

# The Synergy Between Safety and Security: Which is more important?

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# Safety and Security

Some definitions first:

- Safety (güvenlik) is the protection of people from potentially harmful materials.
- Security (emniyet) is the protection of materials from people who are trying to acquire it illegally.



# Safety vs. Security

Key distinction between safety and security:

- Preventive safety analysis aims at identifying vulnerabilities in the design and control philosophy

*Safety Risk = Likelihood of accident × Consequence*

- In contrast, security is the degree of protection against danger, damage, loss, and crime. For a high-risk chemical/nuclear facility many security measures will relate to physical protection, safeguarding an asset from unauthorized access and acts of malevolence

*Security Risk = Threat × Vulnerability × Consequence*



# Synergy Between Safety and Security

- **Shared** principal **objective** of “*the protection of people, society, and the environment from the effects of harmful materials*”
- Shared Attributes:
  - Recognized values
  - Leadership needed for success
  - Accountability
  - Personal dedication and accountability
  - Questioning attitudes, but rigorous approaches to actions
  - Learning and experience driven
  - Best when fully integrated into the system
- All require a coordinated response



# Evolution of Security Culture

## Often Begins with Safety Culture

Individual commitment to safety

- Personal accountability
- Questioning attitude
- Safety communication

Management commitment to safety

- Leadership accountability
- Decision making
- Respectful work environment

Management systems

- Continuous learning
- Problem identification and resolution
- Environment for raising concerns
- Work processes



# Safety and Security Concerns

Safety AND  
Security



- Health and safety of people and environment
- Community relationships
- Reduce chance of release
- Avoid loss and damage to facilities and equipment
- Injure or kill people in nearby areas
- Eliminate jobs and economic assets

Unique to  
Security



- Prevent criminals and terrorists from getting dangerous materials & information
  - Wide variety of materials
  - Wide variety of motivations for actions
- A deliberate attack on a chemical/nuclear facility could release a large amount of hazardous material



# Plant Security

Three main components:

- Physical Security
- Cyber Security
- Process Security (for chemical and nuclear processing plants)
  - Difficult to do
  - Need good understanding of process operations





# Process Safety vs. Plant Security

- Although process safety management (PSM) programs typically do not explicitly address malicious acts such as theft or diversion of hazardous materials or sabotage, components of PSM can be utilized to determine requirements for security
- Security programs depend upon Security Vulnerability Assessments (SVAs) as a method used to identify and address potential malicious acts
- Hazards Evaluations, which are key components of process safety management, can be used as input to SVAs





# SVAs and Hazards Evaluations

- Both SVAs and Hazards Evaluations
  - feature a structured and systematic brain-storming approach to identifying issues
  - attempt to identify causes, contributors, and the consequences of certain types of events
  - use many of the same personnel on the assessment teams (i.e., operations, health and safety)
- Hazards evaluations provide a methodical approach to evaluating process conditions and hazards, especially under abnormal/adverse conditions



# Hazards Evaluation

- Hazards evaluations are routinely performed in the chemical/nuclear industry
- Hazards evaluations are designed to answer the following questions:
  - How likely is a release?
  - How harmful would it be?
- These evaluations can easily be incorporated into a vulnerability assessment
  - Augments the assessment of a given facility
  - Helps in evaluating whether a facility/material might be considered an attractive target



# Process Hazards Evaluation (PHA)

- PHAs may be good place to begin a vulnerability assessment for processes of security concern.
- PHAs are designed to highlight areas of potential operational vulnerability, which upon further study may also be a potential target of an adversary.



# Security Measures



Potential consequence severity will determine to what extent facilities need to be secured

- Small-scale research laboratories
  - Many different materials used in small amounts
- Large-scale manufacturing plants
  - Limited types of materials used in large amounts



# What is Safety Analysis?

When we talk about safety, we are talking about more than simply one area related to “nuclear safety”

- Criticality Safety
- Radiation Safety (dose to the worker)
- Facility Safety (dose to the site and public)



# Potential **Conflicts** between Safety and Security: Information

## Safety

- Label everything so people can recognize hazardous materials



## Security

- Labels help identify targets for theft or attack



# Potential **Conflicts** between Safety and Security: Information

## Safety

- Let community and especially emergency responders know what dangers are there

## Security

- Sharing locations of materials can publicize targets for theft or attack





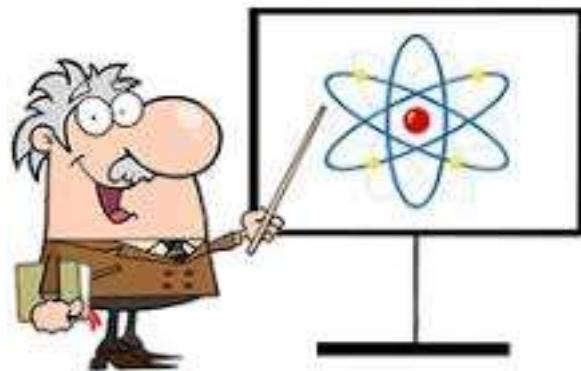
# Potential **Conflicts** between Safety and Security: Information

## Safety

- Share knowledge about hazards so people know to be alert

## Security

- Sharing knowledge of hazards could inspire harmful behavior



# Potential **Conflicts** between Safety and Security: Facility Exits

Locking exit doors is secure, but not safe

- For **safety**, people need to be able to leave the facility quickly and by many routes
- For **security**, you want to control exits as well as entrances so materials (or equipment) are not taken

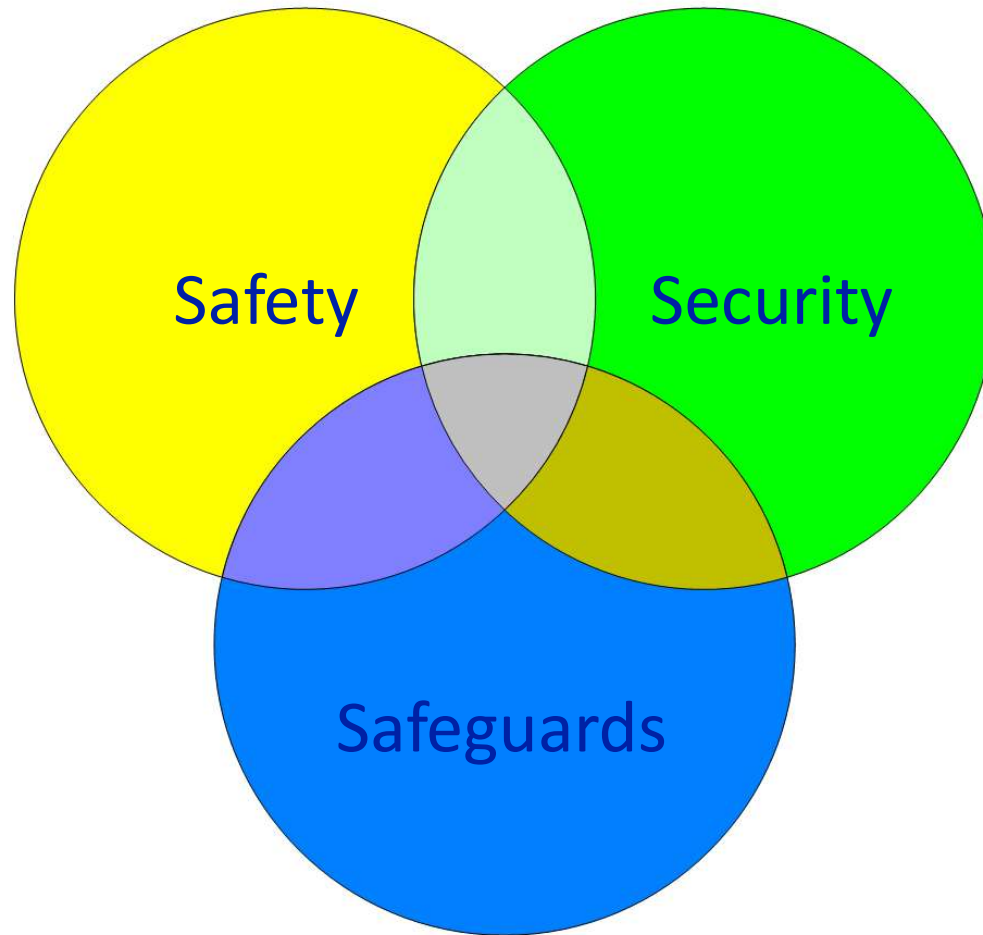


# Resolution of Conflicts between Safety and Security

- Important to have strong communications between the various stakeholders at a facility in regards to safety and security
- Including security, operations, health and safety, management stakeholders on both “material” safety and “material” security evaluation teams will promote better understanding of each’s goals and requirements



# Summary



# Summary

- Security and Safety culture must resonate throughout an organization
- Responsibility lies with the individual
- Technical staff vital to developing good security/safety culture
- Lead by example
- Adoption, diligence, and communication are keys to success



**So, which one is more important?**



**So, which one is more important?**

**IT DEPENDS**

**ON WHO YOU ASK.....**





