Emergency Management Manual
August 2018
Version 2.1

A Guide to the *Emergency Management Regulation*

And emergency management sections of the *Oil and Gas Activities Act*
About the Commission

About Us

The BC Oil and Gas Commission is the single-window regulatory agency with responsibilities for regulating oil and gas activities in British Columbia, including exploration, development, pipeline transportation and reclamation.

The Commission’s core services include reviewing and assessing applications for industry activity, consulting with First Nations, cooperating with partner agencies, and ensuring industry complies with provincial legislation and all regulatory requirements.

The public interest is protected by ensuring public safety, respecting those affected by oil and gas activities, conserving the environment, and ensuring equitable participation in production.

For general information about the Commission, please visit www.bcogc.ca or phone (250) 794-5200.

Mission

We regulate oil and gas activities for the benefit of British Columbians. We achieve this by:

- Protecting public safety.
- Respecting those affected by oil and gas activities.
- Conserving the environment.
- Supporting resource development.

Through the active engagement of our stakeholders and partners, we provide fair and timely decisions within our regulatory framework.

We support opportunities for employee growth, recognize individual and group contributions, demonstrate accountability at all levels and instill pride and confidence in our organization.

We serve with a passion for excellence.

Vision

To be the leading oil and gas regulator in Canada.

Values

Respectful  Accountable  Effective
Efficient  Responsive  Transparent
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Manual Revisions

The Commission is committed to the continuous improvement of its documentation. Revisions to the documentation are highlighted in this section and are posted to the Documentation Section of the Commission’s website. Stakeholders are invited to provide input or feedback on Commission documentation to OGC.Systems@bcogc.ca or submit feedback using the feedback form.

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CHAPTER 1: ABOUT THE MANUAL

The Emergency Management Regulation Manual is intended to provide a reference document for oil, gas and geothermal permit holders and applicants. The manual provides an overview of the regulatory requirements for emergency management in British Columbia’s oil and gas industry, recommendations based on industry best practices, references to applicable national standards, examples to assist with interpretation of requirements, and guidance to assist in the development and documentation of competencies related to emergency management.

The manual has been prepared to be as comprehensive as possible; however, it may not cover all situations. Where circumstances or scenarios arise, and are not covered by the manual, please contact one of the Commission’s Security and Emergency Management staff for assistance.

This manual guides the user through the requirements of the Emergency Management Regulation (EMR) and the emergency management aspects of the Oil and Gas Activities Act, as well as such national standards as may be referenced or included. Unless otherwise noted, all references to CSA standards should be interpreted as a reference to the most recent edition of CSA Z246.2: Emergency Preparedness and Response for Petroleum and Natural Gas Industry Systems.

1.1 MANUAL SCOPE

The manual is limited in scope to the authorities and requirements established within the Oil and Gas Activities Act (OGAA), or specified enactments established thereunder. Carrying out oil, gas, geothermal and related activities may require additional approvals from other regulators or create obligations under other statutes. It is the permit holder’s responsibility to know and uphold all of their legal obligations.

1.2 ADDITIONAL GUIDANCE

Additional Commission manuals and guidelines are available in the Documentation Section of the Commission’s website. The Glossary page of the Commission’s website provides a comprehensive list of common terms, and OGAA and its regulations provide the primary source of legal definitions.
The Commission has also developed a number of checklists, which may assist in the creation of emergency response plans, and as guides during exercises of the plan. These checklists are not intended to address every situation, and each plan must fully consider any unique aspects of the proponent’s operation.

### 1.3 COMPLIANCE AND ENFORCEMENT

This document does not replace legislation or alter legislative requirements. All permit holders are ultimately responsible for ensuring they understand and meet all requirements described within the Oil and Gas Activities Act, and their permits. Should a person not comply with the Oil and Gas Activities Act, or any related Acts and regulations, the Commission may take compliance and enforcement actions. For more information regarding the Commission’s Compliance and Enforcement processes, please refer to the [Compliance and Enforcement Manual](#).

### 1.4 GLOSSARY OF TERMS AND DEFINITIONS

Most terms used in this guide are listed in the Oil and Gas Activities Act, the Emergency Management Regulation, CSA Z246.2, the Geothermal Operations Regulation, or the Dam Safety Regulation. The following are common abbreviations and terms referenced in legislation, regulation or standards, which are used in this guide:

- **CSA** - Canadian Standards Association
- **EAZ** – Emergency Awareness Zone
- **EMR** – Emergency Management Regulation
- **EMBC** – Emergency Management BC (formerly PEP)
- **ERP** – Emergency Response Plan
- **EPZ / HPZ** – Emergency Planning Zone (may also be referred to a HPZ, or Hazard Planning Zone)
- **HRZ** – Hazard Response Zone, the area affected by an incident / emergency.
- **ICS** – Incident Command System
- **Inundation Zone** – Similar to EPZ, defines the area at risk from a dam failure.
- **Local Authority** - has the same meaning as in the Emergency Program Act
**Multiphase fluid** - any combination of gas, oil, other hydrocarbon fluid, or water produced from or injected into, one or more wells, or recombined well fluids that possibly have been separated in passing through surface facilities.

**Mutual Aid** - is a reciprocal agreement between two or more permit holders to provide assistance between organizations to support a more effective response to an incident.

**NFPA** - National Fire Protection Association

**Private Facilities** - critical community facilities, which are not government owned or affiliated, and include items such as private medical clinics, churches, lodges, (etc.). Which are designated as or may be used in the event of an emergency incident, to provide for the well-being of the residents.
CHAPTER 2: INTRODUCTION AND OVERVIEW

2.1 ROLE OF THE COMMISSION

The BC Oil and Gas Commission (The Commission) regulates oil and gas exploration, development, production, pipelines, and all refining1 process operations developed in B.C. since 2014. As well, the Commission also regulates geothermal activities, as defined by the Geothermal Resources Act (GRA). Its mandate includes a responsibility to ensure that operations are conducted in a socially and environmentally responsible manner.

The Oil and Gas Activities Act and its regulations include provisions regarding the safe operation of oil and gas operations and the prevention of uncontrolled or inappropriate release of substances in the environment. These provisions are complimented by the activities of other agencies, legislation and national safety standards to ensure adequate protection of people, property and the environment.

The Security and Emergency Management branch is responsible for ensuring permit holders are meeting their responsibilities to control incidents and accidents potentially affecting people and the environment, and to mitigate the consequences in the event of an accident. The Department oversees the administration of the EMR. This includes:

- Evaluating permit holder emergency response capacities and capabilities;
- Ensuring emergency response capacities are appropriate to activities;
- Reviewing emergency management programs and plans;
- Coordinating emergency and incident follow-up and investigations;
- Providing 24 hour Emergency Officer services;
- Administering incident and complaint response services; and
- Contributing to the assessment of each permit holder’s safety record.

1 Burnaby and Prince George refineries excluded at this time.
The Commission uses a combination of reviews, evaluations, and field inspections to ensure permit holders maintain compliance with the requirements detailed in the *Emergency Management Regulation* and the *Oil and Gas Activities Act*.

The Security and Emergency Management branch audits and inspects permit holder programs and plans, and evaluates exercises and worker briefings. This is to ensure adequate training, resources, processes and procedures are in place to meet their obligations. The branch also provides oversight of all incident and emergency response actions undertaken by, or on behalf of a permit holder.

### 2.2 *The Emergency Management Regulation (EMR)*

The *Oil and Gas Activities Act* (s. 38 (1) (b)) requires that a permit holder prepare and maintain an emergency response program and an emergency response plan (ERP) as prescribed in the *Emergency Management Regulation* (EMR) or defined through permit conditions for geothermal activities. The objective of the EMR is to protect people, property and the environment by establishing a framework for emergency preparedness, planning and response capabilities. The EMR, coupled with the included CSA standard, *"CSA Z246.2 Emergency Preparedness and Response for Petroleum and Natural Gas Industry Systems"*, provides the foundation for effective response to emergencies in the oil and gas sector.

The EMR encompasses and defines four main areas:

1. **Corporate programs:**
   
   Corporate emergency response programs incorporate the policies and procedures that companies use to create and manage records, training and planning processes.

2. **Emergency response planning:**
   
   The EMR outlines the activities and content that applicants and permit holders must adhere to when developing an emergency response plan.

3. **Emergency and Incident Response:**
   
   The EMR outlines the process that a permit holder follows in the event of an emergency, and sets the minimum requirements that an applicant or permit holder must adhere to in developing and implementing an emergency management program.
4. **Support for National Standards:**

The Commission has now formally adopted the provisions contained within CSA Z246.2 as part of the *Emergency Management Regulation*. These standards may be updated from time to time, and permit holders are responsible for remaining aware of the provisions in the most current version.

In addition to this CSA standard; applicants, permit holders or operators may wish to refer to the following documents (as may be applicable) to support development of emergency response programs and plans, and to define the scope of appropriate staff training:

- CSA Z 246.1, Security Management for Petroleum and Natural Gas Industry Systems
- ISO/CSA 31000 Risk Management, Principles & Guidelines
- CSA Z1600 Emergency and Continuity Management Program
- CSA Z 662, Oil and Gas Pipeline Systems
- Water Sustainability Act - [Dam Safety Regulation](#)
- Geothermal Resources Act - [Geothermal Operations Regulation](#)
- [Fundamentals of Cyber Security for Canada’s CI Community](#) (Public safety Canada)
- NFPA 600, Standard on Industrial Fire Brigades\(^2\)
- NFPA 1081, Standard for Industrial Fire Brigade Member Professional Qualifications
- NFPA 59A Standard for the Production, Storage, and Handling of Liquefied Natural Gas
- [Federal Emergency Management Framework for Canada](#);
- The [Emergency Response Guidebook](#) (CANUTEC)

### 2.2.1 Activities Subject to the EMR

The EMR applies to applicants and permit holders carrying out oil and gas or geothermal activities as defined in the *Oil and Gas Activities Act, Geothermal Operations Regulation*, or by specific permit conditions.

Section 1 (Scope) of *CSA Z246.2* provides additional guidance for oil and gas permit holders.

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\(^2\) In the oil and gas sector, NFPA 600 and NFPA 1081 standards are most commonly applied in facilities that have or process significant on-site volumes of liquid hazardous products.
2.2.2 **Exemptions**

Section 18 of the EMR allows the Commission to exempt an applicant or permit holder from complying with one or more provisions of the regulation, in cases where compliance with the provision(s) is not reasonably practicable or the exemption is in the public interest.

The exemption request can be made anytime as long as the request is provided in a manner that will allow the Commission sufficient time to render a decision prior to the start of the activity for which an exemption is requested. A complete description of why the exemption is necessary, and the scope of applicability (duration, location(s), etc.), should be provided as part of the submission.

In the event an exemption is granted, the exempted provision in the EMR may be replaced with permit conditions. The oil and gas activity cannot proceed until the permit holder has received a written response from the Commission, and a copy of the exemption (and conditions, if applicable) must be included in any related emergency management plan so long as the exemption remains in place.

When a facility is no longer in use, it may be excluded from consideration within an emergency management plan, provided that:

- A Hazard-Risk-Vulnerability Assessment (HRVA) has been completed;
- The permit holder confirms that there are no risk items remaining on the site such as, but not limited to: processing chemicals; unpurged propane or NGL bullets; any link to an active pipeline, or to any well that has not been abandoned; any tanks, c-rings, or other containers (including abandoned pipelines) that may contain hydrocarbons, produced water, H2S, or any other product introduced or extracted for which an MSDS sheet would be required, or any water storage for industrial use which includes an engineered containment system;
- The permit holder has complied with all other regulations and permit requirements applicable with respect to a suspension and abandonment of operations.
  - A well may only be excluded when abandoned; a suspended well must continue to be included in a valid ERP. Only well sites granted a Certificate of Restoration will be recognized as abandoned.
  - A pipeline may be excluded when abandoned in accordance with regulation.
  - Should a permit holder wish to reactivate a well, pipeline or facility, a new ERP (or update to an existing plan) including any required hazard mapping, response resources, etc. must be provided to the OGC and other key recipients, prior to the commencement of any oil or gas operations.
CHAPTER 3: EMERGENCY MANAGEMENT IN BC

Emergency management is a continuous and integrated process involving the efforts of individuals, business, local, provincial, and federal governments to identify threats, determine vulnerabilities and ensure required resources are available and able to respond effectively to incidents.

In British Columbia, emergency management uses the incident command system (ICS), a structured response framework that supports an all hazards approach. Industry and community emergency management organizations using ICS have developed the ability to respond collaboratively to a broad range of incidents. Depending on the nature and scope of the emergency, additional levels of government or supporting agencies may be involved.

EMBC (formerly PEP) works directly with local governments and other agencies such as the Commission, organizations, and volunteers in a coordinated effort to prepare for, respond to, and recover from disasters. For more information about EMBC, please refer to the Emergency Management in BC: Reference Manual.

3.1 PERMIT HOLDERS AND THE INCIDENT COMMAND SYSTEM

All permit holders are required to use the Incident Command System (ICS) for any incidents requiring a complex or multi-agency response. The ICS structure should also be reflected in a permit holder’s response plans, exercises and training.

In British Columbia, all levels of government and their associated first response organizations use the internationally recognized ICS standard, which provides common terminology and processes, and supports a coordinated approach to emergency response. Oil and gas or geothermal operators must therefore understand, and be able to work effectively with this system since any incident response that requires support from other agencies and organizations will be conducted using ICS.

Incidents classified as minor do not typically require the use of a formal ICS processes, though all responders should be aware of their potential roles should a minor incident escalate into an emergency.
Through ICS, the focus is supporting the *incident commander* – the *local* leader of incident response actions.

The incident command team is supported by their company EOC.

Additional support can be requested through the OGC EOC, local government and Provincial Regional Emergency Operations Centres.

Further resources & support can then be accessed through the Provincial Emergency Coordination Centre (PECC) and the federal Government Operations Centre (GOC.)

Companies should also have links to specialized resources defined in their plans and based on the identified risks. This can include mutual aid, membership in spill cooperatives, or through industry associations.

### 3.2 Emergency Management System

ICS is an operational framework for emergency response. The system facilitates communication, response activities, and cooperation, within and between organizations, and allows incidents to be managed in a cohesive manner.

Under ss. 5 of the EMR, and section 11.2 of CSA Z246.2, all plans must include an emergency management system that identifies the specific roles and responsibilities of personnel required to effectively respond to any emergency. The plan must:

1. Describe the powers and duties of emergency response roles; and,
2. Assign emergency response staff to the roles. Key personnel and responders and their alternates should be identified.

The plan should also include organizational charts showing the command structure, key positions, and reporting relationships within the ICS sections. This could include (as applicable):

- Emergency Operations Centre (typically based at company head office)
- Field incident command;
- Public safety coordination, including evacuation and sheltering;
- Security (roadblocks, rovers, etc.);
• Air quality monitoring;
• On-site safety and ignition;
• Communications with responders and media/public communication.

### 3.3 ICS: The Roles of Industry and Government Agencies

Typical emergency management roles and responsibilities in BC include:

**Industry:** Industry is responsible for identifying all hazards associated with their operations. The permit holder determines the risks to people, environment, and infrastructure from the identified hazards, then plans for plans for worst-case situations / emergencies. This ensures there are sufficient resources (people and equipment), and initiates an emergency response appropriate to the incident. For the oil and gas sector in BC, this includes complying with the EMR\(^3\) and developing emergency response programs that encompass:

- Training in emergency response management;
- Drills to prepare for specific emergencies and tasks;
- Emergency response exercises, to build confidence, confirm roles and test plans;
- Developed processes to evaluate the response to an incident;
- Public awareness, particularly for those living or working within Emergency Planning Zones (EPZ/ HPZ);
- Response contingency planning – this would include the ability to effectively respond to hazards identified with the oil, gas or geothermal operation, including spills, natural disasters applicable to the operating area (forest fire / flood, seismic, etc.) and security incidents;
- Regular communication with other emergency services, and maintaining an awareness of other hazards (fires, floods, etc.) that may affect the safety of oil or gas operations.

**Local government:** Local governments lead the initial response to most emergencies\(^4\) and natural disasters that occur within communities and regions. For all incidents -natural or industrial- they

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\(^3\) Application of the EMR will be managed through permit conditions for geothermal activities.

\(^4\) Except where a responsible party has been identified in law or regulation.
have the authority to issue evacuation orders and declare states of emergency within their boundaries.

**First Nations:** Similar to local government, First Nations leaders have the authority to issue evacuation orders and declare states of emergency within their boundaries.

**BC Oil and Gas Commission:** Oversees the activities of all permitted oil, gas and geothermal activities; ensures industry have the appropriate plans, staff and competencies necessary to meet regulatory obligations. The OGC provides coordination and support for major incidents and, if required, will initiate/lead response to incidents when the permit holder is clearly incapable. *The permit holder remains liable for all costs associated with the incident.*

**Provincial government:** Emergency Management BC is government’s lead emergency agency. Provincial agencies, such as the Oil and Gas Commission also have legislated emergency management responsibilities. EMBC provides coordination with provincial ministries and crown corporations, and supports to local government. The province has the authority to issue evacuation orders and declare states of emergency anywhere within the province.

**Federal Government:** At the federal level, Public Safety and Emergency Preparedness Canada, through the *Emergency Management Act,* develops programs and policies to prepare for national disasters.

Applicants and permit holders are encouraged to refer to Emergency Management BC’s [British Columbia Emergency Response Management System (BCERMS)](https://www.emergency.gov.bc.ca) for examples of the roles and responsibilities required to respond effectively to an emergency.

# Chapter 4: Emergency Response Programs

## 4.1 Emergency Preparedness and Response Program

The purpose of a corporate Emergency Preparedness and Response Program (EPRP) is to ensure there is permit holder capability, competence, and capacity to respond effectively and safely to incidents, protect people, environment, and property.

The program will create and define the top-level policies and procedures that guide the creation, management and implementation of an Emergency Response Plan (ERP). The purpose of an ERP is
to prepare for, prevent, mitigate against, respond to and recover from an emergency and its effects. This section outlines the key elements of a successful emergency management program.

**4.2 Responsibility and Accountability**

Section 3 of the EMR outlines the objectives of the program, key elements that include:

- Senior management accountability for the development and successful implementation of the program (CSA Z246.2 ss. 4.2);
- Appointment of a Program Coordinator to oversee the program and ensure the implementation of the program;
- Submission and maintenance of current contact information for the program coordinator (ss. 13 (2) and 15(1) of the EMR). Updates to contact information must be sent to EMP@bcogc.ca.

**4.2.1 Documentation and Document Control**

Under CSA Z246.2 ss. 4.7, the permit holder must maintain written records of the emergency response program. Records can be kept in hard copy or digital form but should be readily available and maintained in a manner that will ensure the document’s integrity until the permit holder ceases to carry out any oil and gas activities for which a plan is required.

The emergency management program oversees the development and upkeep and document control applied to all emergency response plans. The program manager ensures accurate record keeping for all documents, provides oversight of incident reporting, and the findings from all reportable incidents, records of accidents, review meetings, employee qualifications and certifications related to any assigned emergency response functions. (CSA Z246.2 ss. 4.8)

1. Reviews and updates

   The EPRP must be regularly updated to ensure that its contents are current and accurate. In accordance with SS. 3(2) of the EMR the program must be reviewed / updated:
   - at least once every 3 years;
   - As a result of a significant change in the types of hazards and risks arising from the oil and gas activity;
• After an evaluation of the response to a level 3 incident as classified in Schedule D of the EMR;

• Any time that an incident, exercise or other activity discovers a problem that may jeopardize the permit holder’s ability to effectively and safely manage their assets; and

• Any time there are changes to the assets owned by a permit holder. When submitting updates to asset lists, permit holders should specify which assets have been removed or added to the plan in a separate document to assist in compliance and to support the timely review of your ERP.

2. Support for Training and Exercises

The EPRP must include provisions for training and emergency response exercise programs. All training records must be maintained (CSA Z246.2 ss. 4.8.2 (d)) and permit holders should be prepared to present these records to the Commission upon request.

4.2.2 Training

The Commission routinely evaluates permit holder capabilities and competencies demonstrated during emergency response exercises. This ensures that response personnel understand the permit holder’s emergency response program, know their responsibilities in an emergency and understand the permit holder’s emergency response procedures. (EMR ss. 4 and CSA Z246.2 ss. 4.9)

1. Training Objectives

The objective of staff training is to ensure incident response personnel have the knowledge, skills and abilities to initiate and sustain the appropriate response actions for all risks identified in the HRVA.

Training is distinct from exercises, which test the functionality of emergency management plans, as well as the ability of staff to fulfil roles that have been designated within the ERP.

Personnel training should address specific issues and competencies such as:

- Review of response actions and priorities.
- The permit holder’s applicable emergency response program.
- Incident Command - structure, roles and responsibilities.
- Hazards and risk identification, including on-scene assessment.
- Use of the Commission’s incident classification matrix.
- Public protection measures used during an emergency.
• Ignition as mitigation.
• Communication methods.
• Review of security protocols to prevent unauthorized access, securing evidence following an incident, when and how to report a security threat or incident.
• Use of equipment (both company held, as well as that provided by 3rd parties such as WCSS or other mutual aid or contracted groups) used to contain and control an incident.

Personnel should also be familiar with Transport Canada’s [Emergency Response Guidebook](#), which is designed to help responders make initial decisions when arriving at the scene of an incident involving hazardous products.

2. Incident Command System Training

Training in the Incident Command System and Emergency Operations Centres / Incident Command Posts creates a solid foundation for any incident response. For this reason, it is highly recommended that all staff with an assigned role complete foundation and role-specific ICS courses, as well as general EOC training. Staff with leadership roles in emergency response should complete higher-level incident command courses, and participate in more advanced EOC training such as the EOC Essentials course featuring scenario-based training. A quality service provider, recognized by ICS Canada, should be used to ensure training provided is consistent with [national standards](#).

The following table outlines the minimum recommended training for response staff:

<table>
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<tr>
<th>Role</th>
<th>Training</th>
<th>All Response Staff:</th>
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| Incident Commander / EOC Director | • Incident Command System levels 200 & 300  
• EOC Operations Section  
• Hazard Assessment | 1. Introduction to Incident Command (ICS 100)                                      |
| Operations Section Chief    | • Incident Command Level 200  
• EOC Operations Section  
• Hazard Assessment       | 2. Introduction to Emergency Operations Centers                                   |
| Other response team members | Subject-specific training as applicable:  
• risk management  
• public information  
• logistics  
• planning  
• public protection | 3. Emergency Operations Centre Essentials (includes scenario training in roles) |
4.2.3 EMERGENCY RESPONSE EXERCISES

Exercises are designed to test both the emergency response program and the contents of an emergency response plan and to confirm the knowledge of emergency response personnel in their duties. Response exercises:

- reveal gaps in a plan
- reveal resource gaps
- improve coordination
- clarify roles and responsibilities
- demonstrate operational capability
- Enable personnel to gain confidence in emergency roles
- Demonstrate the emergency response plan to the public
- provide an opportunity to test a new process, best practice or tool
- test equipment
- test standard operating procedures
- promote emergency preparedness

When the Commission attends an emergency management exercise, permit holders will be provided:

- Access to the evaluation tools used by Commission staff.
- A copy of the completed evaluation.
- An opportunity for feedback of the evaluation

Appendix A of this document provides an overview of the types and objectives of emergency response exercises that can be included in a permit holder’s emergency response program.

Permit holders must conduct emergency response exercises annually for each operating area. These areas are typically separated into specific field, facility, or pipeline ERPs. A Full-Scale (Major) exercise is conducted at least once every three years. Section 10.5.2.4 of CSA Z 662 clarifies this requirement:

“Operating companies shall have verifiable capability to respond to an emergency in accordance with their emergency procedures and response plans and shall demonstrate and document the effectiveness of such procedures and plans.”

This verification process is achieved through the evaluation of emergency response exercises – both by the Commission, and by the permit holder, a review of emergency response plans, and routine checks of training records maintained by emergency response programs.
In addition to the direction provided within the CSA standard, exercises must consider, and provide responding staff with the confidence and capability to manage “worst-case” scenarios. This can be accomplished by increasing the complexity of an exercise:

- By challenging staff to consider response options when primary control methods are unable to fully contain an incident.
- By testing resiliency and depth, including a mid-exercise transfer of responsibilities and/or by simulating a long-term incident response.
- By examination of significant incidents at similar operations, and building the exercise from lessons learned.

### 4.2.3 Exercise Notification

When permit holders are conducting an emergency management exercise in order to fulfil their minimum annual requirement, the Commission requires 30 days advance notice of the exercise. At the Commission’s discretion, one or more OGC staff may participate in an observer role. A copy of the exercise scenario and exercise objectives is to be provided 14 days prior to the exercise date.

An exercise notification form is available in the Documentation section of the Commission website.

### 4.2.4 Exercise Evaluation Process

Whenever Commission staff attend an exercise, an OGC evaluation of the exercise will be conducted. The evaluation will be used to confirm permit holder knowledge, skills and abilities to respond effectively to incidents relevant to their operations.

In addition to the criteria listed exercise evaluation tool, the complexity of a scenario will also be considered. It is important that staff and plans be exercised against potential worst-case scenarios. It is also recognized that these scenarios will be more likely to reveal gaps in plans, training and capacities so that they may be rectified in advance of an actual incident.

In some cases, a permit holder may also have assets regulated by other agencies, such as the National Energy Board or Alberta Energy Regulator. In cases where responding staff and resources are substantially the same as would be applied to a BC regulated asset, a request to hold a single exercise to which several regulators would attend and evaluate will be considered. In such cases, the BCOGC may elect to jointly (with another regulator) or individually conduct an evaluation.

There are three possible outcomes from an exercise evaluation:
1) **Satisfactory** - The permit holder’s exercise demonstrates an effective emergency management process is in place. Staff are capable of an effective response, and sufficient resources are present or readily available to address incidents ranging from minor to worst-case scenarios. There may still be opportunities for improvement identified.

2) **Satisfactory with conditions** - The permit holder’s exercise demonstrates most elements of a competent emergency management process are in place, and, with minor adjustments, are able to address the full range of potential hazards. Some additional staff training, or method of bolstering current resources may be necessary to ensure an effective response.

   A corrective action plan; outlining how these gaps will be addressed, assigning responsibilities, and deadlines for said responsibilities, is to be provided as part of the permit holder’s own exercise evaluation report submitted to the Commission. Items identified as urgent / critical must be completed within a time specified, and confirmation provided to the Commission. Subsequent exercise evaluations will confirm corrective actions have been taken, and a non-compliance notice may be issued if not completed.

3) **Unsatisfactory** - The permit holder’s exercise demonstrates a need for significant effort to meet requirements. Deficiencies which jeopardize public or responder safety exist in the permit holder’s emergency management program, plan, staff training, responding resources, or some combination of these essential elements.

   A corrective action plan, outlining how gaps will be addressed, assigning responsibilities, and deadlines for said responsibilities, is to be provided as part of the permit holder’s own exercise evaluation report submitted to the Commission. When deficiencies are identified that affect public safety, the permit holder has 7 days from notification to respond with a corrective action plan.

   It is expected that an exercise, of similar scope and scale to the one receiving an unsatisfactory rating, will be conducted within 90 days. A second unsatisfactory rating may lead to compliance actions.

The Commission may also provide guidance or suggestions for improvement, focussed on process or training. Permit holders should strive to incorporate these items prior to their next exercise.

As exercises are complex activities, there may be occasions when additional documentation or records are requested or offered to confirm completion of specific actions, or participation of personnel at multiple locations. The evaluation process will allow the permit holder to provide this additional information prior to the OGC finalizing an evaluation report.

Following an exercise, the permit holder should provide an exercise report:
• Within 30 days following receipt of the Commission’s exercise report.
• If no Commission staff attended, within 30 days of completing the exercise.

A copy of the BCOGC’s exercise evaluation forms (full-scale and tabletop versions) are available on the Commission’s website at http://www.bcogc.ca/industry-zone/documentation/Emergency-Response-and-Safety.
Chapter 5: Program Evaluation

An effective emergency management program includes processes to identify, evaluate, and implement opportunities for improvement. In addition to the data sources outlined in the CSA, permit holders may want to consider other options to identify new or emerging best practices.

5.1 Evaluation of an Emergency Response

In accordance with EMR ss.16 (4) and CSA Z246.2 ss.14.10, the permit holder’s emergency response program will conduct an evaluation of any response to an emergency. The evaluation provides an opportunity for the permit holder to assess and update emergency response plans, policies, procedures, resourcing and training in response to a real world emergency. A “Form D-Permit Holder Post Incident Report” is required for all emergencies [level 1-3 incidents,] all pipeline incidents, and may be requested by the Commission for minor incidents.

The focus of post-incident reports is to determine a root cause. Permit holders should include all factors that contributed to the incident, actions taken to prevent recurrence, and copies of any technical or process analysis that support the root cause findings.

Parts that are determined to be a manufacturers’ defect should note part or serial number, name of manufacturer, date in service, and service application (where and how used) in the report.

Post incident reports should be submitted to the Commission within 60 days of an incident, however extensions may be granted when weather or other site conditions are impeding access, or when the results of a technical investigation or third-party report require additional time to complete.

Extensions should be requested prior to the conclusion of the 60-day submission deadline.

5.2 Public and Worker Safety

The requirements and processes described in the Emergency Management Regulation are designed to create a framework for the protection of the public, property and the environment from emergencies arising out of oil and gas activities.
Worker safety is also an important issue and is subject to the [Occupational Health and Safety Regulation](#) administered by WorkSafe BC. Specific questions regarding employer obligations under the Occupational Health and Safety Regulation should be referred to WorkSafe BC.
6.1.1 PURPOSE OF THE EMERGENCY RESPONSE PLAN

An emergency response plan is required for all oil, gas and geothermal activities where a hazard exists. Permit holders are required to maintain their plans, providing updates as necessary to ensure the actions outlined in the plan address the full range of identified hazards, and that all response resources are sufficient and available to meet such hazards.

When an oil or gas permit holder operates a dam for the purpose of water supply to their oil or gas operations, the provisions of the Dam Safety Regulation, Section 9, can be met within the scope of a field or facility emergency response plan. This is accomplished by adding the appropriate mapping (inundation zone) and hazard response processes specific to the dam site.

The purpose of an emergency response plan is to ensure processes and resources are in place to support a prompt and effective response to incidents. The plan demonstrates how emergency responses are initiated and coordinated, and includes:

- Criteria for assessing an emergency;
- Procedures for responding to an emergency;
- Procedures for mobilizing response personnel and agencies;
- Procedures for communicating and coordinating between all affected parties, and
- The process for documenting response actions for post-incident review.

This approach protects the public, those employed by the permit holder, and the environment. An ERP should thus:

- Be well organized to ensure quick access to critical information;
- Clearly establish roles and responsibilities of responders;
- Identify response organizations and how the ICS structure is filled;
- Assist personnel in determining, and performing remedial actions;
- Identify predetermined resources, required personnel, equipment, and services;
• Coordinate activities among industry responders, emergency services, local authorities, governments, and others who have a role in providing an effective response;
• Ensure communication with all parties involved in, or potentially affected by an emergency;
• Increase public confidence in the ability of industry to effectively respond to, and manage emergencies.

6.1.2 Emergency Response Plan Requirements

All plans submitted to the Commission must be compliant with the provisions of the Emergency Management Regulation, including the routine maintenance of these plans (EMR Section 8). CSA Z246.2 ss. 11 outlines both the contents, and objectives of a sound emergency response plan. The Commission also provides a helpful checklist (available on the OGC website under Industry Zone/Documentation / Emergency Response and Safety).

Authorization holders for geothermal activities are also required to submit an emergency response plan not less than seven days prior to the start of any activity (Geothermal Operations Regulation, S. 2(d)) and all plans must meet requirements as set out in permit conditions.

The Commission must be provided with updated contents of any ERP:

• After any significant changes to site-specific hazards or risks;
• After an emergency response, when it is determined that changes in the plan must be made;
• At least once per year (time between reviews not to exceed 12 months).

Under CSA Z246.2 ss. 11.2 (e), all emergency response plans must include:

1. The legal name and address of the applicant or permit holder’s operations in BC.
2. The permit holder’s 24-hour emergency phone number. This is the same number that must be posted at all facilities.

Applicants or permit holders should also include the name and contact information of the program coordinator and local field / site supervisors. This will assist the Commission when there is important, site-specific emergency information to be shared, such as notices of forest fire coordination calls, severe weather warnings, regional security concerns, etc.
6.1.3 WHAT TO KNOW WHEN SUBMITTING AN ERP OR ERP UPDATE

With the October, 2014 introduction of the EMR, all Emergency Response Plans must be submitted in both paper and electronic formats. When contents of a plan are changed, the revised pages are mailed to the Commission, and the electronic version of the plan resubmitted with the changes included, and noted on the revisions page. A new and complete version of the electronic format must be submitted; the Commission will not accept incomplete files or revision-only sections.

A copy of the completed checklist should always accompany a new submission, and is necessary whenever a request to expedite review of a plan has been made by the permit holder. A completed checklist also supports faster review of the document’s normal processing.

Unless an extension has been requested by the permit holder in advance of expiry, and granted in writing by the Commission, a plan ceases to be valid one year after the date on which it was compiled or updated.

**EXAMPLE:** A field supplemental emergency response plan was reviewed and updated on 15 April 2018, but only submitted to the Commission 30 May 2018. The anniversary date by which an updated ERP must be submitted to the Commission is 15 April 2019.

6.1.4 ANNUAL AND OTHER UPDATE REQUIREMENTS

Plans must be reviewed every year to confirm information contained remains accurate and relevant. In some cases, there may be no changes required to the plan. When this occurs, permit holders can re-submit their plans in electronic format only, with a new cover sheet showing:

- The date the review was completed. (anniversary date)
- The person responsible for the review. (approving authority within company)

**Routine Maintenance of Plans**

Outside of the annual requirements, permit holders must ensure any changes to emergency response plans are implemented in every copy of the plan. Effective document control processes should be identified and employed to be certain that changes are made and recorded in all copies of the ERP, including the copy held by the BCOGC.

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5 See Appendix F – Submission of Plans in Electronic Formats for further information
When submitting updates to assets, a separate page showing all new assets to be included in the plan, and any assets being removed from the plan is requested. This will assist in the timely review of your ERP update.

**PLEASE NOTE:** Routine maintenance of plans, such as updates to telephone numbers, the addition or revision of pages for a new facility, etc. do not constitute an annual review, which should be a comprehensive process to confirm all key actions, accountabilities, resources and public safety information remains current and valid.

Plans also require a review and in some cases updating, under the following conditions:

- After an emergency response evaluation as required under CSA Z246.2 ss. 14.10.
- If site-specific risks of the oil and gas activity change significantly. As part of the review process the permit holder must:
  - Determine if persons or entities within the HPZ have changed;
  - Ensure that any new persons or entities within the HPZ have been provided with information about the hazards and risks of the oil and gas activity;
  - Provide updated information on the oil and gas activity to persons or entities within the HPZ; and,
  - Consider any responses that were provided by persons or entities after the plan or updated information was submitted to the Commission.

### 6.1.5 Extensions to Plans

There have been occasions when unexpected factors such as a change in ownership may delay the updating process, or weather factors affected completion of drilling operations slightly beyond the one-year anniversary. The Commission will consider short extensions (on a case-by-case basis) to allow the continued use of an ERP beyond the one year mark.

As part of the considerations, permit holders must confirm that all hazards, hazard planning zones, contacts and any land use (such as residents, trappers, guide-outfitters, other tenure holders, etc.) within the HPZ identified in the original plan remain accurate and applicable.

Any requests for extension to a plan should be made in writing at least 30 days prior to the anniversary / expiry date. Extensions will not normally be considered for more than 60 days beyond the anniversary date.
6.1.6 ERP Bridging

Bridging – the short-term use of one permit holder’s ERP by another permit holder – is permissible when ownership of an asset or group of assets are transferred. The Commission must be notified in writing, and by both parties, when a bridging agreement is in effect, including the term of the agreement. Any alterations or cancellations of agreements, in whole or in part must also be reported to the commission in the same way.

The ERP of the Transferor (initial owner) may be used by the Transferee (company receiving the asset) until such time as the Transferee’s ERP can be updated to reflect the new asset(s). This should normally be concluded within 30 days of the change in ownership.

6.1.7 ERPs and Contract Operating

In some cases, a permit holder may find that, for a small number of assets (particularly in remote areas), it may be beneficial to establish a relationship with another permit holding company also operating assets in the area, to oversee and manage the combined assets of both organizations on a contract basis. This would not be considered a mutual aid agreement, as all operating and incident response resources would be provided by one party.

The permit holder owning the assets (the “asset owner”) has an agreement with another permit holder (the “operating permit holder”) to contract operate one or more assets, and:

- The asset owner retains liability for meeting all regulatory requirements for the asset(s).
- Both permit holders agree to the use of the operating permit holder’s emergency response plan for any potential incidents.
- The operating permit holder has sufficient response capacity (staff and equipment) to oversee the combined assets being managed.
- The assets being managed are included (listed and mapped) in the contract operator’s ERP, meeting all regulatory requirements as if the assets were owned by the contract operator. This includes locations of any resident or rights-holder within the HPZ, and protection of the confidentiality of resident information.
- The asset owner must provide the Commission with their own emergency response plan for the assets being contract operated. While this may be an abbreviated form of the ERP, it must include a risk assessment for the asset(s) being managed, a list of available incident response resources appropriate to the risks, and contact information for both the asset(s)
owner and the operating permit holder. A copy of the contract agreement must also be included in the ERP.

- The contract agreement must clearly state that the operating contractor has been provided the authority, to direct and engage, the resources required to initiate a response to any incidents related to the assets noted in the agreement.

### 6.2 Emergency Management Planning

Through the *Emergency Management Regulation*, companies must develop emergency response plans that address the complete range of risks (the “all-hazards” approach noted in Section 11.2 of CSA Z246.2) associated with their operations. This process begins with an HRVA – Hazard, Risk and Vulnerability Assessment. As part of the HRVA process, it is important to consider the full scope of hazard management and mitigation. The HRVA should:

- Examine the full range of potential incidents and hazards, including worst-case scenarios – spills, leaks, equipment failure, natural disasters (fires, flooding, extreme weather, lightning strikes, etc.) communications failure / loss of control or monitoring, vandalism, etc.
- Identify current assets – equipment, trained and experienced staff, mutual aid agreements, contracted resources, etc.
- Analyze capabilities and capacities against assets – a “Gap Analysis” to determine any areas where the risks levels and resources don’t align.
- Create an Action Plan - Any shortfalls are addressed by the most appropriate means; a timeline and measurable objectives are set; and interim measures may be put in place to bridge short term gaps.
- Regularly review operations to see what factors may have changed – new staff, new equipment, new processes, changes in contracted suppliers, etc. and determine how these affect risk, and what steps may be necessary to manage them appropriately.

Sound emergency response planning must therefore begin with a thorough and systematic risk assessment.

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6 An [on-line sample of an HRVA tool](#) can be seen on EMBC’s website. Although focused on community hazards, it does provide insight into how risks may be assessed for those unfamiliar with the process.
**Hazard Recognition**: Hazards should be identified, assessed and then prioritized against potential vulnerabilities. Assessing the risks associated with all hazards in an integrated way helps reduce the vulnerability of people, property, the environment and the economy.

**Comprehensive Focus**: A comprehensive approach to emergency management should be adopted, considering the preparedness, prevention, mitigation, and the response and recovery components necessary for a sound plan.

**Partnerships / Mutual Aid / Other Sources of Assistance**: Collaboration, coordination and communication are the keys to effective emergency management. Real-life incidents rarely follow the scripts laid out in training and exercises. Identifying potential sources of assistance, and building awareness of capabilities and competencies within these sources enables the incident response team to improve decision-making and resource allocation.

**Continuous Improvement**: Lessons learned and knowledge generated from experiences, observations, and evaluations should be used to continually improve practices and prevent the same challenges from recurring. Continuous improvement should be shared widely and form an integral part of every emergency management function.

### 6.3 Core and Supplemental Plans

Under SS. 5 of the EMR the applicant or permit holder must submit both electronic and paper copies of the plan to the Commission. The applicant or permit holder must also provide a copy of any updates to the plan. Plans must be submitted and reviewed before an oil and/or gas activity occurs.

In an effort to simplify and streamline the development, management and auditing of emergency response plans, the OGC strongly recommends plans be separated into two distinct types:

1. CORE Plans
2. Supplemental Plans

This organization also supports the Commission and industry’s commitment to transparency, and allows timely and efficient public access to Core emergency response plans, which should not

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Permit holders must be aware that the Commission intends to support public access to these CORE plans, and will not be responsible for redaction of any information contained within these plans.
contain personal or sensitive company information more commonly found in supplemental (site-specific) plans.

Core plans will tend to be a more static document, with set processes, policies and procedures authorities to activate plans. The core will also include ICS structure, establishment of an emergency operations centres, corporate communications and information policies, ignition protocols, and processes for roadblocks, securing an incident site, preserving evidence, etc.

Creating core plans as a stand-alone document should also enable these to be maintained with minimal administration necessary to keep them current. In some cases, the only procedure necessary will be a review of contents, and an affirmation (documented) that all information remains relevant and accurate.

A supplemental plan will typically require a higher level of maintenance than core plans, and will be in one of the following two distinct categories:

1. **Drilling and completions** (sour or sweet) -- While these plans are valid for one year, short extensions are possible on request by permit holders, and review by OGC. A Supplemental Plan may also be created for, and applied to a multi-well pad.

   - For well sites once drilling and completions activities have been concluded, the well(s) should be included in the appropriate Field Supplemental ERP by updating the applicable sections.

   - **Workovers** and maintenance activities that will extend the hazard beyond the HPZ contained in the applicable supplemental plan must submit a workover plan (and mapping if residents are affected) showing the temporary extension to the HPZ, and listing rights holders affected.

2. **Facilities, Fields and Pipelines** – These supplemental plans are typically organized by operating area or when a large or unique facility requires specialized training for an effective incident response.

   For transmission pipelines, the entire project may be included in a single supplemental plan; however it may be necessary to address regional differences in response equipment and personnel.

Supplemental plans will include:

**Description of the oil and gas activity** – This must include:
Site-Specific Risks

Under ss. 13 (2) (c)(i) of the EMR, the description of the oil and gas activity must include site-specific hazards and risks, identified in an all-hazard risk assessment. This assessment should:

- Identify all hazards associated with the oil and gas activity and operations.
- Identify all hazards which will likely impact operations and assets.
- Identify values at risk: people, property, and environment.
- Define the hazard controls to mitigate risks to people, property, and/or environment.
- For pipelines, the risk assessment should consider the cumulative risk and release potential when multiple lines share a right of way.
- For acid gas disposal sites, additional permit conditions with respect to risk mitigation may apply.

When conducting the risk assessment, it is recommended that the permit holder reference applicable recognized standards or guidance, such as CSA, ISO, NFPA or API.

Emergency response mapping

Under ss. 13 (2) (b) of the EMR, and S. 5.7.4 of the Oil and Gas Activity Applications Manual, an emergency response map must show all of the following applicable information:

- The location of the oil and gas activity that is the subject of the plan.
- The HPZ and Emergency Awareness Zone.
- The location of roads, including oil and gas roads, within the HPZ.

If the area, feature, structure or location may be affected by an emergency or may affect the response to an emergency the emergency response map must also show all of the following information:

- The area adjacent to the HPZ.
• Surface and environmental features and structures, including stream crossings and lakes within the HPZ.

• The location of commercial, industrial or critical infrastructure operations within the HPZ.  

• The location of a registered trap line, guiding territory or Crown range within the HPZ.

• The location of any other areas within the HPZ that may be used by the public, including, without limitation, dwellings, schools, churches, community centers and public facilities, campgrounds, fair grounds and recreation areas.

• The distance in kilometers to the nearest occupied dwelling. This may be provided as a note if the scale of the map does not allow for inclusion of the dwelling.

• For pipelines, the map should include tie-ins (including the name of the upstream company, if different) block and ESD valve locations. Project and segment numbers should be shown.

Distances must be accurately measured if an occupied dwelling is located within a 2-kilometre radius from the proposed activity. In remote areas, the Commission does not require applicants to search a large radius to identify the nearest occupied residence. It is acceptable to ground truth the area out to the edge of the Emergency Awareness Zone (EAZ) and estimate the distance to the nearest occupied dwelling when it is outside of the larger of the HPZ or 2km radius.

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7 It is highly recommended that any critical infrastructure (CI) within 1 km of the EPZ be noted and listed within the plan. This supports direct communications should an incident take place with the potential to affect the CI operator or process.
6.4 CREATING AN EMERGENCY RESPONSE PLAN

6.4.1 DETERMINING HAZARD PLANNING DISTANCES

Hazard planning distances are used to identify a geographical area (a hazard planning zone) within which persons, property, or the environment may be affected by an emergency. The combined geographic areas of hazard (emergency) planning zones are used by the applicant or permit holder to identify an HPZ where immediate response actions are required, in the event of an emergency. The HPZ is a foundation element for the applicant or permit holder’s plan and is used to help identify persons or entities that must be involved in emergency management planning in accordance with s.7 of the EMR.

The HPZ is based upon the greatest hazard present, or expected to be normally present, for which the Emergency Response Plan has been developed. In many cases, oil and gas operations will have a number of products associated with their operation, such as propane bullets, condensate storage, containment for produced water, etc. that create a hazard area. When present, H2S is typically the greatest hazard and will often determine the extent of an HPZ.

Section 7 of the EMR defines a hazard planning distance as a horizontal distance measured from the site of an oil and gas activity that is the subject of the plan. Permit holders with assets near airports should also consider the vertical dispersion of vapours, and must include airport authorities in the contacts section of their plans.

The applicant or permit holder must calculate the hazard planning distance for fluids containing hydrogen sulphide using Schedule A of the EMR (for facilities), Schedule B of EMR (for wells) or Schedule C of the EMR (for pipelines).

A best practice, particularly for sour operations, is to round up the calculated HPZ by 10 per cent for distances under one kilometer, or to the next highest 100 meter increment for distances over one kilometer. This effectively addresses one of the challenges that can arise when a small increases in a hazard, release rate or H2S concentration affects the HPZ.

When extreme precision is used in a plan (e.g. HPZ = 242.35m) even a modest increase (new HPZ calculated value = 248.4m) creates an inaccurate plan.

Permit holders may submit plans and maps showing the effective (rounded up) HPZ; there would be no requirement to resubmit plans or request variances so long as the changes fall within the effective HPZ.
In some cases, companies have incorrectly referenced only the nomographs in Schedules A, B or C for activities where no H2S is present, and attempted to proceed with an HPZ of zero.

For hazards other than hydrogen sulphide, the permit holder must calculate the hazard planning distance by taking into consideration the types of hazards and risks arising from the oil and gas activity that is the subject of the plan. (EMR ss. 7(3))

Ultimately, the applicant or permit holder will identify an HPZ for an emergency response plan that will encompass all hazard planning zones of the oil and gas activity that is the subject of the plan.

6.4.2 Pipeline Hazard Planning Distances

For pipelines carrying low volatility, low toxicity product with an HPZ distance equal to or less than the Right-of-Way, the right of way distance may be used, extending the length of the pipeline. In no case should the HPZ be less than the right of way.

For pipelines carrying a high volatility or high-hazard product, the HPZ distance should be calculated from the edge of the right-of-way.

When multiple pipelines share a right of way, or when rights-of-way overlap, the HPZ distance must consider the cumulative effect of each pipeline, using maximum licensed values.

For H2S, the calculations provided in Schedule C of the EMR must be used, however it may be possible with very low percentages of H2S that other hazards will determine the HPZ distance.

6.4.3 Well Site Hazard Planning Distances

The HPZ for sour wells must be calculated using Schedule B of the Emergency Management Regulation. Please review section 8.3.9 “Special Sour Wells” in the Oil and Gas Activities Manual for additional guidance and conditions, which may apply.

Acid gas disposal wells will typically have permit conditions that specify a method for determining an HPZ. Permit holders must also clearly indicate in their plans if the acid gas can be ignited in the proportions under which it is being stored, or if additional fuel gas would be required to support combustion.

Observation wells, or other wells that are in communication with a disposal formation, should use the maximum licensed reservoir pressure provided to the disposal well operator in a Section 75 order when calculating the HPZ for any such wells.
Sweet well HPZ’s will be calculated by the permit holder based on AOF, plume dispersion, LEL and considering any additional hazardous materials on site.

For geothermal wells, the HPZ should consider the potential impact of uncontrolled surface dispersion of fluids encountered while drilling or during production of a geothermal source.

6.4.4 FACILITY HAZARD PLANNING DISTANCES

The HPZ for facilities that process sour product must be calculated using Schedule A of the Emergency Management Regulation, however it may be possible when there are very low percentages of H2S that other hazards will determine the HPZ distance.

To determine hazard-planning distances, a risk assessment will need to be conducted. When a permit holder has multiple facilities of a similar type, managing similar products and volumes, a generic hazard assessment and HPZ can be applied.

6.4.5 EMERGENCY RESPONSE RESOURCES

Under CSA Z246.2 ss.7.2 (d) an applicant or permit holder must identify and describe predetermined resources available for deployment in an emergency. The description should include the location of required personnel, equipment and services, and consider any challenges that may affect the timely arrival of any off-site resources, such as weather, forest fires, roadworks, etc.

Types of equipment may include, but are not limited to, the following:

- Primary communications (types of equipment, radio frequencies, etc.);
- Back-up emergency communication systems
- Roadblock kits (number and contents);
- Ignition equipment (locations on or near site, and how to access additional off-site);
- Gas monitoring equipment (number and type, and how to access additional off-site).
- Initial spill response equipment (maintained on site)
- Additional nearby resources (available through mutual aid, spill cooperative membership or on contract) such as booms, skimmers, portable tank / containment, absorbent materials, earth moving machinery (berm and bell hole building), vac trucks, etc.
- Resources listed should also consider possible sources of personnel to aid in deployment of spill containment equipment, staff roadblocks, assist with evacuations and roving, etc.
Under ss. 12 (a) of the EMR, the emergency communication system must be capable of enabling communications between the following:

- The permit holder.
- The emergency response staff (employee and contracted).
- The public.
- The commission.
- Government agencies and authorities.

The emergency communication system must be tested annually to confirm the equipment is functional.

The plan should describe the internal and external methods of communication that the applicant or permit holder will use to inform affected parties of the details of an emergency, and to facilitate emergency communications between emergency responders. Appendix B provides an outline of issues that should be addressed in the plan.

### 6.4.6 Deployment, Monitoring and Communication Procedures

Under ss. 10 (2) of the EMR, the plan must include a description of how the applicant or permit holder will:

- Deploy and monitor the emergency response resources in an emergency.
- Notify those persons and other entities who may be affected by an emergency.
- Provide information to those persons and other entities regarding an emergency, including shelter in place or evacuation decisions, if applicable.

### 6.4.7 Share Information with Persons or Entities in the HPZ

Persons or other entities that may be in harm’s way need to have information about applicant or permit holders emergency response programs and understand how an emergency response plan will affect them. Applicants and permit holders need information about persons or other entities, in order to develop an effective emergency response plan.

Under s. 13 of the EMR, before submitting a plan to the Commission, an applicant or permit holder must [provide emergency management information](#) to persons or other entities located within the HPZ regarding the potential hazards of the oil and gas activity. Public information packages must be
provided to all persons living within an HPZ, or required to transit an HPZ to access their residence or tenure.

The applicant or permit holder must also request that the person or other entity describe how they may be affected by an emergency.  

The EMR requires the exchange of emergency management information in order to ensure that all hazards that may threaten public safety, infrastructure or the environment have been considered in the development of an emergency response plan. In addition, the exchange of information ensures that there is a process to contact persons or other entities in an HPZ and if necessary, evacuate them in the event of an emergency.

The Commission recommends the use of informational meetings (particularly in advance of entering the sour zone) as a useful way of confirming contact information for persons within the HPZ, updating emergency response plans (ERP’s) with any new or changed contacts, and considering any new factors within the community that may impact the way in which an ERP is implemented.

The Energy Safety Association’s “Site Specific Orientation Guideline” provides a useful summary of the key topics that should be addressed in these informational meetings with both employees and contract crews.

The EMR requires that emergency management information be provided to persons or other entities located within the HPZ regarding the potential hazards of the oil and gas activity.

The applicant or permit holder must also request the person or other entity describe how they may be affected by an emergency.

**Information Requested from persons within the HPZ**

Under ss. 13 (2) (d) of the EMR the applicant or permit holder must request that the person or entity provide:

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8 The exchange of emergency management information is not the same as consultation. The Oil and Gas Activities Act and the Consultation and Notification Regulation require oil and gas applicants to conduct consultation and/or notification prior to submitting an application for an oil and gas activity. Consultation and notification must be completed before an application is submitted.
Name and contact information

Contact information that can be used for ongoing communications and for contact in the event of an emergency. The applicant or permit holder should request that the person or other entity identify a preferred method of contact for regular communications and emergencies. This should include:

- 24 hour telephone number for emergencies;
- Legal address of any residence, business or facility. In the event that the legal address is not tied to the actual location being occupied (i.e. a post office box), the applicant or permit holder should request the address or location that should be used by emergency responders;
- Email address for non-emergency communications.
- Any other communication method as identified by the person or entity.

The applicant or permit holder can also request additional relevant information regarding other occupants at the location including family members or employees, their personal contact information, and information regarding patterns of attendance such as schooling.

Description of how the person or entity may be affected by an emergency

This requirement provides an opportunity for a person or entity to identify concerns, vulnerabilities or make requests regarding response procedures and individual emergency response requirements.

Issues that can be considered in emergency planning include health sensitivities, mobility issues, effects on and needs of pets and livestock, and concerns about security of the premises during an emergency.

Under ss. 13 (3) of the EMR, the applicant or permit holder must consider the response of a person or entity to the emergency planning information package when preparing the plan.

Any responses received by a permit holder after the plan has been submitted to the Commission must be considered when the plan is reviewed and updated (ss. 8 (2) (c) of the EMR).

Information collected from the person or other entity may be personal information as defined by the Personal Information Protection Act (PIPA). Private sector organizations that collect personal

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9 Personal information is defined as information about an identifiable individual, which includes (but is not limited to) their name, home address, phone number, medical information, and employment information.
information in British Columbia are subject to the Act, which sets out the rules for how personal information may be collected, used or disclosed.

Applicants and permit holders should ensure that they comply with PIPA when collecting information from persons or entities within the HPZ. Applicants and permit holders can contact the Office of the Information and Privacy Commissioner for British Columbia for more information.

As a public body, the Commission is subject to the Freedom of Information and Protection of Privacy Act (FOIPPA). Any personal information contained in plans submitted to the Commission will be subject to the protection and security requirements identified in FOIPPA.

**Information that must be shared by the Permit Holder**

Under ss. 13 (2) of the EMR the applicant or permit holder must provide emergency planning information to a person or entity occupying or having jurisdiction over land within the HPZ before submitting the plan to the Commission. This allows the applicant or permit holder to identify key contacts and collect relevant information that should be considered in the development of an emergency response plan.

The following information must be included in the emergency planning information package:

- The applicant or permit holder’s name and contact information
- The applicant or permit holder’s contact information and a 24-hour emergency telephone number from which an emergency response action can be initiated.
- A map of the HPZ (for a dam inundation zone, must include slope contour lines)

In accordance with ss. 13 (2) (b) of the EMR the map must show the location of the HPZ in relation to roads (including oil and gas roads), dwellings, schools, and public and private facilities.

The map should include easily understandable labelling which could include compass orientation, a bar scale and legend that explains any map symbols. The map can be specifically drawn for inclusion in the information package, or the applicant or permit holder can use an existing map as long as the existing map is understandable to the target audience and clearly illustrates the requirements outlined above.

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Note that CORE plans should be developed with the intention to provide public access “as-is.”
Description of hazards and risks

The intent of this requirement is to provide persons or other entities in the HPZ a realistic understanding of the nature of the hazards and risks of the oil and gas activity, how the hazards may affect a person or entity, and to provide relevant information on the actions to take, in the event of an emergency. The hazard description should be provided in a way that is understandable to the target audience, and can include drawings or pictorial representations that will assist the person or other entity to understand the planned emergency response procedures.

The description must include:

- The site-specific hazards and risks of the oil and gas activity.
- How the applicant or permit holder’s response to an emergency may affect the person or other entity.
- How the applicant or permit holder will provide notification on whether the person or entity should shelter in place or evacuate in the event of an emergency.
- How the person or other entity can get to safety in an emergency.

Defining a person who occupies land

It is important to know which persons are occupying land within the HPZ so that emergency responders can effectively identify, communicate, and if necessary evacuate individuals in the event of an emergency. A person occupying land within the HPZ may include:

- Permanent and part-time residents, including those residing on dead-end roads beyond an HPZ, where occupants are required to egress through the HPZ.
- Business owners and/or operators and industrial operators, including oil and gas operators with staffed facilities.
- Private and public recreational property owners and/or operators (e.g., campgrounds, trapper cabin, private cabins, etc.) In and adjacent to an HPZ.
- The users of public facilities, such as schools and community centers in or adjacent to an HPZ.
- Non-resident landowners or farmers renting land who do not dwell on the property but whose lands are within an HPZ. These persons should be considered in the development of the ERP and be advised their property lies within the HPZ.

Timing considerations are an important factor in identifying if a person occupies land within the HPZ. For example, an applicant or permit holder would provide emergency management
information to a person who has a secondary residence or cabin in the HPZ, but who may only be at the residence during specific periods during a year.

A local authority

A local authority is a regional district or a municipality. Under the Emergency Program Act local authorities are accountable for the direction and control of emergency response within their jurisdiction. The applicant or permit holder must share emergency management information with local authorities to ensure coordination of emergency response activities, and to ensure that the applicant or permit holder is familiar with the local authority’s communication procedures and chain of command.

Under ss. 13 (1) (f) of the EMR, a municipality must also be contacted when any part of the HPZ is located within the right of way of an arterial or municipal highway within that municipality. Applicant and permit holders should contact the local authority to determine which routes have been designated as a municipal highway within the local authority’s area of jurisdiction. Arterial highways are designated by the Ministry of Transportation and Infrastructure (see 2.1.6 below).

The Government of Canada

When there is an existing federally owned installation or federally regulated land within the HPZ, emergency management information must be provided to the federal agency or organization. Applicants or permit holders should provide the information to the appropriate local federal government contact. Examples of federal installations and federally regulated land include:

- First Nations reserves.
- Harbour facilities.
- Military bases.
- Office buildings or other structures.
- Railways.
- National parks.

Locations of federal buildings and structures can be obtained from the federal government’s Directory of Federal Real Property.

First Nations

First Nations have constitutionally protected aboriginal or treaty rights to practice traditional activities on Crown lands throughout British Columbia. These rights are practices, customs or traditions integral to the distinctive culture of a First Nation and they may be historically connected to a particular area of land. Examples may include hunting, fishing, plant gathering and use of wood for domestic purposes. More than one First Nation may have rights in the same area and the types
of rights may vary across communities. First Nations may be able to assist the applicant or permit holder to identify First Nation activities on the land base that should be considered in the development of an emergency response plan.

Under ss. 13 (1) (d) of the EMR if all or a portion of a First Nation’s reserve is located within the HPZ the applicant or permit holder must provide emergency management information to the First Nation. Applicants or permit holders should also contact the First Nation if a portion of the First Nation’s traditional territory is within the HPZ.

Applicants and permit holders can use “GeoBC’s First Nations Consultative Areas Database” to identify and find contact information for First Nations who may have interests within the HPZ. Applicants or permit holders may also contact the Ministry of Aboriginal Relations and Reconciliation or the Commission for assistance in identifying First Nations in the HPZ.

The Ministry of Transportation and Infrastructure

Arterial highways are provincially regulated highways located within a municipality. Emergency management information must be provided to the Ministry of Transportation and Infrastructure if any part of the HPZ is located within the right of way of any of an arterial highway. Locations of arterial highways are available from the Ministry of Transportation and Infrastructure and can be found on iMapBC.

A rights holder

A rights holder is a person granted non-intensive occupation or use of Crown land by the Government of British Columbia by a permit, licence or other approval. For the purposes of this manual, a rights holder does not refer to a First Nation that holds constitutionally protected aboriginal or treaty rights (as addressed in 6.3.7 above).

Applicants or permit holders must consider the activities of rights holders when developing an emergency response plan. Rights holders may have buildings, structures or other facilities located within the HPZ, or may have workers operating within HPZ.

Although not specifically identified in the Regulation, the Commission considers recreation sites established under Section 56 of the Forest and Range Practices Act as tenure holders. Applicants or permit holders should contact the Ministry of Forests, Range and Natural Resource Operations for more information.

Information on rights holders in a particular area can be accessed through Front Counter BC and local Service BC locations.
In accordance with the EMR, a “rights holder” is defined in s. 1 of the Consultation and Notification Regulation and holds the rights noted in Table 1.

**Table 1: Rights holders under various legislation**

<table>
<thead>
<tr>
<th>Legislation</th>
<th>Permission</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land Act</strong></td>
<td>Temporary Occupation of Crown Land, non-intensive use</td>
</tr>
<tr>
<td></td>
<td>Licence of Occupation, non-intensive use</td>
</tr>
<tr>
<td><strong>Forest Act</strong></td>
<td>Forest Licence</td>
</tr>
<tr>
<td></td>
<td>Forest licence to cut (major)</td>
</tr>
<tr>
<td></td>
<td>Community forest agreement</td>
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<tr>
<td></td>
<td>Timber sale licence</td>
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<tr>
<td></td>
<td>Tree farm licence</td>
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<tr>
<td></td>
<td>Woodlot licence</td>
</tr>
<tr>
<td><strong>Range Act</strong></td>
<td>Grazing permit</td>
</tr>
<tr>
<td></td>
<td>Grazing licence</td>
</tr>
<tr>
<td><strong>Wildlife Act</strong></td>
<td>Guide outfitter’s licence</td>
</tr>
<tr>
<td></td>
<td>Guiding territory certificate for Crown land</td>
</tr>
<tr>
<td></td>
<td>Registered trap lines (including trap lines held by a member of a First Nation)</td>
</tr>
<tr>
<td><strong>Mineral Tenure Act</strong></td>
<td>Mineral claim</td>
</tr>
<tr>
<td><strong>Water Act</strong></td>
<td>Water licence</td>
</tr>
</tbody>
</table>
CHAPTER 7: RESPONDING TO INCIDENTS AND EMERGENCIES

7.1 INTRODUCTION

During and oil and gas activity, an unanticipated incident may occur that is outside normal operations. An emergency response begins when an incident is imminent or immediately after an event occurs.

An incident becomes an emergency if the response requires actions by the permit holder to protect persons, property or the environment. See Section 7.3 for information on incident classification.

Permit holders are the primary responders when emergencies or incidents occur, and must implement their emergency response plans immediately. As soon as practicable (commonly within the first hour), the permit holder must inform the Commission, via EMBC. The Commission will provide oversight and monitor events during incident and emergency response.

Minor incidents are to be reported within 24 hours of discovery via the Commission’s on-line reporting system.

A response includes the activities that address the short-term, direct effects of an incident. Response also includes the execution of emergency plans and operational activities designed to

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OGAA S. 37 - Spillage

(1) A permit holder and a person carrying out an oil and gas activity must
   (a) Prevent spillage, and
   (b) Promptly report to the commission any damage or malfunction likely to cause spillage that could be a risk to public safety or the environment.

(2) If spillage occurs, a permit holder or person carrying out an oil and gas activity must promptly do all of the following:
   (a) Remedy the cause or source of the spillage;
   (b) Contain and eliminate the spillage;
   (c) Remediate any land or body of water affected by the spillage;
   (d) If the spillage is a risk to public safety or the environment, report to the commission:
      (i) The location and severity of the spillage, and
      (ii) Any damage or malfunction causing or contributing to the spillage.

(3) A person who is aware that spillage is occurring or likely to occur must make reasonable efforts to prevent or assist in containing or preventing the spillage.
Protect persons, property and the environment. In the event of an incident that involves a spill, permit holders must also comply with s.37 of OGAA.

### 7.2 Responding to an Incident or Emergency

When an incident occurs that is the result of oil and gas activity, ss.10 (2) of the EMR and s. 14 of CSA Z246.2 requires that the permit holder:

- Implement their emergency response plan immediately.
- Take such other actions as necessary to respond effectively and adequately to the emergency.

In accordance with s. 9 of the EMR an applicant or permit holder must have a copy of the plan, in paper or electronic form at the applicant’s or permit holder’s head office and the plans must be accessible by emergency response staff.

The plan must be implemented in accordance with the following order of priorities:

1. Protection of emergency response staff.
2. Protection of the permit holder's employees.
3. Protection of the public.
4. Protection of property.
5. Protection of the environment.

Permit holders are responsible for carrying out their response activities until the incident is resolved.

### 7.3 Classifying and Reporting the Incident

The classification of an incident is determined for each event or circumstance by identifying the probability of escalation or control of the event or circumstance at the time it is discovered using the Incident Classification Matrix contained in Schedule D of the EMR. From time to time, the nature and scope of an incident may not be immediately clear, and adjustment to the level of incident may be required as more information becomes available or the incident evolves.

- For minor incidents – those with a total score of two or less on the Classification Matrix, permit holders are responsible for directly entering information into the Commission’s online reporting tool [Kermit] A guide for this tool is available online.
- For incidents that involve the release of a reportable volume / product – as defined under the Spill Reporting Regulation – a Dangerous Goods Incident Report (DGIR) must be obtained
from Emergency Management BC [EMBC.] The report must include the product type, volume and clean-up status, as well as the UTM location.

- Note that incidents involving a form of transportation (truck or rail) also have reporting requirements under federal Transportation of Dangerous Goods (TDG) regulations, and some products have significantly smaller reportable thresholds under the federal process.

- When a sour gas product is released, any measurement of 10ppm or greater measured at 1 meter from the source of the leak requires reporting as an incident. Protective actions to prevent public access must be taken. This requirement applies to leaks from any source, including surface casing vent assemblies.

- A release of any product into moving water is considered an off-lease / right of way spill.

- Incidents scoring 3 or higher are classified as emergencies, and are reported through EMBC. The Commission’s duty emergency officer will be notified by EMBC, and will directly contact the permit holder (or representative) who has assumed the on-scene incident commander role. A DGIR is also obtained if there is release of product.

**All contact with EMBC is through the 24-hour reporting line at 1-800-663-3456.**

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**Incident reporting process**

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For Minor Spill incidents, EMBC is called promptly. EMBC will issue a Dangerous Goods Incident Report (DGIR) number.

Minor incidents (both spill and non-spill) are reported through the Commission’s KERMIT system, and the entry must be completed within 24 hours. The DGIR number is to be entered in Kermit by the permit holder. For proprietary product spills where familiarity with the hazard and appropriate protective actions may not be commonly known, the CAS number(s) and material safety data sheet (MSDS) are to be included in the incident report.

Dam safety incidents are reported through EMBC to the Commission’s Duty Emergency Officer. When reporting to EMBC, permit holders should ensure the EMBC operator is aware that the dam facility is under BCOGC jurisdiction.

For further assistance with dam incident classification, please review the incident classification section.
7.3.1 Determining an Incident Level

The incident classification matrix is used to determine the level of any incident, from minor to a level 3 emergency. A copy of the matrix should be included in every ERP.

When using the incident classification matrix, begin at the highest Consequence rank, read the descriptions, and check off the first one that best matches the situation.

There can be multiple checks, however only the highest ranked item is used in the calculation of incident level.

When considering consequence levels with respect to spills, the amount of affected area and type of landscapes must also be factored in to the incident level. Spills into navigable or fish bearing waters have added significance, while a spill affecting 500 hectares is going to have greater consequence than something that is confined to a few hundred meters.
Next, consider the Probability table, and select the best choice based on what you know about the incident AT THE TIME OF DISCOVERY.

Adding the Consequence and Probability values, compare the total to the incident classification table.

**Classification: Selecting a PROBABILITY level:**

The Probability level is the likelihood that an incident can escalate. It is a measure of control at the exact moment that the incident occurs, or is first noticed. Examples of probability levels:

**Probability 0** – “Will not escalate; no hazard; no monitoring required” – This level is typical of a fixed quantity spill that is completely contained by a berm or impoundment, or able to be immediately remediated. A probability of zero cannot be assigned if the source of the spill has not been controlled, accurately identified, or the extent of the spill fully defined. Spills to water are highly unlikely to have a probability of zero, given the likelihood of spill migration and impacts. Examples of a Probability 0 event include:

- A vac truck hose splits, and a few hundred liters within the hose are released on the lease site.
- A tank sight glass gets broken and contents leak into a berm or similar containment area;
- A generator sump is overfilled with lubricating oil, and spills within the building.

Example of a Probability 0 event for a dam:

- Very minor cracks and slumps that are not accelerating or worsening, and repair is in maintenance scope.

**Probability 1** – “Escalation highly unlikely; controlled or imminent control” - Small equipment failures that are easily isolated would be rated at this level. Turning off power or closing valves to / from the equipment bring the incident under control, with very little possibility of further damage or release of product. For dams, some deficiencies found but they are in stable condition and are not worsening and not accelerating.
Examples of a Probability 1 event include:

- A broken diaphragm on a pressure-regulating valve,
- A burst hydraulic / high-pressure hose during a drilling or fracturing operation
- A leaking flange or access port that can be tightened.
- For a dam, the spillway may have minor damages but is in stable condition.
- A first occurrence of a security incident may also fit in this category.

**Probability 2** – “Escalation unlikely; controlled or likely imminent control” - This level is typical of incidents where the cause of the incident is easily determined, and control measures can be enacted promptly and successfully.

Examples of a Probability 2 event include:

- A release to surface of drilling mud during a stream crossing, as there is a greater possibility that a second attempt at boring could release fluid, or that some portion of fluids entered the waterway;
- Liquid pipeline leaks should commonly be classified at this level or higher, since the extent of sub-surface migration of fluids is not known at the time the leak is discovered.
- Dams showing early signs of containment failure such as over-topping, seepage, minor cracks and slumps but which the permit holder can address by lowering water levels and effecting repairs..

**Probability 3** – “Escalation possible; under or imminent control” - Pit gains of 10M$^3$ or greater during a drilling operation, or a fire on site that was of limited scope – such as a fire in a holding tank or generator shack, or an observed slop failure on a dam but where stabilization is possible would normally be ranked as a Probability 3. Additional considerations in this example would be the potential for expansion such as to other nearby equipment or forested areas, or possible need for an evacuation of a public area or residents. Repeating, related or similar security incidents, such as ongoing vandalism targeting a particular site or type of operation would use this probability level. Dams showing signs of containment failure, or where water volumes entering the dam are exceeding spillway capacity and over-topping is imminent or occurring but
with favourable weather conditions leading to a likely decline in water flows should be scored as a probability of 3 or greater.

**Probability 4** – “Uncontrolled, with control unlikely in near term” – Describes an equipment failure that has caused uncontrolled release of product beyond the ability of the operator to control – such as a massive dam slope failure or dam breach or dam overtopping or piping (internal erosion.) Typically, the incident is occurring and progressing at high pace where control or stoppage is impossible, such as a facility explosion, a pipeline rupture with uncontained product moving into the environment, or a fire that is spreading / growing without possible containment with the resources at hand all be classified as Probability 4.

**Classification: Selecting a CONSEQUENCE level:**

**Natural Gas Release and Consequence Levels**

When the gas release exceeds 2,000 M$^3$ or when the duration of the release is uncertain and the volume is unknown, a Consequence Level of 2 or more must be selected based on the probable migration of gas beyond lease.

When a sour gas product is released, any measurement of 10ppm or greater measured at 1 meter from the source of the leak requires reporting as an incident, and protective actions to prevent public access must be taken. A site that is enclosed / fenced and signed to note the presence of sour product meets this requirement so long as fence line measurements do not exceed. This requirement applies to leaks from any source, including surface casing vents.

**For Kicks and Induced Seismicity**

The OGC requires that permit holders classify a magnitude 4.0 or greater induced earthquake within 3 km of oil and gas operations; or any seismic event which is felt on surface within a 3 km radius of oil and gas operations as a Level 2 or higher probability.

Seismic activity has the potential to result in future damage to equipment. The reporting of seismic activity assists permit holders and the Commission to monitor equipment and reduce the possibility of such incidents. Please see [Industry Bulletin 2017-25 “Ground Motion Monitoring Requirements Update”](https://www.bcgcc.ca) for additional guidance.
Consequence Level 2: Kick size in excess of 3 cubic meters or shut-in casing pressure in excess of 1000kpa.

Consequence Level 2: Occurrence of magnitude 4.0 or greater induced earthquake or if felt at surface. Probability must be recorded as 2 or higher.

Consequence Level 3: Kick size in excess of 65% of current kick tolerance or shut-in casing pressure in excess of 65% current MACP.

Consequence Level 3: Occurrence of magnitude 4.5 or greater induced earthquake. Probability must be recorded as 2 or higher. Multiple felt events must also be recorded at this level.

Consequence Level 4: Kick size in excess of 85% of current kick tolerance or shut-in casing pressure in excess of 85% current MACP.

Security Incidents and Consequence Levels

Consequences for security-based incidents will typically be determined by the outcome and impact on operations – a piece of equipment is vandalized or stolen which affects the ability to continue some day-to-day or scheduled activity. There may be occasions when a permit holder is advised of a credible threat, and takes additional precautions that have some impact on operations, such as shutting in a well or facility, or significantly enhancing security precautions that affect normal activities. In these cases, a Consequence Level of 1 or greater should be selected.

Consequence Levels Explained

**Consequence 0** – “No consequential impacts” – At this level, there are no reportable spills, no equipment damages, no cracks or signs of instability (dams) and no reason to interrupt normal operations.

**Consequence 1** - At this level, there has been some minor effect on operations; a spill had to be cleaned, equipment fixed with a minor repair, etc. For a sour product spill, H2S must be under 100ppm at the source point of the spill with no detectable levels off lease. For dams, small slumps and insignificant settlement is observed but they unlikely lead to massive slope failure, dam breach or overtopping. Total incurred incident costs are typically under $50,000.
Consequence 2 – At this level, impacts have become more pronounced; there may be some loss of production capability (temporary stoppages, reduced output, etc.) or the incident may have, or has the potential to extend off lease / beyond ROW. Any sour product of 100ppm or greater or imminent threat of dam containment failure must have a consequence level of 2 or more indicated due to the threat to public, workers, and environment.

Consequence 3 – At this level impacts have had a noticeable effect on operational capabilities, affected public or environment, or have raised significant concerns for operational safety - such as malicious equipment tampering, a pattern of failure in an equipment type or process, or loss of dam containment with short-term impact on fish habitat - without harm to people or private property.

Consequence 4 – At this level, operations would typically be suspended or impossible to continue, at least in the short term. Critical equipment would be damaged / destroyed, or in the event of a dam failure, there were significant direct impacts to people, property or environment, such as loss of life, home, highway, or long-term damage to fish-bearing habitat.

Incident Classification Examples

Some incident examples are provided on the following pages to assist with classification. This is not meant to be a complete guide to incident levels; the sound judgement of on-site staff responding to the incident is the most important determining condition.

<table>
<thead>
<tr>
<th>Minor Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid spill or gas release confined to site will not escalate; no monitoring required</td>
</tr>
<tr>
<td><strong>Consequence 1</strong>: Reportable spill during transfer to transport truck (broken clamp) About 2M³ of produced water with some hydrocarbons, on lease. Product was not sour (affecting worker/ public safety or environment)</td>
</tr>
<tr>
<td><strong>Probability 0</strong>: The spill is a known volume, the cause is both obvious and controlled, and there are no significant health or environmental risks associated with the spilled product.</td>
</tr>
</tbody>
</table>
### Consequence 1: Small fire damaged a minor piece of equipment; staff on site quickly isolated the fuel supply and extinguished the fire. Equipment is repairable.

**Probability 1:** Moderate on site equipment damage; escalation highly unlikely

### Liquid spill or gas release confined to site will not escalate; monitoring required

#### Consequence 1: Reportable spill from a leaking flange, no public or worker safety impacts.

**Probability 1:** The installation was new, and the leak found during commissioning. Escalation possibility based on condition of similar fittings (tightness.)

### Level 1 Incidents

#### Horizontal boring release of drilling mud to surface, approximately 10M³; within ROW

**Consequence 1:** While there was a stream nearby, the mudflow was stopped before entering the waterway.

**Probability 2:** While it is unlikely that this incident will escalate, there is a higher probability of another release due to the ground and operating conditions present.
No residents or public affected; line quickly ESD’d and depressurized.

Consequence 3: Major on site equipment failure - Sand erosion.

Probability 1: Escalation highly unlikely - This probability level chosen because of the small possibility of adjacent equipment also failing due to erosion, so some form of monitoring / inspection would clearly need to take place.

Level 2 Incidents

Tank fire, not put out, all fuel source was consumed.

Consequence 2: Major on site equipment damage – It may be possible to repair the tank;

Probability 4: Uncontrolled, with control unlikely in the near term - No immediate resources to extinguish the fire

Emergency response was not available on site, equipment needed significant work to repair, and site was not functional until repairs completed.
Liquid spill beyond site, affecting environment and property

**Probability 2**: Escalation unlikely (line shut-in, product not migrating)

**Consequence 4**: Pipeline break with fluid release. Amount of spill not determined, but impacted private property and environment.

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Dam slope failure with no damage to public infrastructure or private property structures, no long-term damage to fish habitat, minimal risk to public safety.

**Probability 2**: Escalation unlikely (no greater release possible) Weather is favorable, flood is retreating and storm is stopped.

**Consequence 3**: Off-site damage to public or private lands through inundation and erosion.

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**Level 3 Incidents**

Major on site equipment or infrastructure loss (**Consequence 4**): Escalation possible. (**Probability 3**)

Flare knock-out tank explosion, ignited a forest fire that was growing – this fire was reason for selecting higher probability.
Massive dam slope failure or dam breach or dam overtopping or piping (internal erosion) is occurring and progressing at high pace where control or stoppage is impossible.

Uncontrolled, with control unlikely or impossible.

(Consequence 4, Probability 4)

Major on site equipment or infrastructure loss

(Consequence 4): Uncontrolled, with control unlikely in near term (Probability 4)

Blowout causing fire, loss of drill rig, threatening surrounding forested areas or possible expansion to other wells on site.

7.3.2 Reporting the Incident

In accordance with section 10 and 11 (1) of the EMR, when a permit holder becomes aware of an incident, the permit holder must immediately classify and report the incident. Failure to report an incident is a significant failure of a permit holder’s obligations under regulation.

Once incidents are classified as minor, Level 1, Level 2 or Level 3, they must then be reported to the Commission. Third-party activities such as unauthorized digging or pipeline crossings that have not caused any detectable impacts are not recorded as incidents. These activities should still be reported through the Compliance and Enforcement process. These activities are tracked by the Commission, and may insight actions against the offending parties.

Level 1-3 incidents are classed as emergencies, and permit holders must notify the commission by calling EMBC at 1-800-663-3456 as soon as possible, with the reporting standard generally considered to be within one hour of the discovery of the incident.

When reporting incidents, permit holders must clearly identify the oil and gas activity that was affected by the event or circumstance, the extent of, and steps being taken to remedy the incident,
and contact information for the incident / on-scene commander (for Level 1, 2 or 3) or other company representative for minor incidents.

Appendix D provides an overview of the emergency and incident response process. The incident-reporting matrix available on the Commission’s website can be downloaded and included in emergency response plans, and provides a quick reference guide to incident levels.

### 7.3.3 Evaluating the Emergency Response

Under ss. 16 (4) and (5) of the EMR a permit holder must evaluate the response to an emergency as soon as the circumstances permit. An emergency response report must be prepared and maintained until the permit for the relevant oil and gas activity is cancelled or activities authorized under the permit are complete, and under Section 38 (1) of the OGAA, a copy may be requested by the Commission. The report must include:

- A description of the emergency, including the cause or suspected cause.
- A description of the permit holder’s response to the emergency.
- An assessment of the permit holder’s response.

The evaluation provides an opportunity for the permit holder to review the effectiveness of its emergency response program and plans. The assessment should include:

- Lessons learned.
- Outcomes.
- Changes, corrective actions and/or recommended actions.
- Follow-up actions required.

Appendix E contains a sample template for a post emergency report.

### Appendix A: Emergency Response Exercises

Schedule F of the Emergency Management Regulation outlines the requirements for emergency management exercises. The purpose of an exercise is to confirm Permit Holders emergency response preparedness. There are several types of emergency management training courses. These courses should be included in a robust and successful emergency management program that meets the objectives set out in CSA Z246.2.

Permit holders are required to hold both tabletop and full-scale exercises, and are evaluated on both capabilities (overall ability to respond) and performance demonstrated by staff at these exercises. In situations where staff are more experienced, and the permit holder wishes to provide a more intensive and engaging learning experience, a functional exercise can be substituted for a
tabletop exercise. Other forms of training such as drills, workshops and seminars are strongly encouraged, but are not directly evaluated by the Commission.

To assist in the development and evaluation of emergency response exercises, the Commission may post additional resources in the form of templates, checklists and lessons learned to the emergency response and safety section of our website.

**Developing a Successful Exercise**

Involvement of all participants is vital to a successful exercise, and the scenario should have sufficient detail and inputs to reflect realistic situations. Each person identified as part of the incident response team (field, ICP, or EOC) should be aware of the role, or roles that they could be expected to fulfil in an actual incident. They should be provided an opportunity to discuss or demonstrate the applicable duties and responsibilities, and how each of these fit into, and support the overall incident response priorities.

Scenarios that test against the full range of identified challenges – technical (systems failures) external (deliberate or accidental damage) or natural (forest fires, floods, landslides, etc.) build confidence and maintain interest, and are a check that the plan is capable of addressing each of these hazard situations. Conversely, overly simplistic exercises are unlikely to find gaps in planning or training, and may fail to engage participants in a meaningful way.

Tabletop exercises allow participants to build comfort using response plans, checklists and procedures, while the use of handouts and challenges developed for specific functions ensures key participants have the opportunity to check and confirm actions and information relevant to their position.

**Role of the Exercise Facilitator**

An exercise is a demonstration of the permit holder’s ability to respond effectively, and is the culmination of a complete training process involving drills such as evacuations, donning SCBA, casualty clearing, walk-throughs of isolation / shut-down processes, etc. and skill-building, such as completion of ICS courses, map reading / GIS program familiarity, and job-shadowing. It is vital that permit holder staff be given every opportunity to manage the incident scenario with the personnel that would typically be on site or quickly available at the time of the incident.

An exercise facilitator sets up and provides clarification (as necessary) around the scenario. They may respond to questions about the scale / scope of the incident, or address uncertainty about
what is meant by a direction or term noted in the scenario, or provide additional details such as weather inputs or other factors that are important to the conduct of the exercise decision making.

For tabletop or functional exercises, the facilitator can add considerable value to the exercise by providing simulated inputs. For a tabletop, the facilitator can represent inputs or feedback from an EOC, local government or regulator, or play the role of contract services (helicopter, vac truck, firefighters, etc.). In a functional exercise, the facilitator limits interactions to providing injects or offering clarifying information such as wind direction or status of an injured person.

At the end of scenario play, the facilitator should be able to provide critical analysis of the exercise in their debriefing, and contribute to the final report based on their observations and interactions with the exercise players.

**TABLE TOP EXERCISE**

- Should be held annually for each CORE and supplemental ERP, except in years when a full scale exercise is held.
- Facilitated discussion on a relevant emergency situation, develops a response based on plans, training and experience, supported by (but not led by) questions or problem statements to resolve.
- Focuses on familiarization with roles and responsibilities, plans, policies and procedures.
- Allows for thorough discussion between players, and analysis of actions taken and decisions made.
- Includes practice problem-solving with limited time pressures.
- Practices coordination of services.
- Does not involve deployment or actual use of equipment or resources (though the ERP, maps, guides, forms and similar aids should be used)
- Includes simulated or actual interaction with an Emergency Operations Centre.

Table-top exercises provide an excellent opportunity to discuss “what-if” scenarios, such as how weather conditions or holiday staffing could affect a response, or who would be next in line should a designated incident commander be injured or otherwise be unable to communicate. These exercises are also a chance to build depth in the emergency response organization, allowing select staff to job-shadow and become familiar and comfortable in a new or expanded role.
**FUNCTIONAL EXERCISE**

- May be held as a more interactive substitute for a table-top exercise and provide an improved level of engagement for experienced operators.
- Is a simulated interactive exercise.
- Usually occurs after a table top exercise has been attempted.
- Involves participants practicing a coordinated, effective response in a time-pressured, realistic emergency simulation.
- Includes a description of the situation, a timed sequence of messages, and communication between players and an external simulation team or remote members of the response team.
- Uses phones, radios and computers.
- Induces a moderate-high level of stress.
- Is designed to practice multiple emergency functions e.g. “direction and control”, “resource management” and “communications.”
- Evaluates individual and system performance.
- Includes a simulated interaction with an Emergency Operations Centre.
- Functional exercises are an opportunity to test the plan in a limited way with other agencies and local organizations, confirming communications links and expectations of services and supports from contractors and other sources of aid.

**FULL SCALE EXERCISES**

- Should be held at least once every three years.
- Induces high stress – realism is key.
- Adds a field component that interacts with a functional Emergency Operations Centre exercise through simulated and real messages.
- Coordinates actions of several agencies, tests several emergency functions and requires Emergency Operations Centre and field participation.
- Requires mobilization of emergency personnel equipment and resources.
- Evaluates the deployment of resources not regularly used.
- Involves all levels of personnel: policy, coordination, operations and field (site).
• In situations where licensees have multiple area ERPs with the same response personnel and infrastructure, the ERPs can be tested simultaneously through one exercise.

**JOINT / COORDINATED EXERCISES**

In some cases, smaller permit holders may find it beneficial to conduct a joint exercise with another permit holder. This is a suggested approach when the number of employees for one or both permit holders in a given area would not allow for a comprehensive response to a significant incident as identified by the permit holder’s hazard assessment. The Commission will consider allowing a joint exercise when the following conditions are met:

• There is a mutual aid agreement between the participating permit holders. A copy of this agreement would be present in each permit holder’s emergency response plan (ERP.)

• The participating permit holders are familiar with any unique protocols contained in the other participating permit holder’s ERP.

• The exercise scenario clearly addresses a potential risk common to each participating permit holder.

When a joint exercise is undertaken, and the Commission provides an assessment, both permit holders will receive a common evaluation, and both will be provided with a copy of the document. Each permit holder may respond individually with comments or commitments to address any items that may have been noted for corrective actions.

Both participating permit holders in a joint exercise should be able to fill any of the expected incident management roles. Joint exercise participants should alternate leadership and role responsibilities within the incident management team from year to year, or provide for a mid-exercise change of command, ensuring both parties have a sufficient level of familiarity to manage incidents effectively.
<table>
<thead>
<tr>
<th>Responsible Party</th>
<th>Exercise #1</th>
<th>Exercise #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit holder 1</td>
<td>Provides incident management team, Permit holder 2 may shadow some roles</td>
<td>Provides rovers / roadblock crews, assists with other tasks as assigned.</td>
</tr>
<tr>
<td>Permit holder 2</td>
<td>Provides rovers / roadblock crews, assists with other tasks as assigned.</td>
<td>Provides incident management team; Permit holder 1 may shadow some roles</td>
</tr>
</tbody>
</table>
Appendix B: Emergency Communications

Emergency communications has two parts:

1. **Technical systems** – This defines type of communications tools used, such as radios, cell phones, sat phones and computer systems used in support of the emergency response. It also includes the process for switching between these tools in the event one system fails.

   Technical systems may provide or support public notification when incidents occur, and must therefore be robust and resilient.

2. **Information management** – Defines the procedures and processes by which information about an incident is gathered and analyzed, and communicated internally and to regulators, media and the public.

These internal and external methods of communication should be routinely checked and tested, confirming that these systems used to inform affected parties of the details of an emergency and to facilitate emergency communications between emergency responders are fully functional.

The description of public information systems should include:

- Roles and responsibilities - including procedures for controlling and disseminating internal information about an emergency

- Communication plans for government agencies including:
  - A list of government agencies that would require notification of, or be involved in, the incident;
  - Procedures for contacting government agencies and regulatory authorities; and,
  - The 24-hour telephone numbers for these government agencies.

- Communication plans for emergency response resources including:
  - Procedures for who will contact the external response resources and when; and,
  - A list of the type of external resources to be used, including the services they provide, with 24-hour phone numbers for the resources (e.g., air monitoring, well control, fire suppression, safety companies, helicopters, etc.).

- Communications plans for the general public including:
  - Procedures for who will release what information to the general public, when and how.
  - Social media monitoring and response

For many natural disaster events, email is often the most efficient means to connect quickly with multiple organizations. For this reason, the Commission strongly encourages all permit holder to create a “positional e-mail” address as a point of contact for such urgent communications. The email
account should be set up to enable distribution to a number of key permit holder staff; ensuring communications are timely and successful even when one or more persons are out of contact.

The OGC’s positional email accounts are ogc.emergencyofficer@bcogc.ca and EMP@bcogc.ca.
**APPENDIX C: PREPARING A PLAN (FLOWCHART)**

Emergency Response Plan Preparation and Submission

- **Emergency Response Plan Preparation**
  - Determine hazard planning distance and conduct hazard risk assessment.
  - Prepare Emergency Response Plan for each oil and gas activity under EPZ.
  - Must provide Emergency Response Plan in writing to applicable person or group.
  - Considers any responses to information provided to those within the EPZ.
  - Submits written and electronic copy of Emergency Response Plan and other updates to the Commission.
  - Maintains a copy of the Emergency Response Plan and keeps accessible to anyone responding to an emergency response staff and the head office as per Emergency Management Regulation.
  - Determines if any changes occurred since the ERM was created at last review.

- **Supplementary Plans**
  - Supplementary plans can be used where the existing plan is able to be applied to the specific hazards and risks of the subsequent oil and gas activity with any minor adjustments. The differences from the existing plan must be laid out in the supplementary plan.

**Includes:**
- Any person who occupies land within the emergency planning zone.
- Any local authority that is located within the emergency planning zone.
- Any First Nation with a reserve or traditional territory located within the EPZ.
- Any high buildings or any structure subject to a height located in the EPZ.
- Ministry responsible for administration of the Transportation Act where any part of an arterial highway is located in the EPZ.
- Municipal council of any municipality or any part of a municipal council is located in the EPZ.

**Information provided includes:**
- Name and contact information of the applicant/permit holder.
- Map showing location of EPZ in relation to any adjoining roads, dwellings, schools, and public facilities.
- Description of site-specific hazards and risks related to the activity.
- How applicant/permit holder respond to the receiving the information.
- When the applicant/permit holder response will occur and when the receiving the information.
- The description of any hazards that the receiving the information can get to safely in an emergency.
APPENDIX D: EMERGENCY AND INCIDENT RESPONSE (FLOWCHART)

Implementing Emergency and Incident Response Plans

- Permit Holder:
  - Incident Occurs → Immediately Implements ERM → Completes Incident Classification Matrix → Matrix score of 2, 3, Level 1, 2 or 3 Emergency → EMBC: 1-800-463-3456

- EMBC:
  - Calls EMBC at the time of the incident and obtains a DGIR → Carries out emergency response activity until resolution of incident

- Commission:
  - Calls EMBC within 1 hour of incident → Contacts Commission to report incident → Follows up with Commission EOC

List of Acronyms:
- DGIR: Dangerous Goods Incident Report
- EMBC: Emergency Management British Columbia
- EMR: Emergency Management Regulation
- EO: Emergency Officer
- EPZ: Emergency Planning Zone
- ERP: Emergency Response Plan
- OGC: Oil and Gas Commission
APPENDIX E: POST – INCIDENT REPORTS

The incident report should be structured as indicated below, with the outlined details included as appropriate. Form D, Permit Holder Post Incident Report is available on the Commission’s website.

Post Incident Reports (PIR’s) fulfil several critical functions:

1. Provide a detailed summary of the incident from initiation to stand-down. A copy of the incident action plan (including revisions and updates) may be requested.

2. Summarize engineering or other reports that identify root cause(s) of failures, and provide a record of any specific equipment failures, bad processes, faulty manufacture or training gaps, enabling cross-industry sharing of prevention information.

   This information may also be used in aggregate to help identify trends and focus industry awareness on problem areas.

3. Include environmental reports on the response and remedial actions taken, as well as the outcomes of any clean-up required. A copy of the MSDS and CAS number(s) for any spilled chemical product should be included in the report.

Normally, the PIR is completed and submitted to the Commission within 60 days of an incident. There may be occasions when this period will be extended, such as the need for winter access, or the need to employ outside expertise. Requests for extension will typically be granted, and permit holders should request extensions rather than submitting an incomplete PIR.

The PIR should briefly restate the nature of the incident, and include:

- A summary of events leading up to the incident.
- A chronological list of response actions taken until control was achieved.
- Remedial actions taken, including any ongoing monitoring (air, water, soil or systems).
- Identification of the root cause(s) of the incident.
- Any witness statements.
- A list of actions (with completion dates and assigned responsibilities) necessary to prevent or mitigate the recurrence of similar incidents.
- For any waste materials removed from site, the environmental report should note the volume, method and location for disposal of contaminated water or soil.

Engineering and environmental reports, maps, drawings and photos are to be included, and may be briefly summarized in the PIR. Other supporting documents should also be appended as applicable to the incident (EG: Cathodic protection logs, planned maintenance schedules, calibration records,
SCADA logs, pipeline corrosion program records, ESD testing, tour reports, drilling recorder and mud volume information, blowout preventer test and inspection reports, seismic monitoring, and applicable employee training and certification records, etc.)
Appendix F: Submission of ERPs & Maps in Electronic Format

Plans

Under Section 9 of the EMR, plans must be submitted in both paper and electronic formats. A valid plan MUST be received by the Commission prior to the start of any permitted activity for which a plan is required. When updating plans, the complete revised version of the electronic plan must be submitted. Table 2 outlines a typical document control process to record changes to plan information. The Commission accepts plans in the following file types:

1. Portable Document Format (PDF)
   [Note – document should be searchable, not captured as a scan / image file].
2. MS Word document.

Checklists for emergency management plans are available on the OGC’s website, and a completed copy of the checklist should accompany each new plan submitted for review.

Upon receipt of a new or updated plan, the Commission conducts a limited scope audit, and advises the permit holder of any deficiencies. This process is typically completed within 2-3 business days, though failure to submit a checklist may increase the review time required. Contents of an ERP should be searchable by key word. This assists in quick location of critical information during any incident response. For this reason, the use of scanned pages is discouraged.

Maps

Maps accompanying electronic plans are accepted in SHAPE file format only. Please review the Commission’s Spatial Data Submission Standards Manual [http://www.bcogc.ca/node/13125/download] for further details on formatting.

Mapping information in Shape files supports the Commission’s ability to identify areas and values at risk, including permit holder assets. This information may also support decision making when resources are being tasked in response to wide area emergencies such as wildfires and flooding.

Mapping may be included in PDF or Word documents to support responders accessing the ERP on a digital device; however, this does not replace the Shape file requirement.

Hard copy submissions of each ERP must include mapping at not more than 1:20,000 scale, include a legend, and all identifying texts must be legible.
### Table 2: Sample update table

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>REMOVE/DESTROY PAGES</th>
<th>INSERT PAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table of Contents</td>
<td>Pages i to iv</td>
<td>Page i to iv</td>
</tr>
<tr>
<td>Section 5 – Roles &amp; Responsibilities</td>
<td>Pages 5-1 to 5-10</td>
<td>Pages 5-1 to 5-12</td>
</tr>
<tr>
<td>Section 8 – Map (green tab)</td>
<td>Rev. 6 2016-06-09</td>
<td>Rev. 7 2018-07-19</td>
</tr>
<tr>
<td>Section 10 – Standard Guidelines</td>
<td>NEW</td>
<td>Insert section 10 after Section 9 blue tab</td>
</tr>
</tbody>
</table>

Type of Update:

- ✔ Annual Update
- ❑ Update resulting from an emergency response evaluation
- ❑ Update in response to significant changes in hazards and risks

Name of Field: Doe Dawson          Date: 12 Sep 2018

Contact Name and Phone number for questions: T. Smith, (403) 425-1111
APPENDIX G:

SAMPLE SCENARIOS FOR EMERGENCY MANAGEMENT EXERCISES

These scenarios are provided as a simplified demonstration of the key elements normally developed as part of a good emergency management exercise. Each scenario includes a situation, outlines available or likely external resources, and includes a series of inputs to add realism and complexity.

It is the Commission’s intent that the degree of difficulty and complexity for an exercise scenario will be considered when determining the overall permit holder capabilities. The Commission recognizes that a more challenging scenario is likely to reveal more areas for improvement, to test capacities of staff and equipment, and to challenge the expectations used in the development of an emergency management plan. It is our view that an exercise should not only confirm training and process, but also build confidence within the responder team in their ability to manage a worst-case situation.

Scenario #1  Gathering Line Leak from multi-well pad

Scenario #2  Pipeline leak with residents and recreational activity in area
Scenario #1  

Gathering Line Leak [Sour] from multi-well pad

**Objectives:**  
Confirm responding staff are familiar with key policies and processes outlined in the emergency management plan.  
Demonstrate the adequacy of displays and documentation to support the emergency operations during the exercise.  
Check that the appropriate protective actions are considered and implemented, and that the correct priorities are applied (safety of responders, then public, then environment)  
Ensure that appropriate roles are assigned, and an effective span of control is maintained by the incident command staff.

**Situation:**

**Day:**  
Saturday, January 2\(^\text{nd}\)

**Weather:**  
Slightly overcast, winds from the northeast at approximately 10KPH. Yesterday’s freezing rain was followed by about 10cm of snow overnight, and more is forecast for later in the day. Temperature is \(-8^\circ\text{C}\).

**Staffing:**  
Calgary head office is closed; many senior staff are still away for the holidays. Several of your usual contractors are covering wider areas to allow for staff vacations.

**Resources:**  
The nearest air quality-monitoring unit with staff available is in Grande Prairie.  
The nearest Vac truck available is at least two hours away given the icy road conditions.  
Other resources as per company local equipment and staffing availability.

**Incident begins:**

- At 08:30 your field supervisor receives a call from the emergency line operator. The call originated from a trapper who was out checking his lines [INSERT - general area] when he notices a smell of rotten eggs and called the Emergency number posted on a sign on the road where he parked his truck.
- The trapper has turned around and headed south away from the odor and back towards his truck.
- The field supervisor calls in two operators.
- The [INSERT - well site or pipeline] in the area are typically about [INSERT] % sour.
As one of the operators called in and dispatched to the area, describe what actions you will take, what information you have at hand, any additional equipment you will want to have in the vehicle with you, and where you would get it.

**Additional resources:**

The site where the incident takes place is in the regional district, the closest fire service is almost an hour drive away, and it is a fully volunteer department. Their fire chief and several of the volunteers did take part in your last major exercise, although that was held at another site closer to town.

The local police detachment is also about an hour away. It is a small detachment with three constables and a corporal. With holiday staffing, they have one officer on duty, and one on call.

**Operators Arrive on site**

- It is now about 9:15am as the operators proceed towards the general area. The access road is on the south side of the multi-well pad, and as they drive in, they soon notice a rotten egg smell. Exiting the truck, their personal monitors show 1ppm H2S, with the display occasionally flicking up to 2ppm. Turning the truck off, they listen carefully, and can hear a faint whistling roar from up ahead. The source of the sound is about 500 meters away, and the access road has not been plowed out for several days.
- Cell service is reasonably good, but your partner forgot to charge his phone, and it has almost no power left. Your phone is fully charged. Radio service in the area is unreliable.
- You are familiar with this area, and know that there are several residents about XX km to the south. Their main access road joins the one you’re on about half a kilometer to the (insert direction) of your present location.
- While you are on the phone with the field supervisor, you notice that your H2S meter is now showing 3ppm.

As one of the operators, describe what actions and safety precautions you will take, and what steps you will recommend.

**Field supervisor**

As the field supervisor you receive the call from the operators confirming there is a gas release. While you are talking to them, you get another incoming call from operations. Putting the operators on hold for a moment, you listen as control verifies a pressure drop in the flow line coming from the well pad. You are at home, about 40 minutes’ drive from the site. Your field office is about a ten minute drive to the south, away from the incident site.
• What information would you be most interested in obtaining, and what are the sources for that information?
• What are your immediate priorities?
• What steps you will recommend?

Your Emergency Response Plan is now activated . . .

• Who will be the incident commander, and where will they be located?
• What level would you classify this incident?
• When, how and to whom does this incident need to be reported?
• What additional staff would you call in, and what roles will they assume?

Time is now a few minutes before 10am. Operations have remotely triggered the ESD valves, and monitored pressure has dropped slightly, down by about 200kpa.

INPUTS / UPDATES (pick one or more)

1. The decision is made to try and view the well pad.
   a. The operators are instructed to circle round the site and approach from the north using snowmobiles. Regular readings are being taken, and the operators have SCBA and have been instructed to mask up and walk in at 50 meters or 5ppm – whichever comes first. As they drive in to the site, they notice other snowmobile tracks.
   b. Arriving close to the site, the noise is noticeably louder. Personal detectors are showing about 3ppm, with wind blowing gently towards the site. The operators mask up and begin walking in. As they get to the lease line, it becomes apparent that an elbow coming off a well head leading to the gathering line is spewing gas and some liquid. A patch of ground about 10m square appears to be saturated.
   c. Both operators return to their snowmobiles, and call in what they have seen. While one operator is on the phone, the other wanders around a bit, and comes across more snowmobile tracks. Next to the tracks, he finds some large rifle shell casings.

2. You are the field supervisor, and have established an incident command post at your field office. Five additional staff have arrived, and have been assigned roles in your incident command team.
   • One of your incident team seems very ill. You overhear him speaking to another member of the response team about how late the dinner and party went New Year’s night.
• Your ERP identifies another local operator as having a mutual aid agreement with your company. Your phone call to the only contact you have in your ERP goes to voicemail.

3. Field operations calls the incident command post, and reports that one of the wellhead ESD valves does not appear to be responding. While the pressure in the gathering system had dropped over the last half hour, it now appears to be holding.

4. Local media have learned of the incident, and arrived at your roadblock. The reporter is demanding a statement about what is going on, and wants to take pictures of the incident site. Your roadblock team direct the reporter to call your media relations line, and asks the reporter to leave the area.

A few minutes later you notice the reporter leaning against the passenger side of your truck with his recorder. You’ve just had an update call with your EOC where you tell them bluntly that the response is not going well.

5. It is now noon. Calgary operations calls [incident commander or operations section chief], and advises that they are monitoring a small pressure drop in another nearby wellsite, and have SCADA readings showing a release of gas.

   a. Two operators are dispatched to investigate, and discover almost identical conditions to the first site, with the elbow on a pipe riser leaking gas with a small amount of condensate misting over the ground.

   b. You decide this is a deliberate act and that the police should be called. Who makes this phone call?

   c. The police operator on duty is at a call center in Prince George, has no understanding of the NTS / DLS mapping system, and says they cannot dispatch without an accurate location.

   d. What recommendations has your planning section developed based on this new information?

   e. With multiple sites releasing gas, you need 2 more air quality monitoring units. Your normal contractor has already provided you with their only available unit.
Scenario #2  Pipeline leak with residents and recreational activity in area

Objectives:  
• Confirm the process used to classify an incident  
• Check that a comprehensive hazard assessment is completed, and staff dispatched to the incident area have been provided with a safety briefing.  
• Test unified command with mutual aid partners, and confirm emergency response processes are consistent between companies.

Day:  Last weekday of June, school has just let out.

Weather:  Light overcast, temperature is about 32°C with moderate winds from (Direction) It has been hot and dry for over a week. Forecast is for possible thundershowers throughout the late afternoon.

Staffing:  Crews have put in a lot of overtime recently, replacing a defective batch of PSV’s, and several have decided to take a long weekend of well-deserved downtime.

Resources:  All resources identified in your ERP are available. With some staff at contractor companies (helicopter, Vac Truck, Environmental, etc.) also taking off early for the long weekend, there may be delays in expected response times.

Location:  TBD

Incident begins:  

• Shortly after 4pm, you receive a call from your emergency line. A couple of quadders were running down a pipeline right of way when they ran into a cloud of vapor. One of the youths was overcome by the fumes, and his friend had to drive him out, then take him to the hospital before he called in the incident to your 24-hour number.

• You receive an approximate location, and you also know you share a right-of-way with another company for a short distance - about 3km – in the general area of the suspected leak.

• Your operations center has checked their control systems, and can’t identify any abnormal readings. 

• There are several other permit holders with a few kilometers of this area.

As one of the operators called in and dispatched to the area, describe what actions you will take, what information and other resources you have at hand, any additional equipment you will want to have in the vehicle with you, and where you would get it.
Additional resources:
The site where the incident takes place is in the __________ regional district, the closest municipal fire service is __________ hour(s) drive away. There is no local police detachment – the nearest is over ____ hours away.

As the field supervisor, what briefing did you provide to the person(s) dispatched to the incident area?

Who is in charge of leading the response to this incident? Would you consider unified command with the other permit holder company? Why, or why not?

Operators Arrive on site

- You are familiar with this area, and know that there are several residents about XX km to the south.
- About XX away is an area that is popular for (tubing / fishing / camping site)
- You immediately pick up low level (H2S or LEL) readings on your personal meter, and can smell released product.

As one of the operators, describe:

- what actions and safety precautions you will take
- what steps you will recommend
- What role you will assume in the incident command organization

Field supervisor

- What information would you be most interested in obtaining, and what are the sources for that information?
- What are your immediate priorities?
- What steps will you recommend based on your current knowledge of the situation?
- What role will you assume in the incident command organization?

Your Emergency Response Plan is now activated.

- What level would you classify this incident?
- When, how and to whom does this incident need to be reported?
- Who will be the incident commander, and where will they be located?
- What additional staff would you call in, and what roles will they assume?
• What outside agencies might be directly affected or concerned by this incident?
• What are your current and planned actions?

**INPUTS / UPDATES (pick one or more)**

1. While checking the area to ensure there are no public in or near the hazardous area, you come across about a dozen teenagers who have taken a break from river tubing / or are camping. They are only a few hundred meters away from the leak site, and you notice a fairly pungent odor (not gas) quickly determine that the entire group is impaired. What do you do?

2. You know that the other company’s line in the right-of-way is a major transmission line, and discover that it is regulated by the National Energy Board. What additional calls are you required to make – if any?

3. You get a call from Wildfire management that they have discovered a small forest fire just a few kilometers away. While it is not heading towards the leak site, it is moving towards your only access road and could force it to close in just a few hours.
   a. The hydrovac truck you’ve called to expose the line is about two hours away...
   b. The fire is advancing more quickly, you decide to evacuate all of your personnel. Describe how you will manage this process, and what agencies should be contacted.

4. Helicopter incident:
   a. The helicopter company you’ve called to assist with roving arrives, and the inexperienced pilot starts circling the incident site only 30 -40 meters above ground level. *(opportunity to call pilot and warn of gas plume – test of communications – if successful don’t proceed to part b)*
   b. The pilot flies through the gas plume and it ignites, destroying the helicopter and setting fire to surrounding bush.

5. Leaking gas from the pipeline ignites, and the explosion ruptures the other line in the right-of-way. There are now two lines releasing gas. Describe how this changes the way in which the incident will be managed.