

NEPA  
GUIDELINES  
FOR THE PREPARATION  
OF AN  
INDUSTRY  
EMERGENCY RESPONSE PLAN



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## I INTRODUCTION

The primary purpose of these guidelines is to provide owners and operators of industrial facilities with guidance in the development of an Emergency Response Plan for a timely and effective response to industrial emergencies involving the release of hazardous chemicals/substances to the environment.

These guidelines have been developed by the National Environment and Planning Agency (NEPA), pursuant to The Natural Resources Conservation (Permit and Licenses) Regulations, 1996; The Natural Resources Conservation (Permit and Licenses) (Amendment) Regulations, 2004 and The Natural Resources (Prescribed Areas) (Prohibition of Categories of Enterprises, Construction and Development) (Amendment) Order, 2003.

### 1.0 Definitions <sup>1</sup>

**Accident** means an unexpected event that results in loss or injury to a person and/or damage to property or the environment.

**Emergency** means, in the context of these guidelines, an accidental situation involving the release or imminent release of dangerous goods or other substances that could result in serious adverse effects on the health and/or safety of persons or the environment. An emergency may be the result of man-caused or natural occurrences such as, but not limited to, process upsets, uncontrolled reactions, fires, explosions, threats, structural failures, tornados, earthquakes, floods, and storms.

**Emergency Response (Contingency) Plan** means a detailed program of action to control and/or minimize the effects of an emergency requiring prompt corrective measures beyond normal procedures to protect human life, minimize injury, to optimize loss control, and to reduce the exposure of physical assets and the environment from an accident.

**Hazard** means an event with a potential for human injury, damage to property, damage to the environment, or some combination thereof

**Incident Command System** means a method by which the response to an extraordinary event, including a spill, is categorized into functional components and responsibility for each component is assigned to the appropriate individual or agency.

**Risk** means the chance of a specific undesired event occurring within a specified period or in specified circumstances. It may be either a frequency or a probability of a specific undesired event taking place.

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<sup>1</sup> Government of British Columbia, Ministry of Environment. March 1992. Hazardous Wastes- Guidelines for Industry Emergency Response Contingency Plans.

**Risk Analysis** means the identification of undesired events that lead to the materialization of a hazard, the analysis of the mechanisms by which these undesired events could occur and, usually, the estimation of the extent, magnitude, and likelihood of any harmful effects.

**Risk Assessment** means the quantitative evaluation of the likelihood of undesired events and the likelihood of harm or damage being caused by them, together with the value judgments made concerning the significance of the results.

**Risk Frequency** means the number of occurrences per unit of time.

**Risk Management** means the program that embraces all administrative and operational programs that are designed to reduce the risk of emergencies involving acutely hazardous materials. Such programs include, but are not limited to, ensuring the design safety of new and existing equipment, standard operating procedures, preventive maintenance, operator training, accident investigation procedures, risk assessment for unit operations, emergency planning, and internal and external procedures to ensure that these programs are being executed as planned.

**Spill** means an unauthorized release or discharge of a dangerous good into the environment.

## **II. CONTENTS OF A TYPICAL PLAN**

### **1.0 POLICY STATEMENT**

A policy statement should include:

- management's commitment to safeguard the health and safety of the employees and the public and to protect the environment.
- a statement of the company's priorities in the event of a spill. Generally priority is in the order of the immediate safety of employees at the site and the members of the surrounding community, followed by protection of the environment.
- a clear indication of the first-line supervisor's authority for emergency action and expenditure.
- a statement of authority regarding who will deal with public and media inquiries.
- a statement concerning the company's plan to monitor compliance with this policy.
- the effective date of the plan.
- a schedule for review and for testing/exercising of the plan.

The statement is usually signed by a senior official such as the Chief Executive Officer or the company president.

### **2.0 PURPOSE AND SCOPE**

This section of a response plan should state the intent and scope of the plan. Response plans should be structured around four major objectives:

- understanding the type and extent of a potential emergency (risk/exposures);
- establishing a high order of preparedness (equipment, personnel) commensurate with the risk;
- ensuring an orderly and timely decision-making and response process (notification, standard operating procedures), and
- providing an incident management organization with clear missions and lines of authority (Incident Command System, field supervision, unified command).

The terms of reference for the plan should include items such as:

- whether the plan is for an individual operation or a part of an industry cooperative in a given area;
- the geographic and physical location(s) covered by the plan;
- types of emissions or spills which the plan is designed to address including spills to land, water and air. This should include all hazardous chemicals/substances being handled along transportation routes and at the particular plant for which the plan is being developed.
- a list of any other organizations or groups having responsibility under the plan.

### **3.0 PRE-EMERGENCY PLANNING**

#### **3.1 Hazard Identification**

This section of a response plan should identify all potential on-site and off-site hazards of the operation, and the type of damage that may result. This requires information on toxicological, physical, and chemical properties of the substances being handled. The potential impact on downwind air quality or downstream water quality from an accidental release and danger to public health should be clearly identified.

#### **3.2 Risk Analysis**

The basic procedure in a risk analysis is as follows:

- identify potential failures or accidents (including frequency);
- calculate the quantity of material that may be released in each failure, estimate the probability of such occurrences, and
- evaluate the consequences of such occurrences based on scenarios such as most probable and worst case events.

This combination of consequences and probability will allow the hazards to be ranked in a logical fashion to indicate the zones of important risk. Criteria should then be established by which the quantified level of risk may be considered acceptable to all parties concerned.

#### **3.3 Legislation and Standards**

The response plan should identify regulations and standards which apply to the facility and its operation.

#### **3.4 Emergency Organization and Responsibilities**

The response plan should identify the transition from normal operations to emergency operations and the delegation of authority from operations personnel to emergency response personnel. For this purpose, the plan should identify an emergency response organization with appropriate lines of authority and how the response management will escalate. Responsibilities for decision making should be clearly shown in an emergency organization chart. The plan should identify each responder's position, mission, duties and reporting relationship. Sufficient details should be provided to ensure that all critical activities are covered.

### **3.5 Resources**

This section will identify sources of local assistance including telephone numbers and names of contacts for:

- fire departments
- police
- hospitals
- doctors
- national emergency response agency
- other company facilities etc.

### **3.6 Internal Alerting**

The purpose of this portion of a plan is to establish an effective emergency communication network and a procedure for the prompt notification of individuals and agencies involved in an emergency response.

The section must identify means for 24-hour notification of first responders and officials who can provide direction and control to the response effort and who can authorize evacuation. A list of backup personnel for emergency response and their telephone numbers (cellular, pager, home numbers) should also be included. To prevent system breakdown, an "alternate" person should be designated for each key position of designated responsibility.

### **3.7 External Alerting**

The plan should describe how and when the fire and police departments, emergency response agencies, news media, and off-duty workers will be contacted during working and non-working hours. Contacts for reporting purposes should also be included in the contact telephone listing. Roles and responsibilities of all external organizations and agencies involved in the emergency response and/or support function should be clearly defined.

### **3.8 Communication Systems**

This section of the plan should detail the types of communication equipment to be used by personnel during an emergency response. Since normal means of communication can break down in an emergency, alternative means must be considered. Cellular telephones, public address systems, two-way radios and messengers can be used.

### **3.9 Public Communication**

This section of the Response Plan should include a public relations or media plan. It should identify an Information Officer that is well-equipped and trained in media relations.

## **4.0 EMERGENCY RESPONSE**

### **4.1 Response Action Decision**

A Response Plan should have emergency coding that defines the severity and potential impact of an emergency. The three levels of emergencies may be identified as follows:

1. LEVEL I: minor spills requiring an on-site worker to respond and take necessary collective actions.
2. LEVEL II: intermediate level spills requiring response by on-site or off-site trained staff but posing no danger to the public.
3. LEVEL III: a major incident beyond the resources of a single facility, where there are subsidiary problems to complicate the situation such as fire, explosion, toxic compounds, and threat to life, property and the environment.

The plan should identify the responsibility of the personnel having on-scene authority to evaluate the situation, assess the magnitude of the problem and activate the emergency response plan.

A flowchart or decision tree should be posted in the facility or distributed as a pocket guide.

### **4.2 Plan Activation and Response Mobilization**

For each type of emergency, the plan should include a specific Emergency Action Checklist. The action items may include the following:

- identify the nature of the emergency and ascertain if there are casualties.
- locate the source, the area of immediate risk and the potential for escalation.
- raise the alarm, alert emergency services and activate the appropriate warning system.
- mobilize the appropriate resources to isolate the hazard as far as possible and to implement "first aid" remedial actions.
- initiate procedures for the protection of personnel, plant, property and the environment. A detailed procedure for each foreseeable emergency should be included in the plan.
- implement procedures for the protection of vital resources, continuity of critical services and security of the property and records.
- arrange to account for personnel and to log events.
- activate emergency communications links. Notify senior personnel, the appropriate agencies and neighbors where appropriate.
- liaise with officers of the emergency services and with other senior personnel as they arrive on-site, and cooperate as required.
- call for further emergency assistance as may be necessary.
- as appropriate, implement approved procedures for rehabilitation.

### **4.3 Response Action/Containment/Cleanup**

This section should identify the operational methods to manage an accidental spill or emission, as well as, and the location, capability, and limitations of equipment to be used. The Response Plan should not provide detailed descriptions, but refer to separate Operational Guidelines (Standard Operation Procedures) or detailed technical documents that apply to spill response operations.

The plan should list available on-site and off-site equipment, how it is to be accessed and who has the responsibility for it. The plan should also describe how people and equipment will get to the site, how they will be supported during the crisis and how crews will be supplied for the duration of the incident.

### **4.4 Emergency Operations Centre - Incident Command Post**

A location an Incident Command Post should be identified in the plan, as well as alternate locations for back-up. Incident Command Post(s) must be located a safe distance away from the incident itself so as not be subject to the threat(s) of a spill

### **4.5 Evacuation**

The purpose of this section is to ensure a safe and orderly emergency evacuation of each area or the entire plant. If required, the plan should also include procedures for the notification and evacuation of the surrounding community. The planning for communities is done as a joint effort with local government and industry. The following elements must be considered when developing evacuation plans:

- need for an alarm system capable of defining different areas and/or degrees of evacuation.
- maps showing both the primary and alternate evacuation routes.
- designation of primary as well as alternate off-site assembly areas.
- designation of employees responsible for checking the evacuation area and for taking personnel counts at the assembly area to ensure that the area has been safely evacuated.
- designation of emergency escape equipment.
- providing dispersion estimates for worst and most likely gas/vapour releases to better define the affected areas.
- procedures to increase the degree/extent of areas to be evacuated if the emergency situation escalates.

### **4.6 Disposal of Spilled Contaminants and Debris**

This section should contain procedures for the removal of recovered spilled material and contaminated soil or absorbents and location of temporary and/or permanent storage facilities for contaminated materials. The various possible treatment and disposal options such as incineration, reprocessing, burying, etc. should be covered in the plan along with procedures for obtaining the required approvals or permits from government agencies. Details on disposal should be provided in a separate Operation Guideline or technical document.

#### **4.7 Site Restoration/Remediation**

This is the action taken to restore the affected environment to the pre-spill conditions. The required degree of restoration will usually be determined through consultation between the party responsible for the spill and the National Environment and Planning Agency (NEPA).

Restoration can include physical removal of contaminated surface materials, high-pressure washing, chemical cleaning, bioremediation etc.

#### **4.8 Post-Incident Evaluation**

The plan should specify that a post-incident evaluation be done on both mock exercises and actual emergency incidents and describe the manner in which the evaluation is to be done. The primary purpose of the post-incident evaluation is to identify from the spill response operation the weaknesses or strengths in the Action Plan and to make appropriate corrections to the plan.

The post-incident evaluation should include the following:

- suitability of the organization structure, equipment, communication system, etc.
- adequacy of training, alarm systems, contingency manual, control centre, communication plans, security, spill containment and recovery procedures, monitoring, etc.
- appropriateness of the emergency response action plan, media communications plan, mutual aid plans, etc.

An emergency response plan should provide for a written report on each incident. The report should include:

- a general description of the incident
- source and cause of the incident
- description of the response effort
- quantity of the spill and percent recovered
- itemized cleanup costs
- recommendations for preventative and mitigative measures
- plans for upgrading emergency preparedness and response plans

### **5.0 TRAINING AND PRACTICE DRILLS**

#### **5.1 Training**

This section of the plan should provide details of training programs for the company personnel and mutual aid agencies involved in responding to an emergency. The amount, type and frequency of training for each member of the team should be clearly spelled out.

Training should be provided at least annually and in the following situations:

- for new employees during their orientation period
- for existing employees when there is a change in their duties
- when new equipment or materials are introduced
- when emergency procedures are revised
- when a drill indicates need for improvement

It is wise to extend training as far as possible, even beyond the plant gates. The plan should provide for familiarizing local agencies such as fire, police and ambulance staff with the potential hazards of the operation.

## **5.2 Practice Drills**

This section should provide for periodic simulation exercises or practice drills. It is important to develop employee skills and evaluate the adequacy of the contingency plan through the use of mock exercises or drills.

The objectives of a drill include evaluation of the following:

- practicality of the plan (structure and organization)
- adequacy of communications and interactions among parties
- emergency equipment effectiveness
- adequacy of first aid and rescue procedures
- adequacy of emergency personnel response and training
- public relations skills
- evacuation and personnel count procedures

Drills must be frequent enough to ensure that the response team maintains proficiency in all aspects of the contingency plan.

## **6.0 PLAN EVALUATION**

This section of the plan should describe step-by-step procedure by which the plan may be evaluated internally. The purpose of evaluation of an emergency plan is to determine the adequacy and thoroughness of the plan. The ease of understanding and using the plan will also be important considerations.

## **7.0 PLAN UPDATES**

A procedure, should be in place to update the contingency plan on a regular basis so that its call-out numbers and procedures are current. When an amendment is made to a plan, the amendment date should be noted on the updated page of the plan. A senior employee of the company should be designated to ensure that all plan-holders are notified of changes as soon as possible. Plan-holders should be requested to verify that they have received the changes.

The most common amendments include telephone listings, response personnel, equipment, chemicals handled, emergency services available and resource lists.

Plan holders should be notified immediately of any key changes regardless of review period.

## **8.0 APPENDICES AND OPERATIONAL GUIDELINES**

Types of information that may be included in the appendices include:

- response team and key company personnel call out list
- government agencies, news media and medical services telephone list
- community residents contact list
- facility maps, drawings and product hazard list

- organization, roles and responsibilities
- emergency incident report forms
- emergency shut down procedures
- on-site mobile and emergency equipment list by location
- off-site mobile and emergency equipment list by location
- equipment inspection and maintenance schedules
- air, and water-quality monitoring procedures
- weather information contacts
- statutes/laws/regulations (e.g., Spill Reporting Regulation)
- emergency evacuation plan and escape routes
- cleanup contractors
- decontamination procedure
- material safety data sheets
- emergency response manual distribution list

### **III REFERENCES**

1. Government of British Columbia, Ministry of Environment. March 1992. Hazardous Wastes- Guidelines for Industry Emergency Response Contingency Plans.
2. Commission of the European Communities, Emergency Planning for Industrial Hazards, 1988.
3. Hazardous Materials Emergency Planning Guide, United States National Response Team, March 1987.
4. Ontario Ministry of Environment, Planning for Spill Contingencies, 1989