



## SECURITY VULNERABILITY CHECKLIST FOR ACADEMIC AND SMALL CHEMICAL LABORATORY FACILITIES

Prepared by the American Chemical Society, Committee on Chemical Safety, Safe Practices Subcommittee

### Introduction

Terrorism and vandalism represent a significant risk to all facilities that use or store hazardous chemicals. It is important to recognize vulnerabilities of your facility and do whatever is necessary to reduce or eliminate risk.

This checklist is designed to help smaller chemical facilities, particularly laboratories, with problems they might face. It may also be suitable for larger chemical facilities. Regardless of size or the nature of your facility's operations, some headings may not apply. *The objective is to help you identify potential problem areas and provide a guideline for improvement.*

### General Considerations

A complete Security Vulnerability Analysis (SVA) includes a review of information about the facility including site security, the surrounding community, neighboring facilities, existing site facilities, employees, visitors/contractors, the chemicals used at the site, and how chemicals are stored & used. Data should be maintained on all of these issues, with periodic review to see if changes result which might affect site security. The following series of tables asks you to gauge the need for additional preparedness on a scale of 1 to 3. If you feel you are completely prepared in the particular area of concern, check "1". If you are completely unprepared, check 3. Check "NA" if the point does not apply.

You can make the checklist more useful by making notes.

<b>ATTRACTIVENESS AS A POTENTIAL TARGET</b>	<b>N/A</b>	<b>1</b> <i>Prepared</i>	<b>2</b>	<b>3</b> <i>Not prepared</i>
<b>General Awareness Questions</b>				
1. Are there specific hazards present at the facility in sufficient quantity to present an attractive target for terrorists or vandals? Note specific hazards here:				
2. Are you prepared for the potential consequences of an attack?				
3. Have you identified weaknesses in how facility assets are protected? What are they?				
4. Is information protected from the public regarding targetability (nature of chemicals present/ quantities)?				
5. Are storage/transfer areas hidden from off site view?				
6. Have you done what is practical to limit attractiveness as a potential target?				
7. Is there a viable plan for Continuity of Operations should there be a major fire, explosion or power outage?				
<b>HAZARDOUS MATERIALS</b>				
<b>Storage Locations</b>				
1. There is appropriate access for emergency responders to locations where hazardous materials are stored				
2. All containers are properly labeled and areas illuminated				
3. Emergency response personnel are aware of storage locations for different hazard classes of chemicals				
4. Storage areas are hidden from off-site visibility				
<b>Material Handling Systems</b>				
5. There are remote shutoffs for material systems in the event of an emergency				
<b>Waste Storage &amp; Processing Systems</b>				
6. Waste containers and systems are properly labeled and secured				
7. Waste storage and/or processing systems are hidden from visibility from outside the facility				
<b>Containers</b>				
8. Spill containment is provided for all containers				
9. Spill containment adequately addresses volumes stored				
10. Containers are routinely inspected for integrity				

<b>INFRASTRUCTION</b>	<b>N/A</b>	<b>1</b> <i>Prepared</i>	<b>2</b>	<b>3</b> <i>Not prepared</i>
<b>Power Lines &amp; Equipment</b>				
1. Power lines are not accessible as they enter the facility				
2. Power lines cannot be disconnected from outside the facility				
3. Power lines are elevated enough to prevent easy access				
4. Power lines are not obvious to outside observers				
<b>Utilities</b>				
5. Utilities are secured and mapped				
6. Piping is not visible from off-site				
7. Piping is adequately secured as it enters the facility				
<b>All Entrances/Exits</b>				
8. There are security cameras, guards, and/or motion detectors at entrances & exits				
9. Critical areas have limited access/keyed entrance				
10. There are adequate preventive maintenance programs on security systems				
11. There is emergency lighting at all entrances & exits				
<b>Production Equipment</b>				
12. Loss of power to production equipment does not represent a fire/explosion or release risk				
13. There is appropriate fire protection in production areas				
14. There are automatic shut-offs on equipment where appropriate				
<b>Storage tanks/vessels/pits</b>				
15. Appropriate secondary containment for storage tanks/vessels & pits is provided				
16. There are overflow protection/notification procedures				
<b>Process Control Systems</b>				
17. There is backup power to process control systems				
18. Access to process controls is limited				
<b>Telephone &amp; Data Lines</b>				
19. There are backup communications for reaching emergency response personnel				
20. Backup systems include wireless communication as well as land line communication				
21. There is a clear emergency protocol for whom to notify				
22. All telephones are properly labeled with appropriate emergency notification procedures				

<b>INFRASTRUCTION CONTINUED</b>	<b>N/A</b>	<b>1</b> <i>Prepared</i>	<b>2</b>	<b>3</b> <i>Not prepared</i>
<b>Water Supply</b>				
23. There is a system in place to verify water quality				
24. All access points to water supply are secured				
<b>Backup Power Systems</b>				
25. Multiple types of backup power are available				
26. Backup power systems can be easily implemented (How)				
27. There is an automatic transfer if needed				
28. If a backup generator is used, it is easily started, adequate fuel is available, and it will run sufficiently long based on required operations				
29. Critical systems are covered by backup power				
30. Backup emergency systems includes lighting, sprinklers, ventilation, communication and alarms				
<b>Vehicles</b>				
31. Vehicles are clearly secured and access limited				
32. There is rail, tanker or barge access				
33. Vehicle keys are kept in a safe but accessible location				
34. Driver IDs are required, and checked				
<b>Surrounding Properties</b>				
35. Access points from surrounding properties are secured				
36. An emergency situation at an adjacent property would have little or no affect at the site				
37. There is an adequate apparent level of security at surrounding sites				
38. There are few concerns in the area that may extend beyond immediate surroundings				
<b>Sprinkler Systems</b>				
39. The sprinkler system alarmed and tested regularly				
40. The local fire department knows where access and cutoffs are located				
41. There are no key areas beyond the reach of the sprinkler system				

<b>SECURITY SYSTEMS</b>	<b>N/A</b>	<b>1</b> <i>Prepared</i>	<b>2</b>	<b>3</b> <i>Not prepared</i>
<b>Security cameras</b>				
1. Cameras secured, covered and protected				
2. Cameras are inconspicuous				
3. Cameras are deployed at the site perimeter and in critical areas such as chemical storage				
4. There is a maintenance system for cameras				
5. Tapes are checked and reviewed regularly				
6. There is a program for tape (or electronic) storage, retention and review				
7. All key locations are covered				
8. Cameras provide overlapping views				
<b>Intrusion Detection</b>				
9. Motion detectors or other intrusion detection devices are used at the site perimeter				
10. They are monitored regularly				
11. There is adequate protection for intrusion detection devices				
<b>Employee / student identification</b>				
12. Employees and/or students all have photo identification, and are required to wear them				
13. Photo ID is color coded for access to specific areas				
14. There are no employees exempt (by practice or otherwise) from wearing identification				
15. There is no risk of internal threats from employees, unions, or contractors				
16. Pre-employment screening is thorough and appropriate				
17. There is a plan to deal with internal personnel who engage in vandalism or terrorism				
18. There is a good process to protect key personnel who might be a target (and their families)				
<b>Visitor Identification/Access</b>				
19. Visitors are required to be escorted throughout the facility				
20. Visitors are processed at both entrance & exit				
21. Identification is required for visitors				
22. Visitors wear identification that clearly identifies them as visitors when in the facility				
23. Employees are trained to question visitors without visible identification				

<b>SECURITY SYSTEMS CONTINUED</b>	<b>N/A</b>	<b>1</b> <i>Prepared</i>	<b>2</b>	<b>3</b> <i>Not prepared</i>
<b>Perimeter Fencing</b>				
24. There is a perimeter fence				
25. It is secure				
26. It includes barbed wire or razor wire as appropriate				
27. It is inspected				
28. It is patrolled				
29. There are outside and inside perimeters				
<b>Clear Zones</b>				
30. Open spaces beyond and inside fencing or security zones may provide advance warning of intrusion. There are open spaces to provide this protection				
31. Open spaces are of sufficient size to provide advance warning of intrusion				
<b>Lighting</b>				
32. Security cameras work effectively in available light				
33. All exterior areas are bright and well lit				
34. Perimeter and critical areas are well lit				
<b>Maintenance Areas</b>				
35. Windows & doors are secured and lockable				
36. If outside visibility is not necessary, opaque glass is used				
<b>Public/Private Roads</b>				
37. There are unobstructed views of all approach roads				
38. There is a staging area for waiting vehicles				
39. There is an alternate entry/exit roadway to the facility				
<b>Rail Lines / Sidings</b>				
40. There are no empty, idled rail cars routinely awaiting pickup				
41. The railroad has appropriate access to the site				
42. There is adequate security on rail lines running through the facility				

<b>RESPONSE SYSTEMS</b>	<b>N/A</b>	<b>1</b> <i>Prepared</i>	<b>2</b>	<b>3</b> <i>Not prepared</i>
<b>Personnel Responsibilities and Training</b>				
1. Personnel who have specific responsibilities for safety and security clearly identified				
2. They have been appropriately trained to handle their respective responsibilities in the event of an emergency				
3. Drills are conducted, and there is followup to drills				
4. Knowledgeable site personnel have developed relationships with off-site emergency response personnel				
<b>Response Equipment / Storage Locations</b>				
5. There is a comprehensive list of all available response equipment, including locations				
6. There is a mechanism to make sure adequate supplies and equipment are maintained				
<b>Personnel Protection Equipment and Supplies</b>				
7. Appropriate PPE is available for 1) emergency responders and 2) other employees and visitors				
8. Access to PPE is readily available				
9. PPE storage locations are clearly delineated				
10. Accurate inventories are maintained				
11. If self-contained breathing apparatus is available, employees are trained in its use				
<b>Arrangements with Outside Agencies</b>				
12. Prior arrangements are in place for response to an incident at the facility by outside agencies, contractors and vendors				
13. Outside responders are adequately informed as to their specific responsibilities				
14. The facility personnel who are authorized to arrange for outside response clearly identified				
<b>Automatic Alarms / Monitoring</b>				
15. Automatic monitoring systems are in place				
16. There is automatic electronic notification for smoke detectors, heat sensors, intruders and low sprinkler pressure				
17. It is clearly known who should be notified in the event an alarm goes off, and how				
18. There are backup systems				
19. Monitoring systems are tested periodically				

<b>RESPONSE SYSTEMS CONTINUED</b>	<b>N/A</b>	<b>1</b> <i>Prepared</i>	<b>2</b>	<b>3</b> <i>Not prepared</i>
<b>Emergency Communication Systems &amp; Backup</b>				
20. There is a list of emergency contacts readily available, and is it updated regularly				
21. Communication systems are available that will work in the event of a power outage				
22. Backup systems in place are known and identified				
23. There is a walkie-talkie communication system				
24. Backup cellular phone service is available				
<b>EVACUATION PROCEDURES &amp; ALTERNATES</b>				
<b>Evacuations</b>				
1. Evacuation procedures are in place in the event of an attack				
2. People are designated as department monitors for evacuation				
3. Alternates have been established				
4. Routes are clearly posted				
5. There are set locations for shelter-in-place if appropriate				
<b>WORST CASE SCENARIOS / DRILLS</b>				
<b>A worst case scenario has been completed and the level of preparedness evaluated in the event of :</b>				
1. A terrorist attack				
2. Employee or student violence or sabotage				
3. Vandalism				
4. Violent weather, seismic disturbance, climatic condition				
5. Flooding				
6. Power failure				
7. Fire				
8. A worst case scenario has been written and evaluated				