



**Completing your CSAT
– Top Screen / RMP,
PSM and now CFATS.
Not covered by RMP
or PSM? You may be
covered by CFATS.**



An ioMosaic Corporation Whitepaper



Judy A. Perry
Partner

ioMosaic Salem

Corporate Headquarters
93 Stiles Road
Salem, New Hampshire 03079

Tel: 603-893-7009

Fax: 603-251-8384

Email: support@iomosaic.com

Web: www.iomosaic.com

ioMosaic Houston

2401 Fountain View Drive
Suite 850
Houston, Texas 77057

Tel: 713-490-5220

Fax: 832-533-7283

ioMosaic Minneapolis

410 North 3rd Street
Suite 410
Minneapolis, Minnesota 55401

Tel: 612-338-1669

Fax: 832-533-7283

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Introduction

If you are covered by EPA's RMP rule and/or OSHA's PSM regulation then you most likely are in the process of completing the Department of Homeland Security's (DHS) Top-screen/Chemical Security Assessment Tool (CSAT). If you possess chemicals on the threshold quantity(TQ) list from RMP or PSM, and you were not covered by these regulations, it is not a safe assumption that CFATS (Chemical Facility Anti-Terrorism Standard) does not apply to your facility.

The clock is ticking and there is work to do. On Tuesday, November 20, 2007 the Department of Homeland Security's Final Rule and Appendix to the Chemical Facility Anti-Terrorism Standards was published. Facilities have 60 days to complete and submit their Top-screen/Chemical Security Assessment Tool (CSAT). This publication is to assist you with that process.

Critical Difference in CFAT STQ from PSM & RMP

Homeland Security adopted EPA's RMP Program list of chemicals with a few exceptions. In general the lists appear to also have the same standard threshold quantities (STQs) as the RMP TQs; however the quantities are not the same. The key difference is the method of accumulating a total inventory quantity. The method of aggregating the maximum inventory amount is much more conservative under CFATS. As a result some facilities that were not covered under the scope of PSM or RMP very well could be required to complete the CSAT. For example, the inventories are not calculated based on the amount in a "single process" as they are under the RMP and PSM Regulations. The STQ for DHS is the total inventory of the chemical on site, even if in different processes or storage locations. In addition some exemptions from the other regulations were not adopted by the DHS. For example facilities must include chemicals in natural gas or liquefied natural gas (LNG) stored in "peak shaving" facilities and fuels stored in above ground storage tanks that are part of pipeline facilities. To add to the complexity, there are items where inventory levels are aggregated. One subcategory is Chemical Weapons or Precursors to Chemical Weapons (CW/CWP). Within this category any schedule 1 item has an aggregate amount (not per agent) STQ limit of 100grams (Schedule 2&3 items are not cumulative).

If "potential" for coverage you need to register

Before you can submit the CSAT you must register your facility. The Department of Homeland Security has issued [Chemical Facility Anti-Terrorism Standards](#) for any facility that manufactures, uses, stores, or distributes [certain chemicals](#) above a specified quantity. These chemicals and their standard threshold quantities are provide in the attachment "Appendix A to Part 27.—DHS Chemicals of Interest". If you have the potential to be covered by this new standard, you are required to register at: http://www.dhs.gov/xprevprot/programs/gc_1169503302924.shtm#0.

Once you register you will have access to the Top-Screen Questions. Don't assume if you do not exceed the Threshold Quantities for OSHA's PSM

The inventories are not calculated based on the amount in a "single process" as they are under the RMP and PSM regulations, but rather for the total inventory of the chemical on site.

Are you registered?
Go to
www.dhs.gov/xprevprot/programs/



"Don't assume if you do not exceed the TQ for OSHA's PSM Standard or EPA's RMP rule that you will not exceed the STQ for Chemical Facility Anti-Terrorism Standards (CFATS)"

Standard or EPA's RMP rule that you will not exceed the STQ for Chemical Facility Anti-Terrorism Standard.

Appendix A Chemicals of Interest (COI) Table

As you view Appendix A from this rule (See extract below) you will note the chemicals have a great deal of information noted. The key information includes the CAS number, minimum concentrations, as well as the STQ. In addition the chemicals have an "x" noted in columns to the right. The columns to the far right give you an indication on what the security issue(s) is for the Chemical of Interest (COI). To understand this rule, you must note there are three main categories of security issues: release, theft/diversion and sabotage/contamination (Two of these categories have subcategories). While viewing the Appendix the security issue(s) associated with the individual COI is classified as indicated by the "X" in the column(s). A single chemical can have more than one classification.

Appendix A to Part 27. -- DHS Chemicals of Interest ¹

| Chemicals of Interest (COI) | Synonym | Chemical Abstract Service (CAS) # | Release | | Theft | | Sabotage | | Security Issue | | | | | | | | |
|----------------------------------|-------------------------------|-----------------------------------|---------------------------|--|---------------------------|---|---------------------------|--------------------------------|-----------------|----------------------|----------------------|-----------------|--------------|------------------|------------------------|--|---|
| | | | Minimum Concentration (%) | Screening Threshold Quantities (in pounds) | Minimum Concentration (%) | Screening Threshold Quantities (in pounds unless otherwise noted) | Minimum Concentration (%) | Screening Threshold Quantities | Release - Toxic | Release - Flammables | Release - Explosives | Theft - C/WC/WP | Theft - W/IE | Theft - EXP/IEDP | Sabotage/Contamination | | |
| Acetaldehyde | | 75-07-0 | 1.00 | 10,000 | | | | | | X | | | | | | | |
| Acetone cyanohydrin, stabilized | | 75-86-5 | | | | | ACG | APA | | | | | | | | | X |
| Acetyl bromide | | 506-96-7 | | | | | ACG | APA | | | | | | | | | X |
| Acetyl chloride | | 75-36-5 | | | | | ACG | APA | | | | | | | | | X |
| Acetyl iodide | | 507-02-8 | | | | | ACG | APA | | | | | | | | | X |
| Acetylene | [Ethyne] | 74-86-2 | 1.00 | 10,000 | | | | | | X | | | | | | | |
| Acrolein | [2-Propenal] or Acrylaldehyde | 107-02-8 | 1.00 | 5,000 | | | | | X | | | | | | | | |
| Acrylonitrile | [2-Propenenitrile] | 107-13-1 | 1.00 | 10,000 | | | | | | X | | | | | | | |
| Acrylyl chloride | [2-Propenoyl chloride] | 814-68-6 | 1.00 | 10,000 | | | | | | X | | | | | | | |
| Allyl alcohol | [2-Propen-1-ol] | 107-18-8 | 1.00 | 15,000 | | | | | X | | | | | | | | |
| Allylamine | [2-Propen-1-amine] | 107-11-9 | 1.00 | 10,000 | | | | | | X | | | | | | | |
| Allyltrichlorosilane, stabilized | | 107-37-9 | | | | | ACG | APA | | | | | | | | | X |
| Aluminum (powder) | | 7429-90-5 | | | ACG | 100 | | | | | | | | | | | X |

"X" indicates security issue and subcategory as appropriate.

Defining roles for CSAT

Completing the Top Screen questions will take time and effort. The first key step is to understand who will be assigned the specific roles in the organization for submitting the CSAT. The "Preparer" will be the individual that enters data into the CSAT System. The "Submitter" is designated to submit the information to DHS. The "Authorizer" provides assurance to DHS the correct individuals are submitting information for the facility. A "Reviewer" role is also an optional role and is a read-only role. Once you have registered and designated these roles you will gain access through a submitted user ID and password and will need to send in the signed PDF form that is produced by the User Registration application. You are then ready to start developing the information needed to complete the CSAT.

First Step on identifying if CFAT applies to your facility

The first step for understanding the rule is to compare the list of chemicals you store, use, manufacture or distribute at your location to Appendix A- "DHS Chemicals of Interest". Keep in mind the chemical can be a process intermediate, a by-product, and incidental production materials.² For example, a refinery must count toward the STQ for hydrogen sulfide the quantity of hydrogen sulfide produced as a by-product of any of its various processes." The DHS did adopt many of the exemptions EPA does such as solid waste (including hazardous waste) (27.203(a)(7)) if regulated under RCRA.³ Another exemption is if the COI is under the direct control of Research and Development (R&D) and the use is occurring in the laboratory. Additional exemptions are noted within the regulation.

Developing Inventory Quantities to Report

Once the COI are identified at a single location, the next step is to accumulate an inventory. The DHS requires the facility to aggregate the total amount of COI that it possesses, including chemicals in separate processes or storage locations. The inventories calculated must include all chemicals in a vessel – any reactor, drum, tank, barrel, cylinder, vat, pipe, boiler, hose or other container. It must also include transportation containers no longer attached to their motive force. As you accumulate the inventory amounts the "Preparer" should also gather information on location, amounts of material in each location and type of container the COI is handled in. This information will be requested as a part of completing the CSAT questionnaire.

When reporting your inventories on the CSAT, if any of your COIs are in multiple categories, the inventory amount for your COI must be reported in both categories. The inventory levels for each category could very well be different based on guidance specific to the security issue.

The total inventory amount is to be reported, however additional information about the "Area of Highest Quantity" (AHQ) is required to complete the CSAT. The AHQ is the volume (in weight) of material that is located within a 170 ft. radius at any given time within a 12-month period. This amount (AHQ) is submitted into EPA's RMP*Comp software to calculate the maximum "Distance of Concern". Both of these values are requested on the CSAT Questionnaire, therefore ensure you save your information as you develop the values from RMP*Comp.



"The AHQ is the volume (in weight) of material that is located within a 170 ft. radius at any given time within a 12-month period."

² page 14 "Department of Homeland Security DHS-2006-0073 RIN 1601-AA41 6CFR Part 27 "Appendix to Chemical Facility Anti-Terrorism Standards.

³ Note: Exemption does not apply to waste covered by 40CFR261.33 "Discarded commercial chemical products, off-specification species, container residues and spill residues.

How to Handle Mixtures

Another complexity of the questionnaire is to understand criteria for mixtures. The mixture rules vary depending on the security classification of the chemical. There are several “if-then” qualifiers for mixtures. The issues are complex enough the preparer will need to reference section 6CFR Part 27.204 of the standard. A few guides are included here as follows:

- Toxics – If >1% by weight, only the amount in the mixture has to be counted towards the STQ.
- Flammables - If >1% by weight and if the chemical mixture is flammable (NFPA Rating 4) the entire volume of the mixture must be counted towards the STQ. If > 1% and mixture is not classified as a flammable material, include only the weight of the COI in the inventory calculation.
- CW/CWP - For the Security Class of “Chemical Weapons or Precursors to Chemical Weapons” (CW/CWP) there are 3 classes of these items:

Schedule 1- Those that have limited industrial use.

Schedule 2 - Those with some industrial applications

Schedule 3 - Those with broad industrial use.

If the site has any CW/CWP items, the inventory must be calculated as follows:

Any schedule 1 item is an aggregate amount (not per agent) limit of 100 grams. Schedule 2&3 items are not cumulative. However if COI is in a mixture and the amount is > minimum concentration listed, then the entire mixture must be counted toward the STQ.

In general the above notes cover many of the mixtures, however the issue is complex enough it can not be fully covered in this summary publication.

Completion of Top Screen Questions

The initial information requested on the CSAT is related to a variety of variables that provide a description of your facility. In addition, summary information on any previous Security Vulnerability Assessment (SVA) is to be provided. The remaining questions are associated with your Chemicals of Interest and the inventories. The last two categories on the CSAT Questionnaire are related to having a product that is critical to a particular sector of the economy. These are called “Mission Critical Chemicals”. You must report if you facility accounts for 20% or more of the domestic production of any one chemical that is considered critical to a particular sector (Defense Industrial Base, Electric Energy Generation, Public Health and Healthcare or Public Drinking Water). In addition you must report if you facility manufactures a chemical product that accounts for 35% or more of the domestic production to any sector of business. These are classified as “Economically Critical Chemicals”. The DHS directs you to a survey that many organizations complete titled “Annual Survey of Manufactures” (ASM).

You must report if you are responsible for > 20% or 35% of a market share on a single chemical, depending on criticality to a business sector.

Facilities which responded to the 2006 ASM should provide the response to survey question 5 "Sales, Shipments, Receipts, or Revenue".

After you submit

Once you submit your Top Screen Questionnaire to DHS it can not be further accessed. After the DHS receives a completed Top-Screen, a facility will be evaluated to determine if it presents a high level of security risk. Completing the CSAT Questionnaire does not mean a facility is automatically classified as a High Risk Facility. The DHS will place the facility in a preliminary Tier Level. All covered facilities will be placed within one of four risk-based tiers, ranging from the highest risk facilities in Tier 1 to lowest risk facilities in Tier 4 (Note: *Facilities not covered by the regulation will not be tiered*). DHS will notify the facility in writing of its initial determination on risk level.

To better define their security posture and identify their vulnerabilities, all covered facilities will be required to complete a Security Vulnerability Assessment . Facilities in Tiers 1-3 must use the CSAT SVA tool developed by DHS. Tier 4 facilities may use the CSAT SVA tool or submit an approved alternate SVA under the Alternate Security Program portion of the regulations.

Inspections and Penalties

As with other regulatory authorities DHS may enter, inspect and audit any facilities as authorized. DHS will provide a 24 hour notice on standard inspections, however they may enter any facility without notice if warranted by exigent circumstances.

If DHS determines that a facility is in violation of any of the regulatory requirements, they may take appropriate action including the issuance of an appropriate Order. Types of orders include Orders Assessing Civil Penalty and Orders to Cease Operations. Civil penalties are not to exceed \$25,000 per day per violation. The orders will include a description of the noncompliance, how to address the noncompliance, and the date by which the facility must comply with terms of the order.

Types of orders include Orders Assessing Civil Penalty and Orders to Cease Operations (up to \$25,000/day).

Additional Assistance

The Department of Homeland Security has developed several user friendly documents that give detailed assistance for understanding how to complete the CSAT. Those reference documents can be obtained easily from their web page: http://www.dhs.gov/chemical_security.

This paper is a summary of many of thee critical steps for completion of the CSAT, as well as what to expect following the submittal. **For additional assistance, contact ioMosaic's Salem Office (see front cover) or contact Judy Perry directly at Perry@ioMosaic.com.**

About the Author

Mrs. Perry worked in the Chemical and Petrochemical Industry for over 20 years. She has a B.S. in Chemical Engineering and a M.S. in Environmental Sciences. Judy has spent the majority of her career directly responsible for Process Safety and Risk Assessment issues. She has served several years as the Safety Manager at a large Chemical Manufacturing Facility, as well as many years as an Engineer in the health and safety field. She recently joined ioMosaic as a Partner and is located in St. Louis, MO.

Judy also aids facilities in addressing regulatory coverage, in particular on OSHA PSM standards and EPA's Risk Management Plan. She is currently spending time assisting Facilities with the new rule from Department of Homeland Security's Chemical Facility Anti-Terrorism Standard (CFATS). Her other fields of expertise include addressing hazards associated with dust explosions, chemical reactivity hazards, as well as leading Process Hazard Analysis.