Assessing Risk

While the risks at large petrochemical facilities is clearly higher than at small facilities, the assessment of the risk at the large facilities is conceptually easier. Guides have been developed and published (see footnotes 1 - 4) and large facilities have professionals who can devote time and resources to security and security risk management. Smaller facilities and academic settings have a more difficult task. Table 1 and this section provide a guide for these smaller companies for assessing their security risk. The security risk assessment tool (RAT) is a modification of the Laboratory RAT, the Spill RAT and the general operations RAT developed by this author. It has been found to be a helpful guide to the difficult task of risk assessment.

The person or group performing the security risk assessment should be quite familiar with the facility. The Risk Assessment Tool shown in Table 1 is a guide, it should be interpreted broadly and used in conjunction with other information about the facility. The following is a description of the line items in the Risk Assessment Tool.

Setting: Terrorists favor targets that impact large populations. Thus, a facility in the middle of a rural location is much less "attractive" as a target than a facility adjacent to several freeways, or a government building in a high population density area.

Nearby Locations:

As stated above, proximity to centers of high population density increase the attractiveness of a facility as a target. A facility located next to a major event stadium or a major petrochemical tank farm is inherently at higher risk that any other facility.

Ownership: Terrorists attempt to create fear by targeting large, well-known entities, such as major corporations. A "Momma and Poppa" firm is less likely to be a target than is a facility identified as being part of a Fortune 100 business.

Existing Security Systems:

The presence of existing security controls lowers the attractiveness of a facility as a target. A facility that has very tight perimeter control, has each perimeter access point secured and controlled, has each building access point secured and controlled, and has supplemental monitors in the form of sensors, patrols and/or video surveillance is a much harder target than is an open-campus atmosphere is which each building is readily accessible during most of the day.

Target Identification: A number of possible targets have been identified. The

presence of these targets at your facility raises its risk. As the amount of a specific target increases, the risk increases correspondingly.

Chemicals of Concern

The various major chemicals of concern, including warfare agents (and their associated CW-Identifier) include:

Mustard Gas, H or HD
Phosgene Oxime, CX
Lewisite, L
Phosgene, CG
Chlorine
Ammonia
Tabun, GA
Sarin, GB
Soman, GD
VX
Hydrogen Cyanide
Cyanogen Chloride

Biological Agents

The major biological agents include anthrax and smallpox. Other organisms are of concern and these include:

Viruses

Crimean-Congo haemorrhagic fever virus
Eastern Equine Encephalitis virus
Ebola viruses
Equine Morbillivirus
Lassa fever virus
Marburg virus
Rift Valley fever virus
South American Haemorrhagic fever viruses (Junin, Machupo, Sabia, Flexal, Guanarito)
Tick-borne encephalitis complex viruses
Variola major virus (Smallpox virus)
Venezuelan Equine Encephalitis virus
Viruses causing hantavirus pulmonary syndrome
Yellow fever virus

Bacteria

Bacillus anthracis
Brucella abortus, B. melitensis, B. suis
Burkholderia (Pseudomonas) mallei
Burkholderia (Pseudomonas) pseudomallei
Clostridium botulinum
Francisella tularensis
Yersinia pestis

Rickettsiae

Coxiella burnetii
Rickettsia prowazekii
Rickettsia rickettsii

Fungi

Coccidioides immitis

Toxins

Abrin
Aflatoxins
Botulinum toxins
Clostridium perfringens epsilon toxin
Conotoxins
Diacetoxyscirpenol
Ricin
Saxitoxin
Shigatoxin
Staphylococcal enterotoxins
Tetrodotoxin
T-2 toxin

Radiological Agents: The higher the specific activity, the longer the half-life, and the chemical form all contribute to the increased target potential of radiological materials. Even uranium compounds may be attractive for use in a "dirty bomb". While the risk of significant radiological injury from a dirty bomb is much less than the risk of injury from the explosion, the psychological impact of such an event on the affected population will be substantial. Safety professionals should educate their employees as to the real significance of such an incident.

Personnel Issues

Training: Employees must be part of the security risk-management program. This requires training. Increased training will reduce the potential for a facility to be a target.

Employee Turnover:

Long term employees are much less likely to carry out a terrorist activity than are new employees. Thus, new employees require much higher scrutiny than do existing, long term employees to achieve the same level of security.

Worst Case Outcome Impact on Facility and Surrounding Area

These two entries are the result of your development of scenarios of the consequences of a terrorist incident at your facility. Examine the worst case scenario and estimate the severity of the outcome on your facility and on the surrounding locations. Score the result appropriately.

A given facility may have other factors of concern. These should be added onto Table 1. The scoring on Table 1 is open-ended. The higher the score, the greater the risk for a terrorist incident.

TABLE 1

SECURITY RISK ASSESSMENT TOOL

LOCATION: **CONTACT:** **PHONE:**

Setting	Rural	Urban	High Density
	1	2 3 4	5
			High Profile
Large Audience Venues	0		5
Large Chemical Storage	0		5
Ownership	Private, Small Business	Public	Large Public or Government
	0	1 2 3	4 5
Existing Security Systems	High Level	Routine	None
Perimeter Access Control	0	1	5
Building Access Control	0 (Every Entrance)	1	5
Control Point Monitors	0	1	5
Off-Hour Break-in Prevention	0	1	5
Target Identification-Chemical	None	de Minimus	Present
CW Agents	0	1 2 3 4	5
Listed Chemicals of Concern	0	1 2 3 4	5
Chemicals of Extreme Toxicity	0	1 2 3 4	5
Target Recognition - Biological	None	de Minimus	Present
	0	1 2 3 4	5
Target Recognition - Radiological	0	1 2 3 4	5
Personnel Preparedness & Training	Fully Trained & Prepared	Routine	Untrained
	0	1 2 3 4	5
Personnel TurnoverRate	Low; < 1%/yr	Moderate: 1-30%/yr	High; > 30%/yr
	0	1 2 3 4	5
Worst Case Outcome Impact On Facility	Negligible	Moderate	Severe
	0	1 2 3 4	5
Worst Case Outcome Impact On Surrounding Area	Negligible	Moderate	Severe
	0	1 2 3 4	5

Initial Score: _____

RECOMMENDED ACTIONS BASED ON SCORE		
LOW	< 20	Security risk is low. Maintain awareness without excessive concern.
MODERATE	21 - 30	A moderate security risk is present. Review and upgrade existing procedures. Maintain awareness without excessive concern.
HIGH	31 - 45	Identify risk-drivers that can be reduced with reasonable controls. Work with law enforcement agencies to enhance security.
EXTREME	>45	Initiate aggressive risk-reduction activity, in conjunction with consultation with law enforcement agencies.

INSTRUCTIONS

Complete the SECURITY RAT as part of your facility securityreview. Scoring is based on a 0 - 5 scale, with 0 being "NOT APPLICABLE" or "Lowest Risk" and 5 being "Extreme" Your can assign any score to a specific box applicable, even if the score vale is not shown on the RAT. After scoring, interpret the score using the guidelines in the top of the right column. The IC can increase or decrease the assessment, based on the situation.

Major Drivers of Security Risk

Driver	Risk Reduction Method