INFCIRC/225/Rev 5 Implementation at a Facility Level: Common Issues and Best Practices

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Why INFCIRC/225 facility-level evaluations?

- INFCIRC/225 is a recommendations document for nuclear physical protection – its significance is difficult to overstate!!!

In addition, INFCIRC/225/Rev. 5 is used

- in domestic regulations by some countries
- as a physical protection standard in nuclear cooperation agreements
- by IAEA in Project and Supply Agreements and during IPPAS missions
- as an export licensing standard - e.g., U.S. NRC regulations state

  Physical security measures in recipient countries must provide protection at least comparable to the recommendations in the current version of IAEA publication … INFCIRC/225/Revision 5 …, which is incorporated by reference in [the NRC regulations].

Bottom line: INFCIRC/225 evaluations of facility's physical protection measures may need to occur in certain cases

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Challenges of INFCIRC/225 evaluations

- Facility-specific considerations are important
  - Cultural and historical context
  - Facility operations and topography, nuclear material inventories, threat environment, etc.
- There is more than one way for a physical protection system to achieve its objective
  - Security strengths in one area may compensate for less strong security features in other areas
- General nature of recommendations in some cases

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INFCIRC/225 evaluations: general points

- Key question: do physical protection measures meet the intent of INFCIRC/225/Rev. 5?
- Physical protection fundamentals always apply
  - Access authorization & control - detection/assessment - delay - response
  - Defense-in-depth
- But is the system effective?
  - Use DBT and performance information
  - Consider an intelligent and disciplined adversary if DBT info not available
- Interpretation of INFCIRC/225 is an art and a science
  - Evaluators should have deep practical understanding of physical protection fundamentals and experience in INFCIRC/225 interpretation
  - The operator's input is important
  - There are common issues and best practices

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Facility security boundaries

- Q: Does the facility's definition of security boundaries align with definitions in INFCIRC/225?

INFCIRC/225 recommendations

***Cat II*:**

- **Limited Access Area (LAA)**
- **Protected Area (PA)**

***Cat I: Cat II* +**

- **Inner Area (IA)**
- **Strong room/ enclosure**

***NPP: Cat II* +**

- **Vital area**

U.S.NRC licensees (examples)

Owner Controlled Area (OCA) = LAA
SOCA - Security OCA – facilitates response strategy
Protected Area = PA
Nuclear Island/ local security area – facilitates response strategy
Controlled Access Area = IA (for some materials)
Material Access Area = IA
Vault = Strong Room
Vital area = vital area

- Best practice: identify security boundary equivalencies
  - Ensure the number of boundaries is consistent with INFCIRC/225 for the nuclear material and facility category
  - Ensure that each selected boundary provides for effective detection, assessment, delay, and access control

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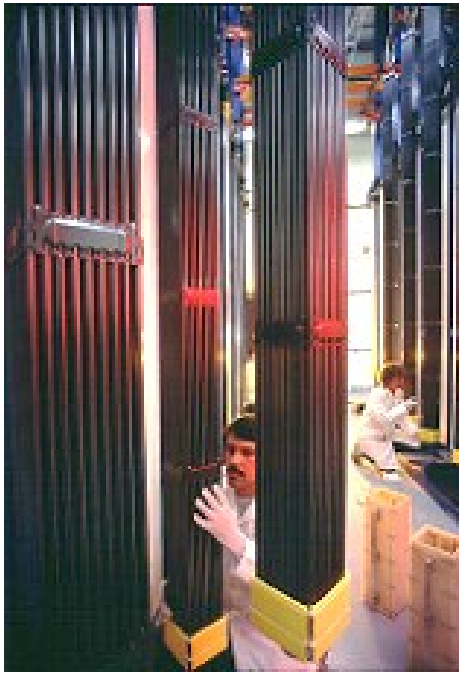
Entry and exit searches

- Q: What does “subject to search” mean?



- Best practice
  - Consider credible malicious activity scenarios
  - Conduct 100% entry search at high-risk Category I facilities and NPPs
  - Exit search programs should be more robust for materials that are attractive and that can be removed covertly
  - Random searches or alternative measures could be acceptable in certain cases
  - Conduct and document analysis, create procedures

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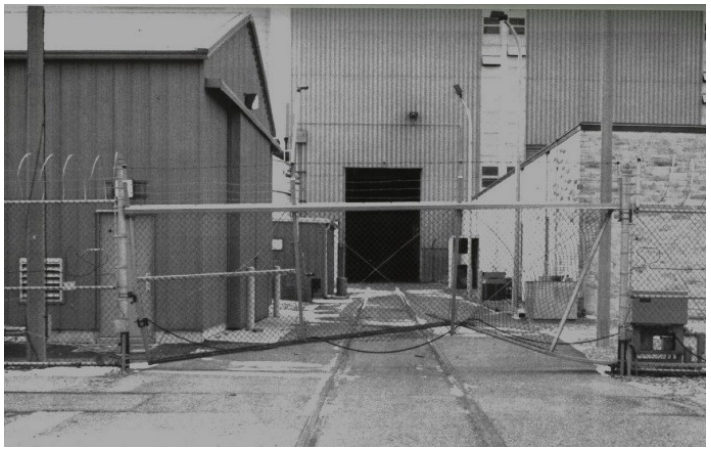
Vehicle barriers systems (VBS)

- Q: What is an effective VBS?

EXAMPLE: 1993 vehicle intrusion at a US NPP – a chain-link fence is NOT an effective VBS



Example of an effective VBS

- Best practice
  - Install VBS to eliminate/control credible pathways
  - Ensure VBS is capable of stopping a DBT vehicle
  - Consider vehicle bomb attacks if appropriate

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Secure communications

- Q: What does “secure communications” mean?

- Best practice
  - Not every situation requires the use of encrypted communications
  - Reliability and effectiveness of communications are critical – system redundancy and diversity are the key
  - Use of authentication protocols and code words can increase communications security

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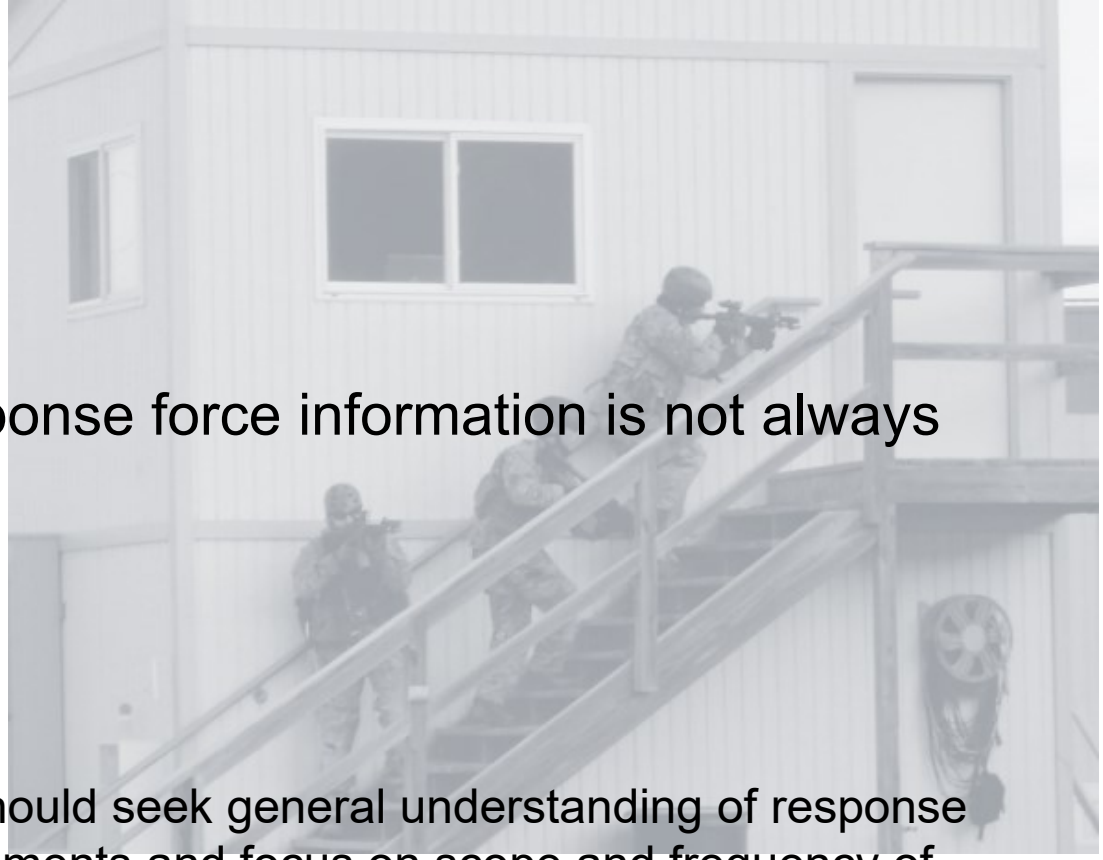
Response force



- Issue: Complete response force information is not always available

- Best practice
  - Evaluators should seek general understanding of response force arrangements and focus on scope and frequency of performance testing and site familiarization training
    - » Conduct periodic exercises to test response timelines
    - » Conduct force-on-force exercises with simulated combat at critical facilities
  - Ensure frequent communication checks between CAS and off-site response forces

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Conclusions

- INFCIRC/225 is a valuable evaluation tool
- INFCIRC/225 evaluations should seek to determine whether physical protection measures meet the intent of the recommendations – physical protection fundamentals always apply
- Effective interpretation of INFCIRC/225 is important
- Reliable protection of nuclear materials and facilities is the goal