

BACKGROUND INFORMATION

Planned Department of Homeland Security (DHS) CFATS Approach to Chemical Security

Chemical Facility Anti-Terrorism Standards (CFATS) regulations are documented in Title 6 of the *Code of Federal Regulations* (CFR) Part 27 (6 CFR 27), and outline the process DHS uses to identify and rank facilities into four tiers for which security is required. Appendix A to the regulation provides a list of chemicals of interest that are listed in screening “threshold quantities.” The regulation also defines 18 risk-based performance standards (RBPS) to determine the level of security sites are required to meet. The process steps are summarized as follows:

- Facilities complete an online automated survey including a description of the site and provide a list of chemicals and the quantities possessed at that site. From this survey, the DHS estimates the potential consequence to public health from these chemicals. If predefined thresholds for consequence are exceeded, then DHS notifies the facility of an initial tier assignment and requests additional information through a second online automated survey. This initial screen also considers theft scenarios.
- The second part of the process is the security vulnerability assessment (SVA). The SVA asks where chemicals are located at the facility, how much is in a particular location, and requests an assessment of the facility’s perceived susceptibility to a set of predefined adversary scenarios (theft, dispersal, sabotage by introduction of water, and diversion). The facility also provides information on the existing security measures/components and roughly estimates probabilities for several questions related to adversary success. From this, DHS recalculates the consequences and makes a rough estimate of the vulnerability posture of the security system. Independent of this survey, DHS compiles a threat estimate based on local population densities, the number of chemical facilities in the state, and regional terrorist/criminal activity. The three parameters (consequence, security vulnerability, and threat) are individually quantified by the DHS automated model and combined to yield a numerical estimate of the security risk. The final tiering is a system of one to four with one being the highest risk number. DHS then notifies the facility of its final tiering assignment.
- Facilities are then required to complete a third online automated survey that focuses on specific security measures already in place and those proposed by the facility (collectively called the “site security plan”). The survey transfers the data for measures into an automated model to evaluate them against each of the 18 RBPS and generates a score for each standard based on the measures. Scores for each of the standards are compared to a corresponding threshold value. If the score for any of the standards is below its corresponding threshold value, the facility security system is deemed unacceptable and improvements will be required (e.g., fencing around the perimeter may be one of the 18 RBPS items that would be assigned a value).
- Once DHS approves the security plan, DHS inspectors will schedule a site visit to confirm the questionnaire entries and to verify that the system meets acceptable threshold values. It is not clear if DHS validates tiering responses such as those

Enclosure

gathered in the second survey. As of March 2011, no site had been through the entire CFATS process to receive approval of its security plan.

Proposed Nuclear Regulatory Commission (NRC) Approach to Chemical Security

The NRC currently regulates the safety of hazardous chemicals produced from licensed materials at fuel cycle facilities in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 70.60 which relies on the licensee performing an Integrated Safety Analysis (ISA). A similar approach is found in the proposed rule, 10 CFR 40, "Domestic Licensing of Source Material," section 40.81(a) (76 FRN 28342). Both of these documents establish performance requirements that can be adapted for a graded approach based on consequences associated with the safe storage and use of chemicals at NRC-licensed facilities. The following are proposed criteria for determining the levels of security:

- impact on hypothetical person at site boundary - sites would be required to have a physical protection system that would provide for adequate protection to prevent certain levels of consequence at the boundary;
- impact on plant population - would require that the members of the plant population who perform safety and security functions not be exposed to a lethal/incapacitating chemical release;
- combination of these criteria - aligned with traditional NRC methods which consider the exposure effects of hazardous materials on plant personnel and the release of hazardous materials at a site boundary that could potentially impact the local and general population.

Following rulemaking to modify 10 CFR 73, "Physical Protection of Plants and Materials," and consistent with 10 CFR 70.61 for fuel cycle facilities, all NRC licensees exempt from DHS regulations would be required to identify COIs identified through an ISA-like analysis for chemical impacts. Site security plans would be amended, as necessary, to include required changes to the protective strategy. The staff does not anticipate a significant number of security plan changes based on their knowledge of the types and quantities of chemicals and security-measures currently in-place at NRC-licensed facilities.

For a limited number of chemicals (those produced from NRC-licensed materials), the criteria defined in 10 CFR 70.61 has been used for fuel cycle facilities since September 2000.

Concept for Enhanced Chemical Security Implementation at NRC Regulated Facilities

Facilities Fully Exempt

DHS and the NRC agree that the NRC will be responsible for security, including the security of all chemicals of interest, at those facilities, and DHS will have no responsibility for such facilities under the CFATS rule.

Nuclear Power Plants - two levels of security would be established for chemicals at nuclear power plants. The lower level would require chemical protection to be at least equivalent to that required for the access controlled area of the plant. The higher level would require that chemical protection to be at least equivalent to that required for the protected area. (Note: Lower and higher level chemicals are based on types and quantities.)

Category I Fuel Cycle Facilities - two levels of security would be established for chemicals at Category I fuel cycle facilities. The lower level would require chemical protection to be at least equivalent to that required for Category III SNM protection (reference 10 CFR 73.67). The higher level would require that chemical protection to be at least equivalent to that required for materials stored within the protected area.

Category III Fuel Cycle Facilities and Enrichment Plants - chemicals at these facilities would have a single threshold for protection. It would require that chemicals at these facilities be protected at least equivalent to that required for a Category III SNM facility.

Conversion and Deconversion Facilities - chemicals at these facilities would have a single threshold for protection. It would require that chemicals at these facilities be protected at least equivalent to that required for a Category III SNM facility. From an NRC perspective, the radiological threats to the public health and safety are low because of the types of materials being licensed; however, from a chemical security perspective, the types and quantities of materials at these facilities have the potential for a considerably higher risk to the public health and safety.

Facilities Partially Exempt

If there is dual regulation of a facility, (i.e., only part of the site is exempt from DHS regulation) and DHS determines that the facility needs to implement security measures under CFATS, then DHS, the NRC, and the Agreement State, if applicable, will develop a specific standard operating procedure for the site to identify which regulatory body is responsible for security in what parts of the site.

Chemicals at these facilities would have a single level of chemical security. Since the exempt area of these facilities is the secured area, any chemicals that are found in the exempt area would be expected to be receiving adequate protection of the chemicals. COIs found outside of the exempt area would have to be protected at the appropriate level.