EM. PHASES

IAEA Post Graduate Educational Course in Radiation Protection and Safety of Radiation Sources

Intervention for Chronic and Emergency Exposure Situations

Assessment and Response during Radiological Emergency

Emergency Management

Lecture

Introduction

- Emergency management means the overall strategic management of the emergency response
- The objective of this lesson is to present concepts of management in an emergency and emergency management functions

Module X.5 - Assessment and Response during Radiological Emergency 2

Content

- Generic response organisation
- Emergency management role
- Emergency Manager's tasks
- Emergency phase actions
- Post-emergency phase actions
- Non-radiological challenges
- Summary

Module X.5 - Assessment and Response during Radiological Emergency 3

Objectives of Emergency Response

- reduce risk or mitigate the consequences of the accident at its source
- prevent deterministic health effects (e.g., early deaths and injuries)
- reduce the risk of stochastic health effects (e.g., cancer and severe hereditary effects) as much as reasonable achievable

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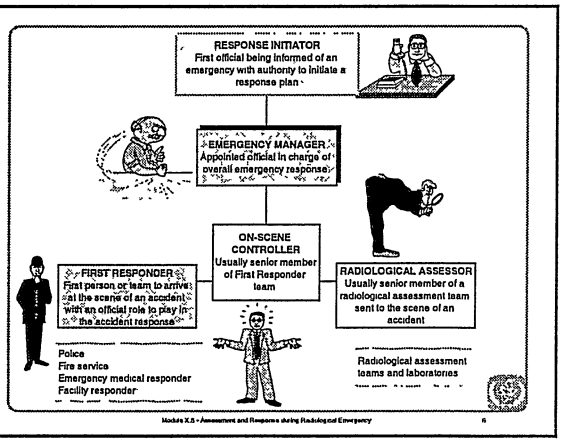
Important Aspects

- The most important aspects of managing a radiological emergency:
  - The ability to promptly and adequately determine actions to protect members of the public and emergency workers
  - The ability to take those actions efficiently

Module X.5 - Assessment and Response during Radiological Emergency 5



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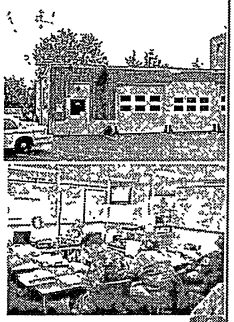
Emergency Manager

- Emergency Manager is in charge of the overall strategic emergency management



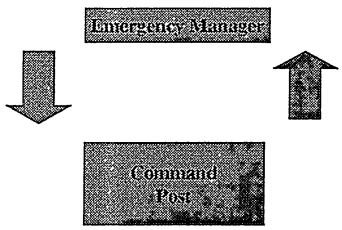
Role and Functions of the Emergency Manager

- Who is designated as Emergency Manager?
  - Document in the response plan
- Knowledge/skills required
- Operational location



Emergency Manager's Tasks

- Interface with accident scene

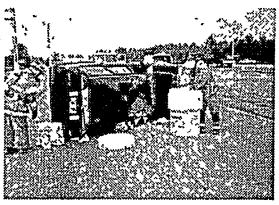


Radiological and Non-radiological Hazards

- Be aware
  - Radiation may be just one of the hazards in an accident - most cases non-radiological hazards (e.g., fire, toxic fumes) will dominate
  - Radiological assessors will focus on the radiological aspects of the accident

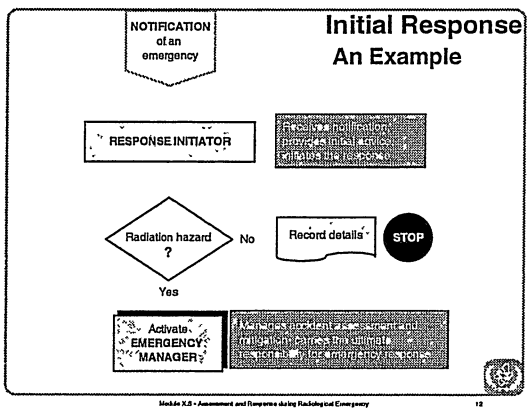
Response Phases

- Emergency Phase
- Post-Emergency Phase

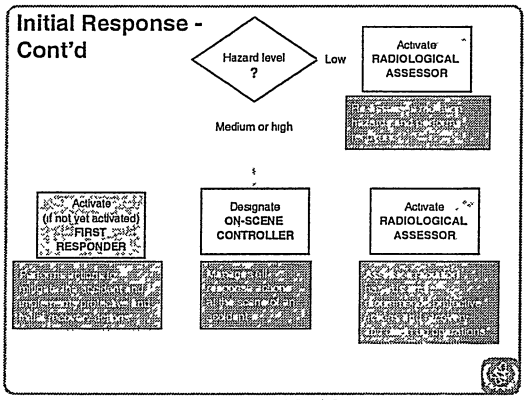




Initial Response An Example



Initial Response - Cont'd

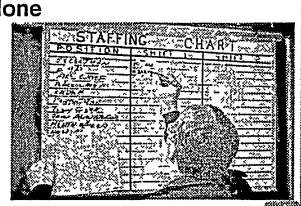


Emergency Phase

- Obtain briefing from Response Initiator or staff on-scene; alert/activate other responders
  - Initial Information
  - Accident Registry Form
  - Alerted Emergency Responders Form

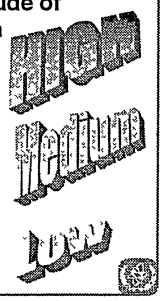
Emergency Phase Actions

- Maintain a Log
  - What was done
  - When was it done
  - Notifications
  - Decisions
- Maintain status boards/displays



Emergency Phase Actions

- Assess situation and magnitude of potential radiological problem
  - Examples:
    - ▲ Calibration Sources - Low
    - ▲ Well Logging - Medium
    - ▲ Teletherapy - High
    - ▲ Moisture Detectors - ?
    - ▲ Industrial Radiography - ?



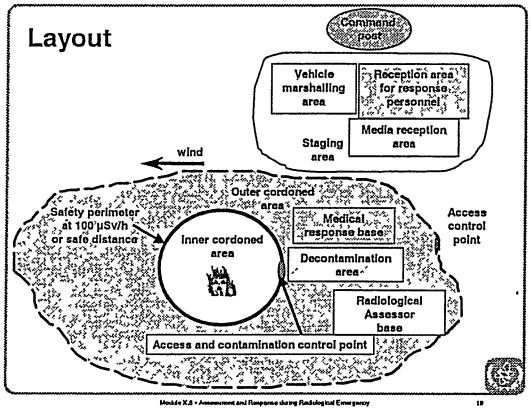
Emergency Phase Actions

- Identify type of emergency and evaluate necessary main actions
- Ensure all personal protection guides and actions are implemented in accordance with Radiological Assessor recommendations

Emergency Phase Actions
Additional Considerations

- Depending on the circumstances of the accident various command and staging facilities will need to be established at or near the scene
- Examples:
  - Command post
  - Reception area for response personnel
  - Vehicle marshalling area
  - Media reception area

Layout



Emergency Radiological Monitoring

- To obtain the data or information required in an emergency
  - Different type of measurements can be performed
  - Different physical quantities can be measured
- The intended uses of the results should guide the choice of monitoring priorities

Emergency Phase Actions

- Ensure on-scene personnel are aware of media response, make media arrangements; appoint press liaison, if necessary



Additional Considerations

- Public Information
- Media Interest/Response/Relations



Post Emergency Phase

- Obtain dose assessment from Radiological Assessor, ensure medical follow-up of persons sent to hospital(s), inform media/public, response organizations that emergency is under control
- Ensure all actions, decisions, recommendations are documented, save records

Post - Emergency Phase Actions

Additional Considerations

DIRECT AND COORDINATE:

- Clean-up
- Waste
- Demobilization
- Radiological Data/Assessment
- Medical Follow up
- Media/public



Post - Emergency Phase Actions
Additional Considerations

- Documentation
- Importance



Post - Emergency Phase Actions

- Reconstruct the accident, evaluate response, develop lessons learned, update response plan, prepare final report
- Report Contents (minimum)
  - Summary
  - Description of the Accident
  - Response to the Accident
  - Human Consequences
  - Environmental Consequences
  - Dose Assessment
  - Conclusions and Recommendations

Summary

- This lesson provided
  - Generic response organization
  - Initial response concepts
  - Emergency management functions
  - Responsibilities/tasks
- Remember: saving lives, treating injuries and fire fighting hazards are the priorities

Where to Get More Information

- The role and tasks of the Emergency Manager are described in more details in the

  INTERNATIONAL ATOMIC ENERGY AGENCY

  Generic Procedures for Assessment and Response during a Radiological Emergency

  IAEA-TECDOC-1162, Vienna (2000)