NOTES & REFERENCES

Module 12

EMERGENCY PROCEDURES

OBJECTIVES:

After completing this module you will be able to:

12.1 List five types of emergencies to which the SS must be prepared to respond. ⇔ *Page 1*

CRO 12.2 Name and give the basic objectives of two types of emergency response procedures used in the event of a reactor accident resulting in an environmental radioactive release. ⇔ *Page 2*

12.3 Briefly describe the nuclear emergency response roles of the following organizations, including their interactions with other response organizations:

a) Utility ⇔ *Page 3*

b) Provincial Government ⇔ *Page 3*

c) Municipal Government ⇔ *Page 4*

d) Federal Government. ⇔ *Page 5*

POSSIBLE EMERGENCY SCENARIOS

The SS must be prepared to deal with various types of emergencies, including the following. This module will deal exclusively with response to a nuclear emergency. However, any of the other emergencies listed below could occur in combination with, or evolve into a nuclear emergency with off-site consequences. ⇔ *Obj. 12.1*

1. An incident involving a significant release of radioactivity to the environment. Internal procedures normally reference such an incident as a ***radiation emergency,*** whereas civil response organizations tend to use the term ***nuclear emergency.***

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Emergency response
rocedures typically refer to
uch emergencies as site,
tation, or unit ***alerts***
Response typically involves
general mobilization of shift
taff.

2. On-site emergency*) involving hazards to plant and/or personnel, such as a fire, explosion, flood, toxic or asphyxiating gas release, tritium spill in an accessible area, or steam line break.

3. First aid or rescue incident, potentially involving contaminated casualties

4. Environmental spill

5. Externally initiated events, such as aircraft crash, breach of security, act of terrorism, or earthquake

Nuclear Emergency Procedures

The basic premise of nuclear emergency procedures is that process system failures can result in significant releases of radioactivity. Although the probability of large acute releases is low, quality emergency plans could mitigate their impact on worker, public and environmental safety.

Obj. 12.2 ⇔ The following two types of emergency procedures are used by a NPP in the event of a reactor accident involving an environmental release:

1. ***Abnormal Incidents Manual (AIM)***
2. ***Radiation Emergency Procedure***

The basic objectives of these emergency procedures are as follows:

The AIM procedures are used to regain control of the affected systems and to stabilize the unit in a safe state.

The radiation emergency response procedures are used to:

- protect personnel who are on-site at the time of the accident, including those responding to the emergency
- mitigate and manage the consequences of radioactive releases to public health and property, and to the environment.
- communicate accurate and timely information to Federal, Provincial, and Municipal response organizations and regulatory bodies, and to the general public via the media.

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Utility And Government Response To Nuclear Emergency

In the event of a nuclear emergency, various organizations must be activated to implement their plans and procedures using designated facilities and equipment. The affected Utility, the Provincial Government, the Municipal Government, and the Federal Government all have roles to play. A brief synopsis of the response activities in each jurisdiction is provided below.

Utility Response To Radiation Emergency

⇔ *Obj. 12.3 a)*

- Declare a radiation emergency and notify off-site civil authorities
- Recommend public protective actions, if required before the Provincial Operations Center is mobilized
- Mobilize resources to execute *abnormal incident* and *radiation emergency* procedures, as described above
- Conduct on-site and off-site radiological surveys
- As required, provide personnel to monitor and decontaminate evacuees at the Municipal Evacuee Centers, and to administer radiation protection for police, fire and ambulance workers.
- Issue hourly updates on plant status, emergency response, and radiological conditions
- Mobilize Site and Corporate management response groups to monitor, direct, and report on emergency response activities, to mobilize required Corporate resources, and to interface with Regulatory authorities and external response organizations.
- At the Joint Information Center, together with Government personnel, inform the public via the media of the status of the emergency response and of the significance of the incident to public health and safety.

Provincial Government Response To Nuclear Emergency

⇔ *Obj. 12.3 b)*

The Provincial Government has the lead role in protecting the public within its jurisdiction in the event of a nuclear emergency. The Province responds according to its Provincial Nuclear Emergency Plan. The Province's role includes the following activities:

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Phase I Response (typically first 48 hours after initiating event)

- Declare a Nuclear Emergency (thus invoking the provisions of the Emergency Plans Act)
- Mobilize expertise from Provincial Ministries and Universities to assess the potential impact on public safety, and to map out a strategy to minimize that impact.
- Verify Utility calculation of projected public dose
- Taking into consideration weather forecast and conditions at the accident site, assess the potential benefits of venting Containment before the vacuum building is spent.
- Issue directives to municipalities to implement public protective actions—eg, banning food and water consumption, sheltering, evacuation and distribution of KI pills.
- Manage the Joint Information Center and inform the public via the media.

Phase II Response (longer term)

- Collect and analyze food and water samples from affected area
- Revoke protective action directives as conditions permit
- Rehabilitate evacuated area as required, and repatriate evacuees when safe

Obj. 12.3 c) ⇔

Municipal Government Response to Nuclear Emergency

The Municipality responds according to its Municipal Nuclear Emergency Plan. Its role includes the following activities:

- Public alerting
- Traffic control in and around the primary zone
- Implementation of public protective actions as described above
- If evacuation of the public is implemented, set up evacuee centers, and provide essential services to evacuees—eg, food, clothing, shelter, and medication.

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Federal Government Response to Nuclear Emergency

⇔ *Obj. 12.3 d)*

The Federal Government responds according to the Federal Nuclear Emergency Plan. Its role includes the following activities:

- The AECB (the Federal regulator) participates in the Site Management group, providing input to response strategy, and giving approvals as required
- If radioactive emissions cross Provincial or National borders, then National Health and Welfare and other Federal agencies disseminate information to the affected jurisdictions. They may also recommend response actions to the affected jurisdictions.
- The Federal Government administers any damage claims arising out of the emergency, under the provisions of the *Nuclear Liability Act*.

ASSIGNMENT

1. Carefully prepare detailed answers to the Module 12 learning objectives.
2. Discuss the roles of the AIM and radiation emergency response procedures in meeting the nuclear safety key effectiveness areas of Module 2.
3. State the Provincial statute requiring an emergency response plan at your station.
4. List five major response activities prescribed in your station's radiation emergency response plan.

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