

ENVIRONMENTAL EMERGENCIES AND EMERGENCY PREPAREDNESS

Facts

- NCP (National Contingency Plan) of 1968 is the federal government's blueprint for responding to both oil spills and hazardous substance releases.
- EPCRA (Emergency Planning and Community Right-to-Know Act, Title III) of SARA is for states and local communities to develop plans for responding to hazardous materials emergencies.
- OSHA (a.k.a., HAZWOPER) of 1990 mandates emergency response and preparedness programs for industry, including required interface activities with offsite agencies and prompt notification to them of an emergency situation. It also requires health and safety training for all individuals involved with emergency response and investigation and remediation of hazardous waste sites and spills.
- **The planning process is the key to successful emergency preparedness.**
- One of the most important outcomes of the planning process is the preparation of an Emergency Response Plan.

Planning process:

- Initially focuses on analysis of the situation
- Then emphasis switches toward the preparation of the actual plan document

An effective emergency response plan should include:

- Pre-emergency planning and offsite coordination
 - Identification of roles and responsibilities of assigned personnel
 - Training programs
 - Communication structure
 - Emergency recognition and prevention
 - Identification of safe distances
 - Places of refuge and evacuation routes
 - Decontamination procedures
 - Emergency medical treatment and first-aid training
 - Locations, emergency alerting and response procedures
 - Identification of personal protective equipment (PPE) and emergency equipment
- **EOC is where coordination of information and resources takes place.**
 - **The most important pieces of PPE in both fire and toxic release events are the self-contained breathing apparatus (SCBA).**

Four levels of PPE ensembles:

- Level A
 - Used when contaminants are present that require the highest possible degree of both respiratory and skin protection
 - Includes use of SCBA and totally encapsulating chemical protective suit (TECP)
- Level B
 - Used when contaminants are present that require the same degree of respiratory protection as Level A, but require less skin protection
 - Includes use of a splash suit (not encapsulating or gas tight)
- Level C
 - Involves the same degree of skin protection as Level B, but a lesser degree of respiratory protection
 - Includes use of air-purifying respirators
- Level D
 - Provides protection only against “normal” workplace hazards and is not designed to protect against chemical hazards.
 - Includes use of safety glasses, hard hats, steel-toe boots, and leather work gloves

Firefighting:

- Fire pumper trucks are the most important units
- Dry chemical units carrying large quantities of dry extinguishing material like potassium bicarbonate (purple K) may be necessary where water cannot be used as an extinguishing agent

Meteorological conditions:

- Greatly affect migration speed and direction
- **The most important of these parameters are wind direction and speed**

Emergency Action Levels (EALs):

- Level 1
 - Minor building incident
 - Can be resolved by the responding service unit
 - No other entities are involved
- Level 2
 - Building incident
 - Can be resolved with existing facility resources or limited outside help
 - Usually 1-dimensional events having limited duration and little impact
- Level 3
 - Major emergency
 - May be single or multi-hazard situations
 - Often require considerable coordination within and outside facility
 - Include projected events on the facility or in general community that may develop into a major crisis or a full disaster
- Level 4
 - Catastrophic emergency

- Immediate resolution of the disaster, generally multi-hazard, is beyond the emergency response capabilities of the facility and local resources

Response Organization:

- Emergency response
 - Shift Supervisor/Plant Manager
 - Assumes function of **emergency director**
 - Assesses level of severity of the emergency
 - Notifies appropriate personnel, departments & agencies
 - Directs response activities
 - Production or Operations Manager/Production Supervisor
 - Acts as **response operations coordinator**
 - Assists emergency director
 - Formulates strategies
 - Maintains direct communications w/onsite incident commander
 - Establishes a journal/log
 - Evaluate operational information and determines priorities
 - Requests additional personnel and equipment resources
 - Acts as response operations coordinator
 - Incident Response Commander (IRC), Field Operations Coordinator
 - **Highest ranking officer at the scene of an emergency event**
 - Directs/coordinates all field operations
 - Assess severity of incident
 - Recommends onsite protective actions
 - Implements response actions
 - Coordinates these actions with emergency preparedness coordinator

Incident Response Team:

- Two types of teams
 - Specific member teams
 - Trained and on standby at all times
 - Paid by state or local municipalities or agencies outside facility operations
 - Examples are SWAT and municipal fire department HAZMAT teams
 - Volunteer or ad-hoc (specific to the case at hand) teams
 - Willing volunteers
 - Get specialized training focused on emergency response
 - Example is a member of the engineering department trained in confined spaces

Emergency functions:

- Communications
- Fire and rescue
- Special hazard (HAZMAT) or spill control
- Process/utilities

- Engineering/technical assistance
 - Environmental and field survey
 - Medical
 - Security
 - Offsite liaison
 - Public affairs/legal counsel
 - Resources/supplies
- Emergency response organization implementation is organized according to the type of hazard.

To design a sampling program, the following are needed:

- Geology
 - Soil types
 - Proximity to water bodies
 - General meteorological conditions
 - Establishment of a database (to help control damage claims & lawsuits)
 - Understand local, state, and federal regulatory community
- One area typically neglected in the emergency plan is post-emergency activities.

Recovery, Re-Entry, and Restoration:

- Inspection team appointed by Emergency Director should enter damaged area and ensure safety for recovery operations
- Samples must be collected after cleanup to document the restored condition
- **The main objective of the recovery phase is to restore the plant to its initial condition**
- Emergency response should be reviewed and the plan adjusted accordingly

Training, Exercised & Plan Maintenance:

- Three types of training
 - Tabletop drills
 - Useful for orientation purposes
 - Functional drills
 - Designed to test a limited aspect of the response capability
 - Full-scale exercises
 - More comprehensive
 - Test entire response organization up to and including communication with offsite response organizations
- **An important benefit of training exercises is the response plan is reviewed (a.k.a., *Plan Maintenance*)**
- Other important benefits are individual training and system improvement
- Exercises only have value when they lead to improvement

Emergency Management:

- Multi-hazard emergency operations or contingency plan consists of
 - Basic plan
 - Provides overview of local entities' approach to emergency management
 - Generic functional annexes
 - Address the specific activities required in all emergency response on the local level
 - Hazard-specific appendices
 - Provide response direction for special problems identified during the hazards analysis process
- Management commitment to emergency preparedness is essential to an effective response at the local level, and motivation for that commitment comes from the concerns of the citizens in the community.
- Management of a crisis in local government is usually the responsibility of the elected chief official, and alternates should be names for each defined position.
- Federal resources in the form of FEMA must be acquired through a formal request made by the governor of the affected state.

Planning:

- **Successful planning requires community involvement and support throughout the process**
- Cooperative interaction begins with the planning process
- Team should be staffed with individuals with expertise in many areas
- A component is the Local Emergency Planning Committee (LEPC)
 - Volunteer organization established to meet the requirements of the federal EPCRA (part of SARA Title III superfund amendment)
 - EPCRA contains four major provisions
 - ❖ Emergency planning
 - ❖ Emergency release notification
 - ❖ Hazardous chemical storage reporting requirements
 - ❖ Toxic chemical release inventory

Planning Process (**is the key to success!**):

- Hazards analysis
- Hazards identification
 - Determines whether a plan is really needed
- Vulnerability analysis (a.k.a., consequence analysis)
 - Involves determination of the areas, populations, and facilities that may be at risk if a release occurs
 - List summarizing critical facilities or areas in the county should be included in the plan
- Risk analysis
 - Determines potential and severity of a possible incident

- *Handbook of Chemical Hazards Analysis Procedure* (“Brown Book”) is a resource that can be used
- Should provide:
 - Geographic description of areas deemed vulnerable
 - Size and type of populations expected in vulnerable zones
 - Property and essential utilities services that may be affected
 - Environmental media that may be affected
- Information resulting from risk analysis process include:
 - Needs for facilities and equipment
 - Identification of safe zones
 - Emergency worker protection
 - Spill clean-up
 - Important community resources
 - ❖ Groundwater supply wells or surface-water reservoirs should be located on maps
- EALS should be included in the process

Damage Assessment:

- Resources are necessary for the contingency plan to work
- Personnel available to implement the plan must be identified
- Facilities should include:
 - Local government-appointed place
 - Media center
 - Emergency medical (triage center near scene of an event)
 - Sheltering (either in place or via evacuation plan to relocation center)
 - Public schools are often designated as relocation centers due to cafeterias, adequate sanitary facilities, and large open gymnasiums
- Equipment
 - Communications
 - Public warning systems
 - Traffic access and control
 - Public works
 - Law enforcement
 - Health and medical services
 - Computers linked to Internet
 - Copy and fax equipment
 - Large-scale maps of planning area
 - Major transportation and evacuation routes
 - Airborne dispersion plume projection overlays/templates
 - GIS is useful for storing large amounts of information electronically

Content of Plan and Procedures:

- **Best local-level plan attempts to consider all potential hazards and is adaptable enough to accommodate those identified in the future**
- Basic plan

- Umbrella plan that contains generally applicable organization and operational detail
 - Sites legal authority
 - Summarizes situations addressed
 - Explains concept of operations
 - Describes organization and responsibilities for emergency planning and operations
 - Should include maps, organization charts and emergency responsibility matrix
 - Should identify critical environmental resources and environmentally vulnerable areas within planning area
 - Functional annexes
 - Define and describe the policies, procedures, roles and responsibilities inherent in functions before, during, and after an emergency
 - Should include standard operating procedures and checklist-type instructions
 - Telephone roster listing names and phone number of key members of response team
 - Local environmental data
 - Hazard-specific appendices
 - Unique characteristics of hazards identified specific to the local planning district
- The public gets most of its information through the media, which can sometimes oversimplify complex situations.
 - **Disaster shelter should allow 30 sq ft area space per person, 3–6 gal water per person per day.**
 - Emergency facilities: excreta in bucket with plastic liner.
 - Expedited response requires prior planning.
 - **Besides basic planning, the basic essential component of effective disaster mitigation is the inclusion of stakeholders in the process.**