commission.¹ We obtained and analyzed data on MTSA-regulated facilities from the U.S. Coast Guard's Marine Information for Safety and Law Enforcement database, as of December 2019.²

Further, we obtained and analyzed data from the U.S. Environmental Protection Agency (EPA) on (1) public water systems from its Safe Drinking Water Information System Federal Data Warehouse, as of February 2020;³ (2) publicly owned wastewater treatment works from its

¹Facilities owned and operated by the Department of Defense are also excluded facilities. However, the scope of our review focused on exclusions pertaining to civilian chemical facilities only.

²The Marine Information for Safety and Law Enforcement is a database system managed and used by the Coast Guard. Among other information, this database collects information on maritime facility characteristics, including name, type, identification number, location, commodities handled and contact information.

³The Safe Drinking Water Information System Federal Data Warehouse contains information about public water systems and their violations of EPA's drinking water regulations.

2012 Clean Watersheds Needs Survey;⁴ and (3) privately owned wastewater treatment works from its Enforcement and Compliance History Online system, as of March 2020.⁵ In addition, we obtained and analyzed lists of excluded facilities manually compiled by the Nuclear Regulatory Commission and the Department of Energy, in December 2019 and January 2020, respectively.⁶ These agencies do not maintain such information in databases. The same facility could be in multiple datasets. For example, a MTSA-regulated facility may have a wastewater treatment works as part of its operations. We also analyzed these data to determine characteristics of excluded facilities. For example, we determined whether MTSA-regulated facilities handled certain dangerous material or hazardous cargo, whether public water systems are community or noncommunity water systems, and the types of Department of Energy facilities (e.g., offices and national laboratories).⁷

In addition, for all exclusion types in our scope, we identified the number of excluded facilities that are required to submit risk management plans to EPA, as an indicator for whether a facility has threshold quantities of CFATS chemicals of interest. The Coast Guard, the Department of Energy, and the Nuclear Regulatory Commission generally do not maintain information on the types of chemicals that facilities produce, use,

⁴The Clean Watersheds Needs Survey is a comprehensive assessment of the capital needs to meet the water quality goals set in the Clean Water Act. States and EPA collected information about publicly owned wastewater collection and treatment facilities, storm water and combined sewer overflows control facilities, nonpoint source pollution control projects, decentralized wastewater management, and estuary management projects. The 2012 survey was the most recent available at the time of our review and does not include data from South Carolina, American Samoa, the Northern Mariana Islands, or tribal lands and Native Alaskan Villages. According to EPA officials, it is likely that the total number of publicly owned wastewater treatment works is higher than the number in the 2012 survey.

⁵The Enforcement and Compliance History Online system is a clearinghouse of data and information and incorporates data from the Integrated Compliance Information System for National Pollutant Discharge Elimination System, which stores data about EPA facilities, permits, compliance status, and enforcement activities.

⁶The Department of Energy provided information on its sites. According to Department of Energy officials, the department uses the term “facility” to identify specific buildings on “sites”, the majority of which contain many facilities.

⁷Community water systems serve people year-round in their residences, while noncommunity water systems do not serve the same population year round (e.g., schools, office buildings, gas stations, and campgrounds).

or store, or their quantities in centralized databases.⁸ However, EPA regulates facilities for many of the same chemicals and at the same threshold quantities as the CFATS program under its Risk Management Program.⁹ We manually searched the EPA's Facility Registry Service on facility names and addresses from the Coast Guard, Department of Energy, and Nuclear Regulatory Commission datasets to determine the extent to which these facilities are covered by the EPA Risk Management Program.¹⁰

For the Department of Energy dataset, we searched the Facility Registry Service for all facilities that Department of Energy officials identified as potentially storing or using threshold quantities of CFATS chemicals of

⁸According to the Department of Energy, all Department of Energy sites are required to identify and prioritize all chemical assets on their respective sites. Department of Energy program offices and field sites maintain lists, logs and/or databases with information on the types and inventories of chemicals that their facilities produce, use, and store.

⁹The Risk Management Program regulates facilities for accidental releases of chemicals and requires them to submit risk management plans. The CFATS program developed its list of chemicals of interest in part from the list of chemicals regulated by the Risk Management Program. The Risk Management Program regulates 137 of the 322 chemicals of interest regulated by the CFATS program. However, there are differences in how the programs measure quantities of chemicals. Specifically, the Risk Management Program requires facilities to report the amount of a chemicals in a process; the CFATS program requires facilities to report on what can be stored on the entire site. A quantity reported to the Risk Management Program based on a single process can be assumed to trigger CFATS facility total threshold, but the reverse is not true, according to the Chemical Facility Safety and Security Working Group report *Actions to Improve Chemical Facility Safety and Security—A Shared Commitment, Report for the President* (May 2014). See Exec. Order No. 13,650, 78 Fed. Reg. 48,029, § 2(c) (Aug. 7, 2013) (directing the submission of a status report within 270 days of the date of the Executive Order). The Executive Order established a federal interagency working group—lead by EPA, the Department of Labor (DOL), and DHS—to improve chemical facility safety and security in coordination with owners and operators. Of note, the CFATS program's risk assessment methodology is based on a range of potential attack scenarios, including both the theft/diversion and release of chemicals with the potential for impacts within and beyond a facility. The Risk Management Program risk assessment, in comparison, is based specifically on a release scenario which has a higher threshold quantity for certain regulated chemicals than the theft/diversion scenario accounted for by the CFATS program. As a result, the number of facilities we identified is a minimum.

¹⁰The Facility Registry Service integrates facility data from EPA's national program systems (including Risk Management Program data), other federal agencies, and state and tribal master facility records and provides EPA with a centrally managed, single source of comprehensive and authoritative information on facilities. According to EPA officials, the Facility Registry Service is continuously refreshed with new and updated records. Some of these updates occur on a routine, scheduled basis (i.e., monthly), some in real-time as facility data are added or edited in partner applications; and the rest is updated ad hoc as data, are provided.

interest, which excluded, for example, office buildings. For the Nuclear Regulatory Commission dataset, we searched the Facility Registry Service for all fully excluded facilities (i.e., nuclear power plant facilities and fuel cycle facilities).¹¹ We corroborated these results with a 2011 study that was conducted by Sandia National Laboratories to determine whether additional chemical security requirements were needed at facilities regulated by the Nuclear Regulatory Commission.¹² Further, due to the large number of facilities, we also randomly sampled Coast Guard data to compare with EPA data to estimate the number of MTSA-regulated facilities required to submit risk management plans. We manually searched EPA's Facility Registry Service on facility names and addresses from this sample.¹³ We also analyzed the North American Industry Classification System codes in the Risk Management Program data to identify the public water systems and wastewater treatment works facilities that are required to submit risk management plans to EPA.¹⁴

¹¹An entire facility may meet the definition of an excluded facility (e.g., a city's water treatment plant or site owned by the Department of Energy) and not be required to complete Top-Screens—an online survey whereby the facility is to provide DHS with various data, including the name and location of the facility and the chemicals, quantities, and storage conditions at the site. DHS refers to these facilities as fully excluded. However, a facility may also be partially excluded from CFATS. For example, there may be facilities for which the public water system or wastewater treatment works is only one asset contained within a larger facility (e.g., a paper mill). In those cases, the facility is required to complete a Top-Screen for the portion of the facility that is not related to the exclusion.

¹²Sandia National Laboratories, *Assessment of the Chemical Security Posture at Facilities Subject to NRC Regulation* (April 2011).

¹³We drew a random sample of 115 facilities from the population of 2,942 active MTSA-regulated facilities within the Marine Information for Safety and Law Enforcement database, as of December 2019. All percentage estimates from the sample have a margin of error of plus or minus 7 percentage points at the 95 percent confidence interval. Because of different methods to calculate threshold quantities of chemicals and because the Risk Management Program regulates only about 43 percent of the chemicals of interest regulated by CFATS, these estimates represent the minimum number of facilities regulated under MTSA that have threshold quantities of CFATS chemicals of interest.

¹⁴The North American Industry Classification System is the standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. Code 22131 pertains to water supply and irrigation systems (a proxy for public water systems) and code 22132 pertains to sewage treatment facilities (a proxy for wastewater treatment works). We supplemented these codes by manually searching codes 924 (administration of environmental quality programs) and 56 (administrative and support and waste management and remediation services) for additional excluded facilities, as recommended by EPA officials.

As part of our data analysis, we took steps to assess the reliability of each data source. We reviewed relevant documents, including user manuals and agency information on collection methods and limitations; reviewed the data for missing data or obvious errors; and interviewed managers of the various data systems, as applicable, about the sources of these data and the controls the agencies had in place to maintain the integrity of these data. Since all exclusion types must comply with certain environmental regulations, we also crosschecked EPA data with a selection of Coast Guard, Department of Energy, and Nuclear Regulatory Commission facility data. During our assessment of data used to determine counts of MTSA-regulated facilities, we found some inconsistencies in the data field specifying whether a facility is regulated by MTSA. We rounded this information to the nearest thousand for reporting purposes.

In addition, EPA officials stated that there may be missing data or stale data in the databases we analyzed to develop counts of excluded facilities. We rounded these data to the nearest thousand for reporting purposes. Further, Nuclear Regulatory Commission officials stated that they could not provide precise counts of certain facilities partially excluded from the CFATS program, so we rounded those counts to the nearest thousand. We found the data sources to be sufficiently reliable for reporting the approximate number of excluded facilities and their characteristics. We also found the EPA Risk Management Program data to be sufficiently reliable to allow us to report the minimum number of facilities by exclusion type that have threshold quantities of CFATS chemicals of interest.

We also reviewed a White Paper that DHS commissioned in 2008 to identify the strategy the department could implement to regulate water and wastewater facilities under the CFATS program if the program's statutory exclusions were eliminated. Finally, we interviewed agency officials from DHS's Cybersecurity and Infrastructure Security Agency, the Coast Guard, the Department of Energy, EPA, and the Nuclear Regulatory Commission, as well as representatives from seven industry associations to understand which facilities are excluded facilities under the CFATS program and the extent to which excluded facilities have threshold quantities of CFATS chemicals of interest. We selected industry associations that (1) have members who own chemical facilities that are excluded facilities under CFATS, (2) represent industries that cover different types of CFATS exclusions, and (3) participate in the Chemical, Nuclear, or Water and Wastewater Systems Sector Coordinating Councils

established by DHS.¹⁵ We obtained perspectives from seven industry associations—three from the chemical sector, three from the water sector, and one from the nuclear sector.¹⁶ The information obtained from our association interviews is not generalizable but provides insights into the number of excluded facilities and whether they have threshold quantities of CFATS chemicals of interest.

To determine the extent to which selected federal programs that regulate excluded facilities contain requirements or guidance that align with the CFATS standards, we reviewed statutes and regulations, guidance, and other materials. We selected the MTSA, public water systems, and wastewater treatment works exclusion types because they comprise over 99 percent of the excluded civilian facilities.¹⁷ For MTSA-regulated facilities, we reviewed the Coast Guard’s implementation of the MTSA program. According to Coast Guard officials and the three associations we met with that have members with waterfront facilities, the MTSA program is the key federal security program that covers waterfront facilities under the MTSA exclusion. For public water systems and wastewater treatment works, we reviewed EPA’s implementation of section 2013 of the America’s Water Infrastructure Act of 2018 (Water Infrastructure Act)¹⁸ and EPA’s Risk Management Program. We chose these programs because the three water associations we met with stated that the Water Infrastructure Act program and Risk Management Program are the key federal programs that cover security at their members’ facilities. We compared requirements and guidance of the MTSA

¹⁵The specific methodology for selecting associations to meet with includes identifying associations, where possible or relevant, from the Chemical, Nuclear, Water and Wastewater Systems, and other Coordinating Councils established by DHS based on the 16 critical infrastructure sectors as defined by *Presidential Policy Directive/PPD- 21: Critical Infrastructure Security and Resilience*, released on February 12, 2013. These 16 critical infrastructure sectors have assets, systems, and networks, whether physical or virtual, that are considered so vital to the U.S. that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof. Each sector has a self-organized and self-governed Coordinating Council that enables critical infrastructure owners and operators, their trade associations, and other industry representatives to interact on a wide range of sector-specific strategies, policies, and activities.

¹⁶One of the associations chose to provide us written responses to our questions rather than discuss their responses during an interview.

¹⁷The scope of this objective did not include the Department of Defense, Department of Energy, or Nuclear Regulatory Commission exclusion types.

¹⁸42 U.S.C. § 300i-2.

program, the Water Infrastructure Act program, and the Risk Management Program with the CFATS program's 18 risk-based performance standards (CFATS standards) to determine whether they generally align.¹⁹

- For the MTSA program, we reviewed MTSA regulations and the Coast Guard's navigation and vessel inspection circular for implementation of MTSA by facilities.²⁰
- For the Water Infrastructure Act program, we reviewed the statute, as there are no corresponding regulations. We also reviewed EPA's response plan template and associated guidance, among other documents.
- For EPA's Risk Management Program, we reviewed associated regulations, program inspection guidance, and EPA guidance developed to help owners and operators of facilities determine if they are subject to the program—including a supplemental appendix EPA developed for wastewater treatment plants—and other program material.²¹

We considered general alignment to occur when statutes, regulations, guidance, and other materials require or authorize actions that are similar to actions that facilities may take pursuant to the CFATS standards, even in limited circumstances. Further, we considered program requirements and guidance to generally align with CFATS standards when actions required or authorized under the requirements or guidance have a different purpose or goal but may have the same effect as actions taken pursuant to the CFATS standard. We supplemented our independent analyses with written responses from each program on the application of the standards, via a questionnaire that included check marks such as

¹⁹Specifically, three analysts independently reviewed the programs' regulations, guidance, and other materials to determine if the programs contained requirements or guidance that generally aligned with each of the 18 CFATS standards. The three analysts compared their results and resolved any differences, and a senior attorney reviewed the unified assessment and supporting regulations, guidance, and other materials.

²⁰U.S. Coast Guard, *Navigation and Vessel Inspection Circular No. 03-03, change 2: Implementation Guidance for the Regulations Mandated by the Maritime Transportation Security Act of 2002 (MTSA) for Facilities* (Washington, D.C.: Feb. 28, 2009).

²¹U.S. Environmental Protection Agency, *Guidance for Conducting Risk Management Program Inspections under Clean Air Act Section 112(r)*, EPA 550-K-11-001 (Washington, D.C.: January 2011) and *General Guidance on Risk Management Programs for Chemical Accident Prevention (40 CFR part 68)*, EPA 555-B-04-001 (Washington, D.C.: March 2009).

“requirement” or “guideline,” and open-ended questions requesting documentation to further support agency positions on the extent to which their program requirements or guidance address chemical security. In addition, we reviewed the voluntary American Water Works Association’s water and wastewater standard to determine whether its elements generally align with the CFATS program standards.²²

We also determined the approximate number of excluded facilities subject to the MTSA program, the Water Infrastructure Act program, and the Risk Management Program by analyzing EPA and Coast Guard data. The methodology for obtaining these counts is discussed above. Further, we interviewed Coast Guard and EPA officials and the seven industry associations discussed above to gain additional understanding of which chemical regulatory programs apply to certain types of excluded facilities and to gain their perspectives on whether these programs have requirements or guidance that generally align with the CFATS program standards. The information obtained from our association interviews is not generalizable but provides insights into the chemical regulatory programs that apply to each exclusion type.

To analyze the extent to which DHS conducts outreach to excluded facilities, we analyzed DHS data on the voluntary security surveys and vulnerability assessments that Protective Security Advisors conducted at critical infrastructure facilities from March 1, 2017, through April 6, 2020—the most recent data available at the time of our review. We analyzed these data to determine the extent to which such outreach visits occurred at water and wastewater facilities. This third objective focused on water and wastewater facilities because they are included in the public water systems and wastewater treatment works CFATS program exclusion types that (1) cover most of the excluded facilities and (2) are regulated by federal programs that contain requirements or guidance that do not always align with CFATS standards.

We also manually matched the names of facilities that Protective Security Advisors visited with the facilities regulated by EPA under the Risk Management Program to determine the extent to which these facilities have threshold quantities of CFATS chemicals of interest for the CFATS program’s release attack scenario. To assess the reliability of the Protective Security Advisor Program data, we reviewed program

²²American National Standards Institute and American Water Works Association, *AWWA Management Standard: Security Practices for Operation and Management*, ANSI/AWWA G430-14 (Denver, CO: June 8, 2014).

documentation on system controls and interviewed knowledgeable DHS officials. We concluded that DHS's data on outreach visits to critical infrastructure facilities were sufficiently reliable to provide counts (over the period of our analysis) of (1) the number of outreach visits conducted by Protective Security Advisors to critical infrastructure facilities in total and by sector and (2) the number of water and wastewater facilities visited that are regulated by EPA's Risk Management Program.

We also reviewed key Protective Security Advisor Program documents, including the Infrastructure Survey Tool question set.²³ Further, we compared elements of the Infrastructure Survey Tool with the CFATS program standards to determine whether they generally align. In addition, we compared the Protective Security Advisor Program's process for selecting facilities to conduct outreach with and offer security surveys and vulnerability assessments to DHS policies and procedures outlined in the National Infrastructure Protection Plan.²⁴ We also interviewed Protective Security Advisor Program officials to understand how Protective Security Advisors select facilities for their outreach efforts. In addition, we met with representatives from three water associations to obtain their perspectives on the Protective Security Advisor Program. The results of our association interviews are not generalizable but provide insights into the potential benefits of Protective Security Advisor outreach to public water system and wastewater treatment works facilities.

We conducted this performance audit from October 2019 to September 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

²³The Infrastructure Survey Tool is a web-based security survey conducted by a Protective Security Advisor in coordination with facility owners and operators to identify the overall security and resilience of a facility.

²⁴Department of Homeland Security, *2013 National Infrastructure Protection Plan, Partnering for Critical Infrastructure Security and Resilience* (Washington, D.C.: December 2013).

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

The Department of Homeland Security (DHS) established its Chemical Facility Anti-Terrorism Standards (CFATS) program to assess the risks posed by chemical facilities and classify those designated as high-risk, among other things. High-risk facilities must implement security measures that meet the CFATS program's 18 risk-based performance standards.¹ However, certain types of facilities that are subject to other regulatory regimes are excluded facilities under CFATS. The statute specifically excludes all facilities defined as a public water system or wastewater treatment works, which are regulated by the U.S. Environmental Protection Agency (EPA), owned or operated by the Department of Defense or the Department of Energy, regulated by the Nuclear Regulatory Commission, or regulated under the Maritime Transportation Security Act of 2002 (MTSA) by the U.S. Coast Guard (Coast Guard).² The exclusion types with the most facilities are public water systems (about 150,000), wastewater treatment works (about 25,000), and MTSA (about 3,000).

This appendix summarizes the extent of general alignment between the CFATS program's 18 risk-based performance standards and requirements and guidance of the key programs that could address chemical security for the MTSA, public water system, and wastewater treatment works exclusion types.³ The MTSA program is the primary regulatory program that covers security at waterfront facilities, according to Coast Guard officials and the three associations we met with that have members with waterfront facilities. Meanwhile, EPA's America's Water Infrastructure Act of 2018 (Water Infrastructure Act) program and the Risk Management Program are the primary federal programs that regulate certain public water systems and wastewater treatment works, according to the three associations we met with that have members with water or wastewater facilities.

MTSA requires facility security plans to deter a transportation security incident, which can include protecting the nation's waterfront facilities

¹The 18 risk-based performance standards identify areas for which a facility's security posture is to be examined, such as perimeter security, access control, and cybersecurity. 6 C.F.R. § 27.230.

²6 U.S.C. § 621(4).

³We considered whether, even in limited circumstances, actions authorized or required under these programs generally align with CFATS standards.

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security’s (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

from terrorist attacks.⁴ As a result, security of chemicals transported at or on U.S. waterways is only one aspect of the facility plans required by the MTSA program. Based on our assessment of the CFATS and MTSA programs’ regulations and guidance we found that the two programs’ security measures generally align. Specifically, the MTSA program contains requirements or guidance that generally align with all 18 of the CFATS risk-based performance standards that facilities regulated as high-risk under the CFATS program are generally required to address (see table 3. “X” indicates that a program’s requirements or guidance generally align with the CFATS standard).

Table 3: Maritime Transportation Security Act (MTSA) Alignment with Chemical Facility Anti-Terrorism Standards (CFATS)

CFATS risk-based performance standard	CFATS	MTSA	Examples of program requirements and guidance
Restrict area perimeter	X	X	<p>Under the CFATS program, facilities must provide for a controlled perimeter surrounding the facility, or the restricted area(s) within a facility where critical assets are located, by securing and monitoring the perimeter of the facility or restricted areas. Security measures may include, for example, physical barriers, guard forces, electronic surveillance, or security lighting.</p> <p>Under the MTSA program, the facility must have the capability to continuously monitor—through a combination of lighting, security guards, waterborne patrols, automatic intrusion-detection devices, or surveillance equipment—the facility and its approaches, on both land and water, and restricted areas within the facility.</p>
Secure site assets	X	X	<p>The CFATS program requires facilities to secure and monitor restricted areas or potentially critical targets (i.e., critical assets) within the facility. Security measures may include, for example, physical barriers, guard forces, or intrusion detection systems.</p> <p>Under the MTSA program, facilities are to have procedures to secure dangerous substances and devices that are authorized to be on the facility. Facilities are also to designate restricted areas in order to protect sensitive security areas, and security and surveillance equipment, among other things.</p>
Screen and control access	X	X	<p>Under CFATS, facilities must control access to the facility and to restricted areas within the facility through the identification, screening, and inspection of individuals and vehicles.</p> <p>Under the MTSA program, facilities are to control access to the facility and designate and control access to restricted areas. All restricted areas are to have clearly established security measures to, among other things, identify which persons are authorized to have access and determine the conditions under which that access may take place.</p>

⁴46 U.S.C. § 70103(c)(1). The term “transportation security incident” means a security incident resulting in a significant loss of life, environmental damage, transportation system disruption, or economic disruption in a particular area. 33 C.F.R. § 101.105.

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

CFATS risk-based performance standard	CFATS	MTSA	Examples of program requirements and guidance
Deter, detect, and delay	X	X	<p>Under the CFATS program, facilities must deter, detect, and delay an attack, creating sufficient time between detection of an attack and the point at which the attack becomes successful. Security measures may include perimeter barriers, monitoring and detection systems, security lighting, and protective forces.</p> <p>Under the MTSA program, facilities are to deter the unauthorized introduction of dangerous substances and devices. They are also to monitor approaches and restricted areas as well as implement access control procedures. Further, facilities are also to implement security measures to prevent or deter unauthorized access to a restricted area.</p>
Shipping, receipt, and storage	X	X	<p>Under the CFATS program, facilities must secure and monitor the shipping, receipt, and storage of hazardous materials to help a facility minimize the risk of theft or diversion of any of its hazardous materials. Security measures can include, for example, review procedures with redundancies for all shipping, receiving, and delivery of hazardous material (hazmat); lists of all hazmat at the facility; and tracking of quantity and physical location of hazmat.</p> <p>Under the MTSA program, the facility owner or operator must ensure that security measures relating to cargo handling are implemented in order to deter tampering. Further, facilities are required to create, update, and maintain a continuous inventory of all dangerous goods and hazardous substances from receipt to delivery within the facility, giving the location of those dangerous goods and hazardous substances. In addition, facilities must, in general, coordinate enhanced security measures with shippers or other responsible parties.</p>
Theft and diversion	X	X	<p>Under the CFATS program, the theft or diversion of potentially dangerous chemicals (e.g., chemical weapons, chemical weapons precursors, explosives, or other chemicals of interest that could be used to inflict harm at a facility or off-site) and associated standards focus on preventing such theft or diversion through, among other things, inventory controls, procedural measures such as access restrictions, and physical measures such as locks.</p> <p>Under the MTSA program, storage areas for dangerous goods or hazardous substances are designated as restricted areas, and facilities must monitor and control access to these areas.</p>
Sabotage	X	X	<p>Under the CFATS program, facilities must deter insider sabotage to prevent the facility's property and activities from being used by a potential terrorist against the facility through, among other things, background checks, visitor controls, administrative controls and physical security measures, and cybersecurity measures.</p> <p>Persons requiring unescorted access to secure areas generally must possess a Transportation Worker Identification Credential (TWIC) before such access is granted. The TWIC application process involves a security threat assessment. Further, at facilities with certain dangerous cargo, visitors, contractors, and other nonfacility employees must be escorted at all times while on the facility if access identification is not provided. Under MTSA, access to restricted areas is also controlled.</p>

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

CFATS risk-based performance standard	CFATS	MTSA	Examples of program requirements and guidance
Cyber	X	X	<p>Under the CFATS program, facilities must deter cyber sabotage, including preventing unauthorized on-site or remote access to critical process controls—such as Supervisory Control and Data Acquisition systems, Distributed Control Systems, Process Control Systems, Industrial Control Systems, critical business systems, and other sensitive computerized systems—through a combination of policies and practices that include, among other things, security policies, access controls, personnel security, and awareness and training.</p> <p>Under the MTSA program, facilities are to assess vulnerabilities of computer systems and networks as well as consideration of measures to protect radio and telecommunication equipment, including computer systems and networks. The Coast Guard recommends MTSA-regulated facilities refer to the cybersecurity framework information published by the National Institute of Standards and Technology when considering incorporation of cybersecurity measures into facility security plans.</p>
Response	X	X	<p>Under the CFATS program, facilities must develop and exercise an emergency plan to respond to security incidents internally and with the assistance of local law enforcement and first responders.</p> <p>Under the MTSA program, the facility owner must ensure that facility security personnel are able to respond to security threats or breaches of security and maintain critical facility operations. Security incident procedures are to be included in facility security plans.</p>
Monitoring	X	X	<p>Under the CFATS program, facilities must maintain effective monitoring, communications, and warning systems, which will allow facilities to notify internal personnel and local responders in a timely manner about security incidents. Specifically, facilities must implement measures designed to (1) ensure that security systems and equipment are in good working order; (2) regularly test security systems; and (3) identify and respond to security system failures or malfunctions.</p> <p>Under the MTSA program, security systems—devices designed, installed, and operated to monitor, detect, observe, or communicate about activity that may pose a security threat—must be in good working order, regularly tested in accordance with the manufacturers' recommendations, noted deficiencies corrected promptly, and the results recorded. Further, facility security plans must include procedures for identifying and responding to security system and equipment failures or malfunctions.</p>
Training	X	X	<p>Under the CFATS program, facilities must ensure proper security and response training, exercise, and drills of facility personnel so they are better able to identify and respond to suspicious behavior, attempts to enter or attack a facility, or other malevolent acts by insiders or intruders.</p> <p>Under the MTSA program, facility personnel must have knowledge of, through training or equivalent job experience, the facility security plan; recognition and detection of dangerous substances and devices; recognition of characteristics and behavioral patterns of persons who are likely to threaten security; and techniques used to circumvent security measures, among other things. Further, facilities must conduct drills and exercises to test the proficiency of facility personnel in assigned security duties.</p>

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

CFATS risk-based performance standard	CFATS	MTSA	Examples of program requirements and guidance
Employee background checks	X	X	<p>Under the CFATS program, facilities must perform appropriate background checks for facility personnel and, as appropriate, for unescorted visitors with access to restricted areas or critical assets, including measures designed to (1) verify and validate identity; (2) check criminal history; (3) verify and validate legal authorization to work; and (4) identify people with terrorist ties.</p> <p>Under the MTSA program, employees requiring unescorted access to secure areas of the facility must obtain a TWIC, which includes undergoing a security threat assessment to check their criminal history and identify if they have terrorist ties, among other things.</p>
Elevated threats	X	X	<p>Under the CFATS program, facilities must escalate the level of protective measures for periods of elevated threat by, among other things, increasing security measures to better protect against known increased threats or generalized increased threat levels declared by the federal government.</p> <p>Under the MTSA program, maritime facilities are required to take additional security precautions as the threat level rises as determined and announced by the Coast Guard. The Coast Guard has specified three maritime security (MARSEC) threat levels—MARSEC Level 1, 2, and 3—with 3 being the highest threat level).</p>
Specific threats, vulnerabilities, or risks	X	X	<p>Under the CFATS program, facilities must address specific threats, vulnerabilities, or risks identified for the particular facility, such as those not identified in the facility's security vulnerability assessment by, among other things, using new information and increasing security measures.</p> <p>Under the MTSA program, facility security plans must identify procedures to modify security measures for each MARSEC level.</p>
Reporting of significant security incidents	X	X	<p>Under the CFATS program, facilities must report significant security incidents to the Department of Homeland Security (DHS) and to local law enforcement officials. According to CFATS guidance, the facility should have a process or written procedures in place to rapidly and efficiently report security incidents to the appropriate entities.</p> <p>MTSA regulations include reporting requirements of suspicious activities, breaches in security, and transportation security incidents. Specifically, a facility is required to, without delay, report such activities or events to the National Response Center—an emergency call center that fields initial incident reports and forwards that information to appropriate federal or state agencies for response.</p>
Significant security incidents and suspicious activities	X	X	<p>Under the CFATS program, facilities must identify, investigate, report, and maintain records of significant security incidents and suspicious activities in or near the site. According to CFATS guidance, facilities should have documented processes and procedures addressing this standard.</p> <p>The MTSA program requires that facility security personnel be able to respond to security threats or breaches of security, among other things. It also requires reporting of suspicious activity, breaches of security, and transportation security incidents to the National Response Center, and records maintained of any incidents.</p>

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

CFATS risk-based performance standard	CFATS	MTSA	Examples of program requirements and guidance
Officials and organization	X	X	<p>Under the CFATS program, facilities must establish official(s) and an organization responsible for security and for compliance with CFATS. DHS generally anticipates that each facility will identify a Facility Security Officer as well as a facility security organization responsible for implementing the facility security plan.</p> <p>The MTSA program requires facilities to identify a point of contact (the Facility Security Officer) that is responsible for implementing security actions at the facility, including ensuring the development and implementation of a facility security plan, adequate training for personnel performing facility security duties; and the maintenance of required records, among other things.</p>
Records	X	X	<p>Under the CFATS program, facilities must maintain appropriate records that address the creation, maintenance, protection, storage, and disposal of appropriate security-related records and the activities required to make these records available to DHS upon request.</p> <p>Under the MTSA program, facilities must keep records of (1) training, drills and exercises; (2) incidents and breaches of security; (3) actions taken in response to changes in MARSEC Levels; (4) maintenance and testing of security equipment; and (5) security audits, among other things.</p>

Legend: "X" indicates that even in limited circumstances, actions authorized, included, or required under these programs generally align with the CFATS standard.

Source: GAO analysis of CFATS and MTSA regulations and guidance. | GAO-20-722

Note: We considered general alignment to occur when statutes, programs' regulations, guidance, and other materials require or authorize actions that are similar to actions that facilities may take pursuant to the CFATS standards, even in limited circumstances. Further, we considered program requirements and guidance to generally align with CFATS standards when actions required or authorized under the program have a different purpose or goal but may have the same effect as actions taken pursuant to the CFATS standard.

The Water Infrastructure Act program and the Risk Management Program are the key federal programs that contain requirements or guidance that that may have security benefits for public water systems and wastewater treatment works. Section 2013 of the Water Infrastructure Act, implemented by EPA's Water Security Division within the Office of Ground Water and Drinking Water, requires approximately 10,400 public water systems that each serve more than 3,300 people to develop or update risk assessments and emergency response plans and focuses on the risks of a malevolent act or natural hazard on the public health and the safety and supply of drinking water provided to communities and individuals.⁵ EPA's Risk Management Program requires facilities with threshold quantities of certain potentially dangerous chemicals to develop plans that are to summarize the potential effects of accidental releases of certain chemicals, including an evaluation of the off-site effects of a worst-

⁵42 U.S.C. § 300i-2. The assessments and response plans are voluntary for public water systems serving fewer than 3,300 people and for wastewater treatment facilities.

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

case release scenario and the facility's emergency response program to prevent releases and mitigate any damage.⁶ More than 1,600 public water system and wastewater treatment works facilities are regulated by the Risk Management Program, as of January 2020. Based on our review of the Water Infrastructure Act and EPA regulations and guidance, we found that the Water Infrastructure Act program contains requirements or guidance that generally align with 10 of the 18 CFATS standards and the Risk Management Program contains requirements or guidance that generally align with 13 of the 18 CFATS standards (see table 4. "X" indicates that a program's requirements or guidance generally align with CFATS standards).

Table 4: America's Water Infrastructure Act (AWIA) Program and Risk Management Program (RMP) Alignment with Chemical Facility Anti-Terrorism Standards (CFATS)

CFATS risk-based performance standard	CFATS	AWIA	RMP	Examples of program requirements and guidance
Restrict area perimeter	X	X	X	<p>Under the CFATS program, facilities must provide for a controlled perimeter surrounding the facility, or the restricted area(s) within a facility where critical assets are located, by securing and monitoring the perimeter of the facility or restricted areas. Security measures may include, for example, physical barriers, guard forces, electronic surveillance, or security lighting.</p> <p>The AWIA program requires community water systems (water systems) to assess the resilience of physical barriers and to assess monitoring practices to malevolent threats and natural disasters. The Environmental Protection Agency's (EPA) risk assessment tool includes a list of countermeasures, including lighting and security cameras, that water systems can consider as part an optional step in their assessment. AWIA also requires community water systems to develop or update an emergency response plan that contains strategies and resources to improve the resilience of the water system, including physical security. Further, EPA guidance states that response plans should list restricted areas, such as chemical rooms, and who may access those areas.</p> <p>Under RMP, certain facilities must develop and implement safe work practices to provide for the control of hazards during their operations, which may include control over entrance into the facility by employees.</p>

⁶40 C.F.R. § 68.12. Facilities with Program Level 1 processes are not required to develop an emergency response program.

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

CFATS risk-based performance standard	CFATS	AWIA	RMP	Examples of program requirements and guidance
Secure site assets	X	X	X	<p>Under the CFATS program, facilities must secure and monitor restricted areas or potentially critical targets (i.e., critical assets) within the facility. Security measures may include, for example, physical barriers, guard forces, or intrusion-detection systems.</p> <p>The AWIA program requires water systems to develop or update an emergency response plan that contains strategies and resources to improve the resilience of the water system, including physical security. The EPA response plan template also states that plans should contain strategies that can aid in the detection of malevolent acts or natural hazards that threaten the security or resilience of a water system, including physical security. For example, these detection strategies can include installing motion sensors and video cameras to monitor for facility break-ins or tampering. Further, EPA guidance states that response plans should list restricted areas, such as chemical rooms, and who may access those areas.</p> <p>RMP requires certain facilities to develop and implement safe work practices to provide for the control of hazards during operations, such as control over entrance into the facility by employees. According to EPA, this RMP requirement is designed to secure assets in a manner that will control chemical process hazards at facilities.</p>
Screen and control access	X	X	X	<p>Under the CFATS program, facilities must control access to the facility and to restricted areas within the facility through the identification, screening, and inspection of individuals and vehicles.</p> <p>Under the AWIA program, water systems are required to develop or update an emergency response plan that contains strategies and resources to improve the resilience of the water system, including physical security. EPA guidance suggests that water systems document access control procedures in emergency response plans, such as that key cards are required to access all buildings.</p> <p>Under RMP, certain facilities must develop and implement safe work practices to provide for the control of hazards during their operations, such as control of entrance into the facility by employees. According to the EPA, this requirement is intended to prevent inadvertent or unauthorized access entry to chemicals by support personnel whose jobs may not require such access.</p>
Deter, detect, and delay	X	X	X	<p>Under the CFATS program, facilities must deter, detect, and delay an attack, creating sufficient time between detection of an attack and the point at which the attack becomes successful. Security measures may include perimeter barriers, monitoring and detection systems, security lighting, and protective forces.</p> <p>The AWIA program requires community water systems to develop or update an emergency response plan that includes strategies that can be used to aid in the detection of malevolent acts or natural hazards that threaten the security or resilience of the system.</p> <p>Under RMP, certain facilities must develop and implement safe work practices to provide for the control of hazards during their operations, such as control of entrance into the facility by employees.</p>

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

CFATS risk-based performance standard	CFATS	AWIA	RMP	Examples of program requirements and guidance
Shipping, receipt, and storage	X	X	X	<p>Under the CFATS program, facilities must secure and monitor the shipping, receipt, and storage of hazardous materials to help a facility minimize the risk of theft or diversion of any of its hazardous materials. Security measures can include, for example, review procedures with redundancies for all shipping, receiving, and delivery of hazardous material (hazmat); lists of all hazmat at the facility; and tracking of the quantity and physical location of hazmat.</p> <p>The AWIA program requires water systems to assess the use, storage, or handling of various chemicals to malevolent threats or natural disasters and incorporate the findings of the assessment in the system's emergency response plan.</p> <p>Under RMP, certain facilities are required to develop and implement written operating procedures to address and provide clear instructions for the quality control of raw materials and for control of hazardous material inventories. According to EPA, this RMP requirement is designed to provide quality control of chemicals for safety and health considerations such as potential leaks or exposure to operators. EPA inspectors may view chemical delivery receipts, inventory lists, or equipment inspection logs to determine how chemical levels are monitored and managed.</p>
Theft and diversion	X	X	X	<p>Under the CFATS program, the theft or diversion of potentially dangerous chemicals (e.g., chemical weapons, chemical weapons precursors, explosives, or other chemicals of interest that could be used to inflict harm at a facility or off-site) and associated standards focus on preventing such theft or diversion through, among other things, inventory controls, procedural measures such as access restrictions, and physical measures such as locks.</p> <p>Under the AWIA program, water systems are to include strategies and resources to improve the resilience of the system, including the physical security of the system, in their emergency response plan. Further, EPA guidance states that response plans should list restricted areas, such as chemical rooms, and who may access those areas.</p> <p>Under RMP, certain facilities must develop and implement safe work practices to provide for the control of hazards during their operations, such as control of entrance into the facility by employees. According to the EPA, this requirement is intended to prevent inadvertent or unauthorized entry to chemicals by support personnel whose jobs may not require such access.</p>
Sabotage	X	X	X	<p>Under the CFATS program, facilities must deter insider sabotage to prevent the facility's property and activities from being used by a potential terrorist against the facility through, among other things, background checks, visitor controls, administrative controls and physical security measures, and cybersecurity measures.</p> <p>Under AWIA, water systems are to include strategies and resources to improve the resilience of the system, including the physical security and cybersecurity of the system, in their emergency response plan. Further, EPA guidance states that response plans should list restricted areas, such as chemical rooms, and who may access those areas.</p> <p>Under RMP, certain facilities must develop and implement safe work practices to provide for the control of hazards during their operations, such as control of entrance into the facility by employees. According to the EPA, this requirement is intended to prevent inadvertent or unauthorized entry to chemicals by support personnel whose jobs may not require such access.</p>

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

CFATS risk-based performance standard	CFATS	AWIA	RMP	Examples of program requirements and guidance
Cyber	X	X	—	<p>Under the CFATS program, facilities must deter cyber sabotage, including preventing unauthorized on-site or remote access to critical process controls—such as Supervisory Control and Data Acquisition systems, Distributed Control Systems, Process Control Systems, Industrial Control Systems, critical business systems, and other sensitive computerized systems—through a combination of policies and practices that include, among other things, security policies, access controls, personnel security, and awareness and training.</p> <p>The AWIA program requires water systems to assess the resilience of computer or other automated systems to malevolent threats and natural disasters. AWIA also requires water systems to develop an emergency response plan that includes strategies and resources to improve the resilience of the system, including cybersecurity.</p> <p>RMP regulations and guidance do not address cybersecurity.</p>
Response	X	X	X	<p>Under the CFATS program, facilities must develop and exercise an emergency plan to respond to security incidents internally and with assistance of local law enforcement and first responders.</p> <p>The AWIA program requires water systems to develop an emergency response plan that incorporates the findings of the risk assessment. AWIA also requires these systems to coordinate with existing local emergency response planning committees in developing their risk assessment and response plan.</p> <p>Under RMP, facilities are required to coordinate response needs with local emergency response agencies and have appropriate mechanisms in place to notify emergency responders when there is a need for a response. Also, certain facilities must develop an emergency response program for the purpose of protecting public health and the environment, including a plan to respond to accidental chemical releases.</p>
Monitoring	X	X	X	<p>Under the CFATS program, facilities must maintain effective monitoring, communications, and warning systems, which will allow facilities to notify internal personnel and local responders in a timely manner about security incidents. Specifically, facilities must implement measures designed to (1) ensure that security systems and equipment are in good working order; (2) regularly test security systems; and (3) identify and respond to security system failures or malfunctions.</p> <p>The AWIA program requires water systems to assess the resilience of monitoring practices, which, according to EPA officials, means the processes and practices used to monitor source water and finished water quality. However, AWIA also requires water systems to include in their emergency response plan strategies that can be used to aid in the detection of malevolent acts or natural hazards that threaten the security or resilience of the system. Guidance suggests that air monitors, such as for chlorine gas, can alert personnel to any leaks in a timely fashion. It also suggests that intrusion detection systems should be properly installed and maintained. EPA guidance further suggests that water systems should inventory and track all communication equipment to help ensure maintenance is scheduled as appropriate and that equipment replacement can be planned.</p> <p>Under RMP, certain facilities must develop and implement written operating procedures that address safety systems and their functions. Also, certain facilities must take specific actions to maintain the mechanical integrity of process equipment, such as controls, including monitoring devices and sensors, alarms, and interlocks. Further, emergency response programs required for certain facilities must include development of an emergency response plan that includes procedures for the use of emergency response equipment and for its inspection, testing, and maintenance.</p>

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

CFATS risk-based performance standard	CFATS	AWIA	RMP	Examples of program requirements and guidance
Training	X	—	—	<p>Under the CFATS program, facilities must ensure proper security and response training, exercise, and drills of facility personnel so they are better able to identify and respond to suspicious behavior, attempts to enter or attack a facility, or other malevolent acts by insiders or intruders.</p> <p>AWIA, RMP requirements, and associated EPA guidance do not address security training, exercises, and drills.</p>
Employee background checks	X	—	—	<p>Under the CFATS program, facilities must perform appropriate background checks for facility personnel and as appropriate, for unescorted visitors with access to restricted areas or critical assets, including measures designed to: (1) verify and validate identity; (2) check criminal history; (3) verify and validate legal authorization to work; and (4) identify people with terrorist ties.</p> <p>AWIA, RMP requirements, and associated EPA guidance do not address employee background checks.</p>
Elevated threats	X	—	—	<p>Under the CFATS program, facilities must escalate the level of protective measures for periods of elevated threat by, among other things, increasing security measures to better protect against known increased threats or generalized increased threat levels declared by the federal government.</p> <p>AWIA, RMP regulations, and associated EPA guidance do not address escalating the level of protective measures for periods of elevated threats.</p>
Specific threats, vulnerabilities, or risks	X	—	—	<p>Under the CFATS program, facilities must address specific threats, vulnerabilities, or risks identified for the particular facility, such as those not identified in the facility's security vulnerability assessment, by, among other things, using new information and increasing security measures.</p> <p>AWIA, RMP requirements, and associated EPA guidance do not address specific threats, vulnerabilities, or risks that are new or may not have been previously identified.</p>
Reporting of significant security incidents	X	—	X	<p>Under the CFATS program, facilities must report significant security incidents to the Department of Homeland Security (DHS) and to local law enforcement officials. According to CFATS guidance, the facility should have a process or written procedures in place to rapidly and efficiently report security incidents to the appropriate entities.</p> <p>AWIA does not require and EPA guidance does not address reporting of significant security incidents. However, according to EPA officials, this standard could be addressed within a water system's emergency response plan. EPA's template for emergency response plans includes a section devoted to coordination with law enforcement and external partners. The template also recommends that water systems describe or reference their procedures for working with law enforcement officials if an incident is declared a crime scene.</p> <p>RMP requires facilities to include in their RMP a 5-year accident history of all accidental chemical releases that resulted in deaths, injuries, or significant property damage on site or known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage. According to EPA, while this requirement does not specifically require facilities to report significant security incidents, some facilities may include security incidents if they result in an accidental release.</p>

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

CFATS risk-based performance standard	CFATS	AWIA	RMP	Examples of program requirements and guidance
Significant security incidents and suspicious activities	X	—	X	<p>Under the CFATS program, facilities must identify, investigate, report, and maintain records of significant security incidents and suspicious activities in or near the site. According to CFATS guidance, facilities should have documented processes and procedures addressing this CFATS standard.</p> <p>AWIA does not require and EPA guidance does not address identifying, investigating, and maintaining records of significant security incidents and suspicious activities. However, according to EPA, this CFATS standard, though not required under AWIA, could be addressed within a water system's emergency response plan. EPA's template for emergency response plans includes a section devoted to coordination with law enforcement.</p> <p>Under RMP, certain facilities are required to investigate each incident that resulted in, or could reasonably have resulted in a catastrophic chemical release which is a major uncontrolled emission, fire, or explosion, involving one or more regulated substances that presents imminent and substantial endangerment to public health and the environment. They must also retain incident investigation reports for 5 years. While this requirement is not specific to security incidents, some facilities may include security incidents in their RMP incident investigation program if they result in or could reasonably have resulted in a catastrophic release, according to EPA.</p>
Officials and organization	X	—	X	<p>Under the CFATS program, facilities must establish official(s) and an organization responsible for security and for compliance with CFATS. DHS generally anticipates that each facility will identify a Facility Security Officer as well as a facility security organization responsible for implementing the facility security plan.</p> <p>AWIA and associated guidance do not address the identification of officials or organizations responsible for security and compliance. This CFATS standard, though not required under AWIA, could be addressed within a water system's emergency response plan. EPA's template for emergency response plans includes a section devoted to incident command system roles and emergency response roles.</p> <p>RMP requires facilities to assign a qualified person or position that has the overall responsibility for the development, implementation, and integration of the risk management program elements. While this requirement is not specifically intended to establish officials and an organization responsible for security, some facilities may include these under their RMP management system if the role also relates to complying with the RMP provisions for chemical accident prevention, according to EPA.</p>
Records	X	—	X	<p>Under the CFATS program, facilities must maintain appropriate records that address the creation, maintenance, protection, storage, and disposal of appropriate security-related records and the activities required to make these records available to DHS upon request.</p> <p>AWIA and associated EPA guidance do not address the maintenance of security-related records.</p> <p>RMP requires facilities to maintain records supporting the implementation of the program for 5 years. According to EPA, while this requirement does not specifically require RMP facilities to maintain security records, some facilities may maintain some form of security records within their RMP records if the information is also associated with complying with the RMP provisions.</p>

Legend: "X" indicates that even in limited circumstances, actions authorized, included, or required under these programs generally align with the CFATS standard. "—" indicates that the program does not contain requirements or guidance that align with the CFATS standard or not applicable.

Source: GAO analysis of statutes and DHS and EPA regulations and guidance. | GAO-20-722

Appendix II: Alignment of Select Regulatory Programs with the Department of Homeland Security's (DHS) Chemical Facility Anti-Terrorism Standards (CFATS)

Note: We considered general alignment to occur when statutes, programs' regulations, guidance, and other materials require or authorize actions that are similar to actions that facilities may take pursuant to the CFATS standards, even in limited circumstances. Further, we considered program requirements and guidance to generally align with CFATS standards when actions required or authorized under the program have a different purpose or goal but may have the same effect as actions taken pursuant to the CFATS standard.

Appendix III: Comments from the Department of Homeland Security

U.S. Department of Homeland Security
Washington, DC 20528



**Homeland
Security**

September 15, 2020

Nathan Anderson
Director, Homeland Security and Justice
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Re: Management Response to Draft Report GAO-21-6SU, "CHEMICAL SECURITY: DHS Could Use Available Data to Better Plan Outreach to Facilities Excluded from Anti-Terrorism Standards"

Dear Mr. Anderson:

Thank you for the opportunity to comment on this draft report. The U.S. Department of Homeland Security (DHS or the Department) appreciates the U.S. Government Accountability Office's (GAO) work in planning and conducting its review and issuing this report.

The Department is pleased to note GAO's recognition of the security requirements contained within the Chemical Facility Anti-Terrorism Standards (CFATS) regulations, as well as the voluntary security services the Department's Cybersecurity and Infrastructure Security Agency (CISA) Protective Security Advisors (PSAs) provide to critical infrastructure partners across the spectrum. DHS remains committed to ensuring that high-risk chemical facilities are implementing appropriate security measures, and that other critical infrastructure facilities have access to resources to assist them in enhancing their security postures.

As noted in the draft report, the U.S. has hundreds of thousands of facilities that produce, use, or store hazardous chemicals which, if not properly safeguarded, could possibly be used by terrorists to inflict mass casualties and damage. Many of the facilities with the highest risk are required to develop and implement comprehensive security plans pursuant to the CFATS, although GAO's report focuses on those facilities which are statutorily excluded from the CFATS requirements. DHS agrees with the finding that many of the excluded facilities, such as nuclear power plants regulated by the Nuclear Regulatory Commission, or facilities regulated by the U.S. Coast Guard pursuant to the

**Appendix III: Comments from the Department
of Homeland Security**

Maritime Transportation Security Act, are required to maintain security measures commensurate to those required by CFATS.

The Department also agrees that other facilities, such as public water systems and wastewater treatment work facilities, are frequently subject to safety regulations that may have some tangential security value. However, in most cases, these facilities are not required to implement security measures commensurate to their level of security risk, like similar facilities regulated by other regulatory regimes. In order to help raise the level of security at these facilities, each year PSAs provide some facilities with voluntary security services. However, given the limited number of PSAs and their scope of responsibility, which includes providing advisory services to all 16 critical infrastructure sectors, their engagement is rather limited for public water systems and wastewater treatment works facilities. Consequently, while some public water systems and wastewater treatment works facilities have elected to implement appropriate security measures, comprehensive security at high risk water facilities is neither mandated nor subject to verification.

The draft report contained one recommendation for CISA with which the Department concurs. Attached find our detailed response to the recommendation. DHS previously submitted technical comments under a separate cover for GAO's consideration.

Again, thank you for the opportunity to review and comment on this draft report. Please feel free to contact me if you have any questions. We look forward to working with you in the future.

Sincerely,

JIM H

CRUMPACKER

JIM H. CRUMPACKER, CIA, CFE

Director

Departmental GAO-OIG Liaison Office

Digitally signed by JIM H
CRUMPACKER
Date: 2020.09.15 15:58:38
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Attachment

**Attachment: Management Response to Recommendation
Contained in GAO 21-6SU**

GAO recommended that the Director of DHS's Cybersecurity and Infrastructure Security Agency (CISA):

Recommendation 1: Assess EPA [Environmental Protection Agency] data when planning outreach to public water system and wastewater treatment works facilities.

Response: Concur. DHS agrees with GAO's assertion that EPA data may be of use in prioritizing which public water system and wastewater treatment works facilities the Department engages with each year. CISA's Infrastructure Security Division (ISD), receives this data annually from EPA, and will review this data in the future to identify public water system and wastewater treatment works facilities with threshold levels of CFATS chemicals of interest. Moreover, ISD will consider the results of this analysis when determining which critical infrastructure facilities (including public water system and wastewater treatment works facilities) CISA regional staff will engage with each year. ISD expects to complete the initial analysis by the end of the second quarter of Fiscal Year (FY) 2021 and will factor the results into outreach planning for either the second half of FY 2021 or for FY 2022, depending on the timing of completion. Estimated Completion Date: March 31, 2022.

Appendix IV: Comments from the Nuclear Regulatory Commission



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 15, 2020

Mr. Nathan Anderson, Director
Homeland Security and Justice
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION'S RESPONSE TO GOVERNMENT
ACCOUNTABILITY OFFICE'S REQUEST TO REVIEW AND COMMENT ON
DRAFT REPORT GAO-21-6SU

Dear Mr. Anderson:

Thank you for providing the U.S. Nuclear Regulatory Commission (NRC) the opportunity to review and comment on the U.S. Government Accountability Office's (GAO's) draft report GAO-21-6SU, "CHEMICAL SECURITY: DHS Could Use Available Data to Better Plan Outreach to Facilities Excluded from Anti-Terrorism Standards." The NRC staff reviewed the draft report and we are in general agreement with the report's findings. The NRC offers one comment for consideration. The details of the comment can be found in the enclosure.

If you have any questions regarding this response, please contact John Jolicoeur. Mr. Jolicoeur can be reached by telephone at (301) 415-1642 or email at John.Jolicoeur@nrc.gov.

Sincerely,

Margaret M. Doane Digitally signed by Margaret M. Doane
Date: 2020.09.16 10:04:18 -04'00'

Margaret M. Doane
Executive Director
for Operations

Enclosure:
NRC Staff Comments

**Appendix IV: Comments from the Nuclear
Regulatory Commission**

U.S. Nuclear Regulatory Commission Staff Comments
GAO'S Request to Review and Comment on Draft Report GAO-21-6SU

Staff Comments:

1. Page 17, first paragraph - NRC staff suggest that following the sentence "During these visits, these experts found that none of the four nuclear power plants and six of seven fuel cycle facilities they visited had exceeded threshold quantities of CFATS chemicals of interest.," an additional sentence should be added: "Nuclear Regulatory Commission subject matter experts evaluated the security at facilities that exceeded threshold quantities of CFATS chemicals of interest; each facility was determined to have security comparable to the security requirements imposed by CFATS."

Enclosure

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

Nathan Anderson, (206) 287-4804 or andersonn@gao.gov.

Staff Acknowledgments

In addition to the contact above, Hugh Paquette (Assistant Director), Paul Hobart (Analyst-in-Charge), James Ashley, Ben Atwater, Ben Crossley, Andrew Curry, Michele Fejfar, Eric Hauswirth, Andrew Kincare, Tracey King, Brian Lipman, Tom Lombardi, Dennis Mayo, Grant Mallie, and Kevin Reeves made key contributions.

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