Pine Cliff Energy Ltd.
Emergency Procedures Manual
March, 2022

Pine Cliff Energy Ltd.

24-Hour Emergency Number

1-877-486-0470

CER/TSB Emergency Number

1-819-997-7887

Emergency Procedures Manual

Prepared by:

BLACK GOLD Emergency Planners Inc

March, 2022

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PROGRAM ADMINISTRATION

Title and Copyright

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All information in this manual is considered company confidential.

Disclaimer

The Emergency Procedures Manual has been designed to provide a series of guidelines for responding to emergency situations. This EPM identifies, defines and recommends actions for dealing with incidents that could impact facilities within the EPM.

Verification of the information contained in this manual is the sole responsibility of Pine Cliff. Black Gold Emergency Planners Inc. does not accept any liability arising from the implementation or use of this EPM.

This document is administered by:

BLACK GOLD Emergency Planners Inc

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Manual Receipt Form

Upon receipt of this Emergency Procedures Manual Manual, this Receipt Form must be completed and returned to [redacted] in the Corporate Office. The Manual holder is responsible for ensuring that the Manual is kept current by inserting the latest revisions as they are issued.

Recipient Name (please print):_____

Position:_____

Field Area Name (if applicable):_____

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Return signed copy to: Pine Cliff Energy Ltd.
2347 B - 10th Avenue
Medicine Hat, AB T1A 8G2
Phone: 1-403-269-2289

Attention: [redacted]

Management of Change Request Form

Pine Cliff Energy Ltd.

[redacted]

Section Number: _____

Page Number: _____

Copies of revised pages attached: ☐ yes ☐ no

If any of the following items have changed, please check the box beside it and provide a description of the change in the space provided.

☐ Company information ☐ Mapping or site information

☐ EPMloyee information or capacity changes

☐ Policy and/or Procedures ☐ Other

Description of Amendment:

_____

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Please attach additional pages and / or support documentation as required.

Requested By: _____

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Request Numbered and Logged ☐ yes ☐ no

Correspondence Required ☐ yes ☐ no

Request Acknowledgement By: _____

Approved By: _____

Approval Date: _____

Revision Date: : _____ Issue Date: _____

Management of Change Log

Date	Revision #	Reason for Revision	Section	Affected Pages
31/03/2022		Annual Update of **EPM for Pine Cliff Energy Ltd.**		
31/03/2021		**Submission of a new EPM for Pine Cliff Energy Ltd.**		

Distribution List

EPM #	Name/Title	Company	Location

EMERGENCY MANAGEMENT COMMITMENT STATEMENT

Pine Cliff Energy Ltd. is committed to operating in a safe, secure, responsible and reliable manner.

Pine Cliff is prepared to manage all emergencies or any unplanned events and is prepared to protect the public, Employees and contractors, Company assets, including the property and the environment. To achieve this, the Emergency Procedures Manual (EPM) will:

- Be built on the foundations of Prevention & Mitigations, Preparedness, Response and Recovery.
- Exceed or meet all regulatory and legal requirements.
- Consider all hazards when identifying and mitigating risks.
- Ensure Pine Cliff Employees and contractors have appropriate emergency preparedness and response training and resources.
- Ensure standardized objectives during a response:
  - Life Safety,
  - Stabilize Incident and
  - Minimize Impacts.
- Ensure an emergency response is coordinated with regulators, first responders, government agencies, First Nations and to promote Unified Command.
- Be continually improved.
- Integrate and align with corporate commitments, processes, programs and procedures as an element of the overall Operations Management System (OMS).

This applies to all Pine Cliff Employees and contractors while at any Company place of work and conducting work related duties or activities.

All levels of Pine Cliff management will be accountable for providing leadership and demonstrating conformance to this commitment.

[redacted]

SECURITY MANAGEMENT COMMITMENT STATEMENT

Pine Cliff Energy Ltd. and its affiliates (collectively Pine Cliff) are committed to maintaining a high standard of corporate governance and ethical practices throughout our operations. Our corporate governance practices are designed to ensure:

- Our businesses are effectively managed.
- We meet our obligations to all regulatory bodies, business partners, customers, stakeholders, Employees and shareholders.
- We operate in a safe, reliable and environmentally responsible manner.

Pine Cliff is regulated by the Canada Energy Regulator (CER) under the Onshore Pipeline Regulations (OPRs). CER regulated companies need to have, within a corporate management system, various programs to meet the requirements of the OPRs. A security management program is required under the OPRs to be compliant with Canadian Standards Association (CSA) Standard Z246.1 (Security Management for Petroleum and Natural Gas Industry Systems).

The Pine Cliff Security Management Program (SMP) consists of policy, processes, procedures, goals, standards and guidelines to manage security risks, threats and incidents in support of our commitment to:

- Provide safe and healthy working conditions.
- Protect the environment.
- Protect all corporate assets from harm.

The SMP integrates with other programs under the Pine Cliff Operations Management System. The fundamental objective of the SMP is to protect assets, including business operations, by undertaking proactive and ongoing activities in efforts to prevent incidents from occurring by managing potential security threats or incidents in a reasonable and measured manner.

The SMP will undergo regular review and corporate audits to ensure program objectives and regulatory requirements are met. Reviews and audits will also provide opportunity to ensure the program is continually being improved, as necessary.

[redacted]

1.0 INTRODUCTION

1.1 Purpose

This document describes Pine Cliff Energy Ltd. (Pine Cliff) Emergency Procedures Manual (EPM). The Company Emergency Procedures Manual (EPM) describes the system for responding to incidents and emergencies that could impact the health and safety of Employees, the public, the environment and property. The Program combines systems and procedures from across the organization enabling a quick, effective response to any emergency. The EPM provides direction and governs emergency management activities, which include:

- Establishing clear roles and responsibilities for achieving Emergency Management objectives and performance targets.
- Providing an EPM that aligns with applicable industry standards and achieves safe, environmentally responsible, and reliable operations.
- Anticipating, recognizing, evaluating, and controlling emergency management specific hazards and risks.
- Preparing Pine Cliff to respond to emergency situations.
- Evaluating and continually improving the management of the EPM.
- Measuring, monitoring, and reporting emergency management performance.
- Demonstrating and reinforcing the priority of emergency management in all business activities.

The Emergency Procedures Manual Coordinator is responsible for oversight of all activities related to emergency response and recovery and ensuring Pine Cliff has the capability, resources, and training to effectively manage emergencies.

Specific terms are used to indicate whether an action is mandatory or recommended. The following words have specific meanings:

- “Shall” is used where an action is mandatory.
- “Should” is used where an action is recommended.
- “May” is used where alternatives are equally acceptable.

Some additional terms are capitalized, but do not appear on the list of defined terms, such as the job titles of Company personnel and departments.

Certain Sections within this Manual are supported by additional policies, standards, practices, processes, documentation and forms. These shall be referenced where applicable.

In some cases, the Manual calls out specific SOPs which are referenced to provide further guidance on a specific topic that may be further complicated by:

- jurisdictional or regulatory requirements,
- facility design criteria for Asset Areas, and/or
- operational controls.

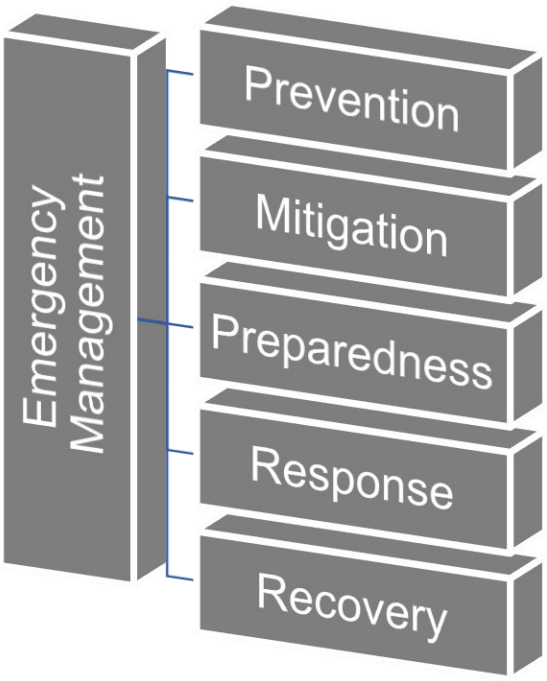
1.2 Scope

This Manual applies to all Pine Cliff Employees and Contractors engaged in design, construction, operation, gathering, processing, storage maintenance, decommission and abandonment activities at Company facilities, as well as visitors to these worksites.

Pine Cliff takes an **all hazards approach** for emergencies; we define this as non-routine events that exceed the normal operating capacity of the affected department(s) or the organization. The EPM establishes the framework for preparing for, responding to, and recovering from non-routine incidents, regardless of the nature or severity.

Pine Cliff follows the principles of the Alberta Energy Regulator (AER) Directive 071 and CSA Z246.2 Emergency Preparedness and Response for Petroleum and Natural Gas Industry System which are provided to ensure a coordinated and organized approach to emergencies and disasters. This EPM has been designed to align with industry best practices to meet the following applicable regulatory requirements:

- Canadian Energy Regulator (CER) Onshore Pipeline Regulations
- Alberta Energy Regulator (AER) Directive 071: Emergency Preparedness & Response Requirements for the Petroleum Industry
- Canadian Standards Association (CSA):
    - CSA Z246.1: Security Management for Petroleum and Natural Gas Industry Systems
    - CSA Z246.2: Emergency Preparedness & Response for Petroleum and Natural Gas Industry Systems
    - CSA Z662: Oil and Gas Pipeline Systems
- Canadian Environmental Management and Protection Act



1.3 Expectations

Company Management recognizes that the establishment of an effective safety culture cannot be realized through this Manual alone. Employees at all levels, including contractors and visitors, must carry out their individual responsibilities to provide a safe and healthful work environment.

Everyone must therefore become familiar with this Manual with respect to his or her work duties.

The Emergency Procedures Manual is responsible for the development, compilation, and issuance of procedures and guidelines contained in this Manual. The contents of this Manual are subject to further development and revision.

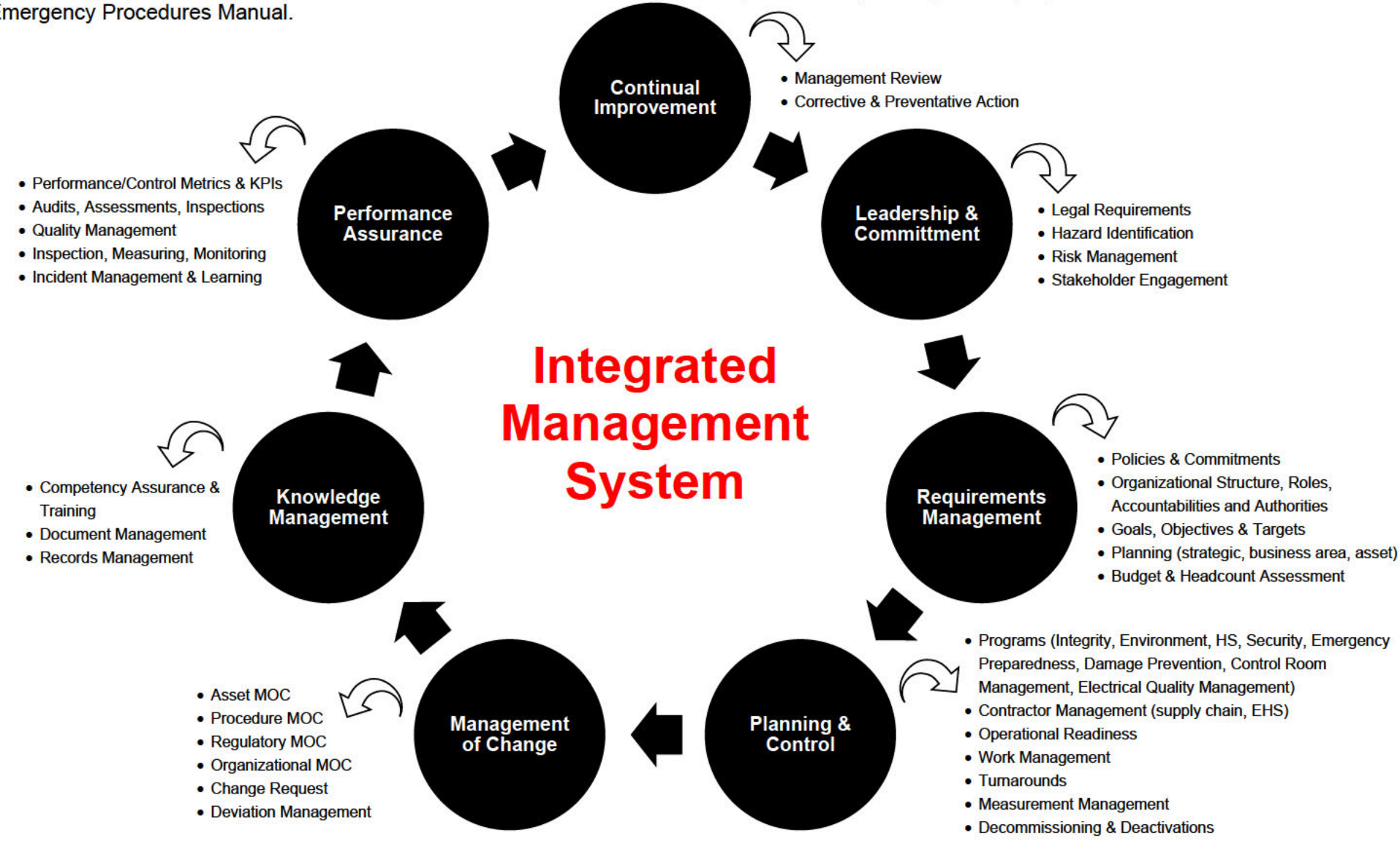
This Manual is issued electronically to all locations and departments within the Company. As updates are provided, the facility Supervisor is responsible for ensuring that Employees are informed of any changes.

Each EPMloyee is encouraged and expected to take an active role in the implementation and future development of this Manual. This includes following the procedures and guidelines as well as providing oversight to Contractors and Visitors to follow the same practice.

2.0 LEADERSHIP COMMITMENT AND PARTICIPATION

2.1 Integrated Management System

Pine Cliff Energy Ltd. has adopted an integrated management system to provide coordination between the company's management and protection programs. The IMS ensures that hazards that are identified through the safety management program are considered in the Emergency Procedures Manual.



2.2 Environment, Health and Safety Policy

Pine Cliff Energy Ltd. is committed to ensuring everyone returns home at the end of each day and that our assets are operated in a safe and environmentally responsible manner.

We are building our business on our commitment to safety and the environment and on our care for Employees, contractors and the communities in which we operate.

Pine Cliff Energy Ltd. is committed to the following principles:

- All injuries, incidents, and occupational illnesses can be prevented.
- All environmental impacts can be controlled.
- Leaders are accountable for safety and environmental performance.
- All Employees/contractors are responsible for safety and protecting the environment.
- We will continually improve our safety and environmental performance.
- We comply with all occupational health, safety and environmental regulatory requirements. At Pine Cliff Energy Ltd., safety is a value.

2.3 Legal Requirements

This Emergency Procedures Manual document contains a comprehensive set of procedures required to fulfill the legal requirements found in:

Alberta: The AER Directive 071 – Emergency Preparedness and Response Requirements for the Petroleum Industry prescribes three core principles:

1. Emergency Response Plans (ERPs) are in place to respond to incidents that present significant hazards to public and the environment.
2. Ensures that there is an effective level of preparedness to implemented ERPs.
3. Ensures that there is the capability in terms of trained personnel and equipment to carry out an effective emergency response to incidents.

Federal Regulations: The Canadian Energy Regulator (CER), formally known as the National Energy Board (NEB) - regulates the construction and operation of oil and gas pipelines that cross provincial and international boundaries through the Onshore Pipeline Regulations (SOR/99-294). At Pine Cliff we have developed, implemented, and maintain an Emergency Procedures Manual, which includes developing and submitting applicable Emergency Response Plans annually and updating as required. Emergency exercises are conducted annually with a full scale exercise conducted every three years. At the federal level, Public Safety and Emergency Preparedness Canada, through the Emergency Management Act, develops programs and policies to prepare for national disasters.

Environment and Climate Change Canada: Environment Canada (EC) regulates business operations that may have an environmental impact, including propane and LNG storage facilities, in accordance with the Canadian Environmental Protection Act and the Environmental Emergency Regulation. Pine Cliff has included environmental emergency response in accordance with the Environmental Emergency Regulation.

Transport Canada (TC): Pine Cliff has transportation Emergency Response Assistance Plans (ERAP) relating to the transportation of dangerous goods. The ERAP is submitted to TC for approval in accordance with Part 7 of The Transport of Dangerous Goods Regulation and are included in Pine Cliffs regular drills and exercises.

CSA Z246.2 Emergency Preparedness and Response for Petroleum and Natural Gas Industry Systems: the CSA Standard establishes criteria for emergency preparedness and response for the petroleum and natural gas industry.

CSA Z731-03 Emergency Preparedness and Response: the AER expects this CSA standard to be used by the petroleum industry in conjunction with the AER Directive 71.

2.4 Goals and Objectives

The goal and objectives of the Emergency Procedures Manual are to:

- Protect the public and minimize impacts to the environment through the implementation of the EPM.
- Prepare and maintain an emergency response program.
- Prepare and maintain emergency response plans.
- Complete required emergency response training, exercises and drills
- Protect people, property and the environment by establishing a framework of emergency preparedness, planning and response capabilities.

2.5 Roles, Responsibility, Accountability and Authority

Pine Cliff must:

- Ensure the health and safety of all workers and other workers present at the workplace.
- Comply with either the Alberta Occupational Act, Regulation and Code.
- Remedy any workplace conditions that are hazardous to the health or safety of workers.
- Make workers aware of all known and reasonably foreseeable health and safety hazards to which they are likely to be exposed by their work.
- Make workers aware of their rights and duties under the act and regulations.
- Establish health and safety policies and programs in accordance with the regulations.
- Provide and maintain in good condition personal protective equipment, devises and clothing as required by the regulations.
- Provide to the workers information, instruction training and supervision necessary to ensure the health and safety of those workers and other workers.
- Make a copy of the act and regulations readily available for review.
- Consult and cooperate with the joint committees and health and safety representatives.
- Cooperate with the board, officers of the board and other persons carrying out a duty under the act and regulations.

Senior Leadership Shall:

- Prepare and maintain an Emergency Procedures Manual in accordance with CSA Z246.2.
- Appoint an Emergency Procedures Manual Coordinator.
- Ensure submission and maintenance of the contact information for the Emergency Procedures Manual coordinator.
- Ensure all field operations staff is trained to respond to emergencies.
- Review and if necessary, update the program:
    - Every three (3) years, or
    - After a significant change occurs in the type of hazards and risks arising from the activities identified in the emergency response plan(s), or
    - After an evaluation of a response to a level 3 incident, or
    - When Pine Cliff becomes aware of a deficiency in the program that risks the safety of emergency response personnel, EPMloyers or the public.
- Develop a training plan to ensure Employees are trained to respond to emergencies.
- Conduct full scale exercise every three (3) years.
- Conduct tabletop or functional exercises in the years between full scale exercise or,
    - Within three months after the first day Pine Cliff holder carries on a new activity or,
    - Within 3 months after a change in Pine Cliff emergency response staff if there is a change in at least 1/3 of the current emergency response staff since the last conducted tabletop or functional exercise or,
    - If none of the new emergency response staff have previously participated in a tabletop or functional exercises under the Company Emergency Procedures Manual.
- Report emergency incidents as per the Incident Reporting procedure.
- Fulfill the General Staff and Emergency Support team Roles for level 3 emergencies.
- Ensure Pine Cliff is a member of the Western Canada Spill Cooperative (WCSS).

Emergency Procedures Manual Coordinator

- Ensure the Emergency Response plans are developed, reviewed, revised, updated and maintained on an annual basis.
- Maintain revision history for all Emergency Management documents.
- Maintain Emergency Management Documentation Distribution lists.
- Ensure that incidents are reported to that appropriate regulatory agency.
- Ensure that Emergency Response training is provided to all staff as appropriate.
- Review and verify that the content of the emergency response training courses is appropriate.
- Work with training department to ensure that training is delivered and recorded.
- Establish an annual schedule for tabletop/functional exercises and tri-annual full scale exercises.
- Assume the role of Emergency Operations Center (EOC) director for level 3 emergencies.
- Activates level 3 emergency response plans.
- Activates the Emergency Support Team Plan.
- Manage and staff the Emergency Operations Center (EOC) for level 3 emergencies.
- Establish the objectives for level 3 emergencies.
- Approve ERP updates.

People Leaders (Area On-Call Supervisors) shall:

- Fulfill the role of incident command staff for level 1, 2 and 3 emergencies.
- Activate and respond to level 1 and 2 emergencies.
- Manage the regional incident command post.
- Ensure notification of appropriate external regulatory agencies.
- Assign Employees and workers to public safety roles (rovers, telephoners, Roadblock Personnel, air monitors and reception center staff).
- Establish the objectives for level 1 and 2 emergencies.
- Assign qualified individuals to fil the command and general staff roles during an emergency.
- Ensure field operations staff are trained to respond to emergencies.
- Participate in tabletop/functional exercises every year.
- Review the area emergency response plans with all operations personnel at least once per year.
- Participate in full scale exercises every three years.
- Report emergency incidents as per the Incident Reporting procedure.

Employees and Workers:

- Fulfill public safety roles (Rovers, Telephoners, Roadblock Personnel, Air Monitors and Reception Center Staff).
- Participate in tabletop/functional exercises.
- Participate in full scale exercises.
- Review the area emergency response plans each year.
- Report emergency incidents as per the Incident Reporting procedure.

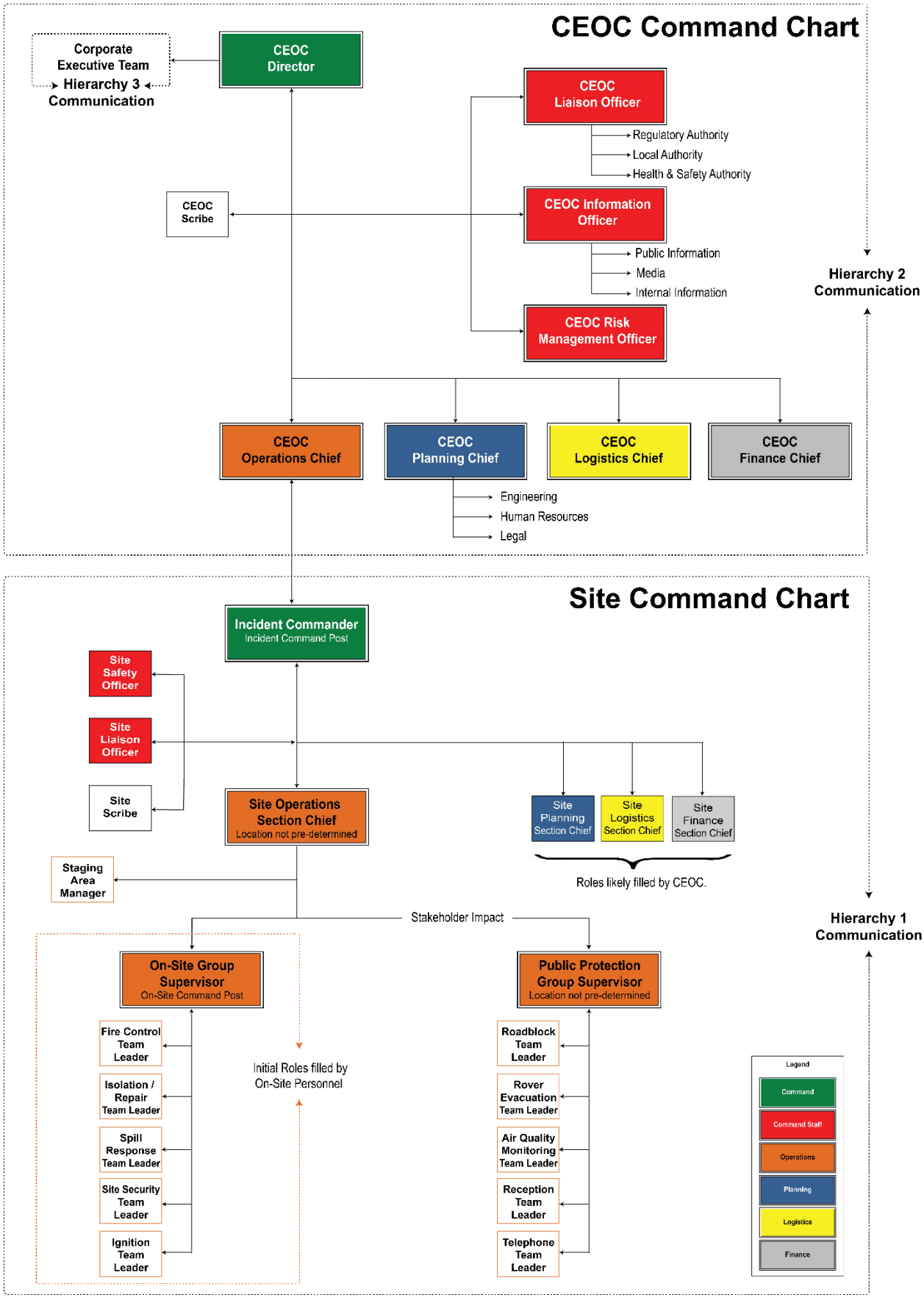
Contractors shall:

- Comply with emergency management requirements set out in this Manual.

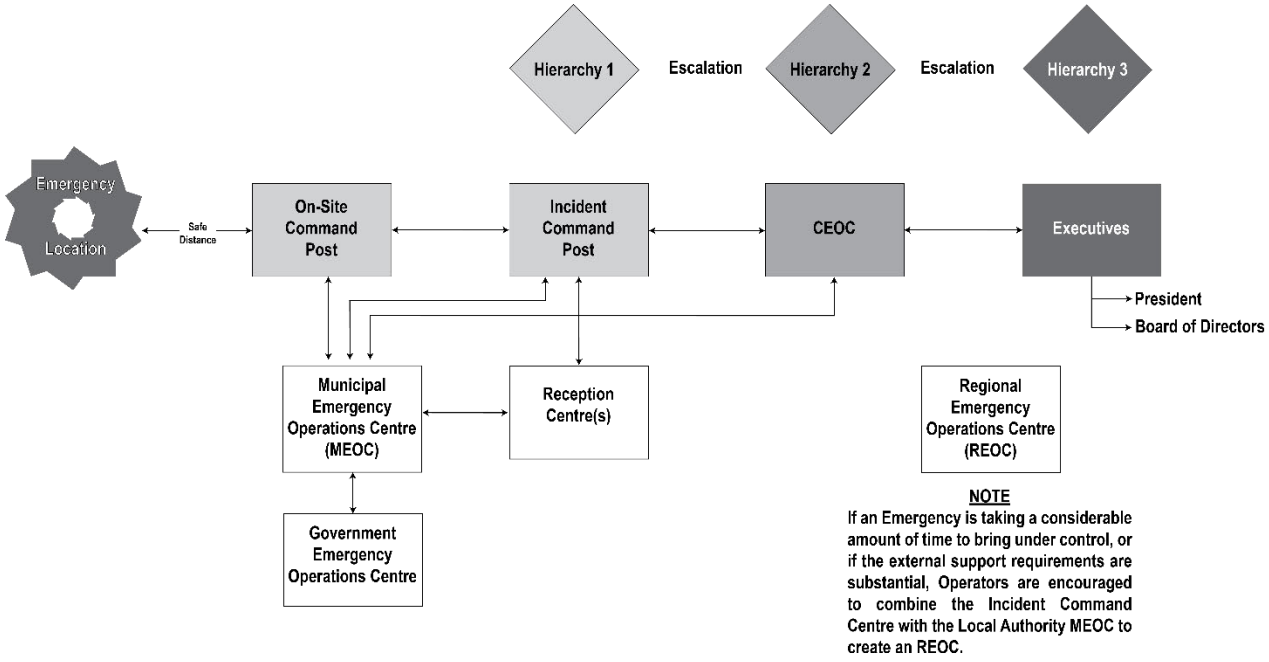
2.5.1 Documentation

- Company Emergency Response Plan – Command Staff Roles
- Company Emergency Response Plan – General Staff Roles – Operations Section
- Company Emergency Response Plan – General Staff Roles – Planning Section
- Company Emergency Response Plan – General Staff Roles – Logistics Section
- Company Emergency Response Plan – General Staff Roles – Finance/Admin Section
- Company Emergency Response Plan – Operations Section – Public Safety Roles:
    - Public Safety Group Supervisor
    - Air Monitors
    - Reception Center Representative
    - Roadblock Personnel
    - Rovers
    - Telephoner
- Company Emergency Response Plan – Lead Agency Roles
- Company Emergency Response Plan – Alberta Health Services – Oil and Gas Industry Emergency Preparedness and Response Roles and Responsibilities
- Company Emergency Response Plan - Ministry of Transport Roles and Responsibilities
- Company Emergency Response Plan – Supporting Agency Roles
- Company Emergency Response Plan – Federal Agency Roles

2.6 Organizational Structure for Emergency Management



Communication Methods Between EOC Emergency Support Team, Field Response Team and Regulatory Agencies.



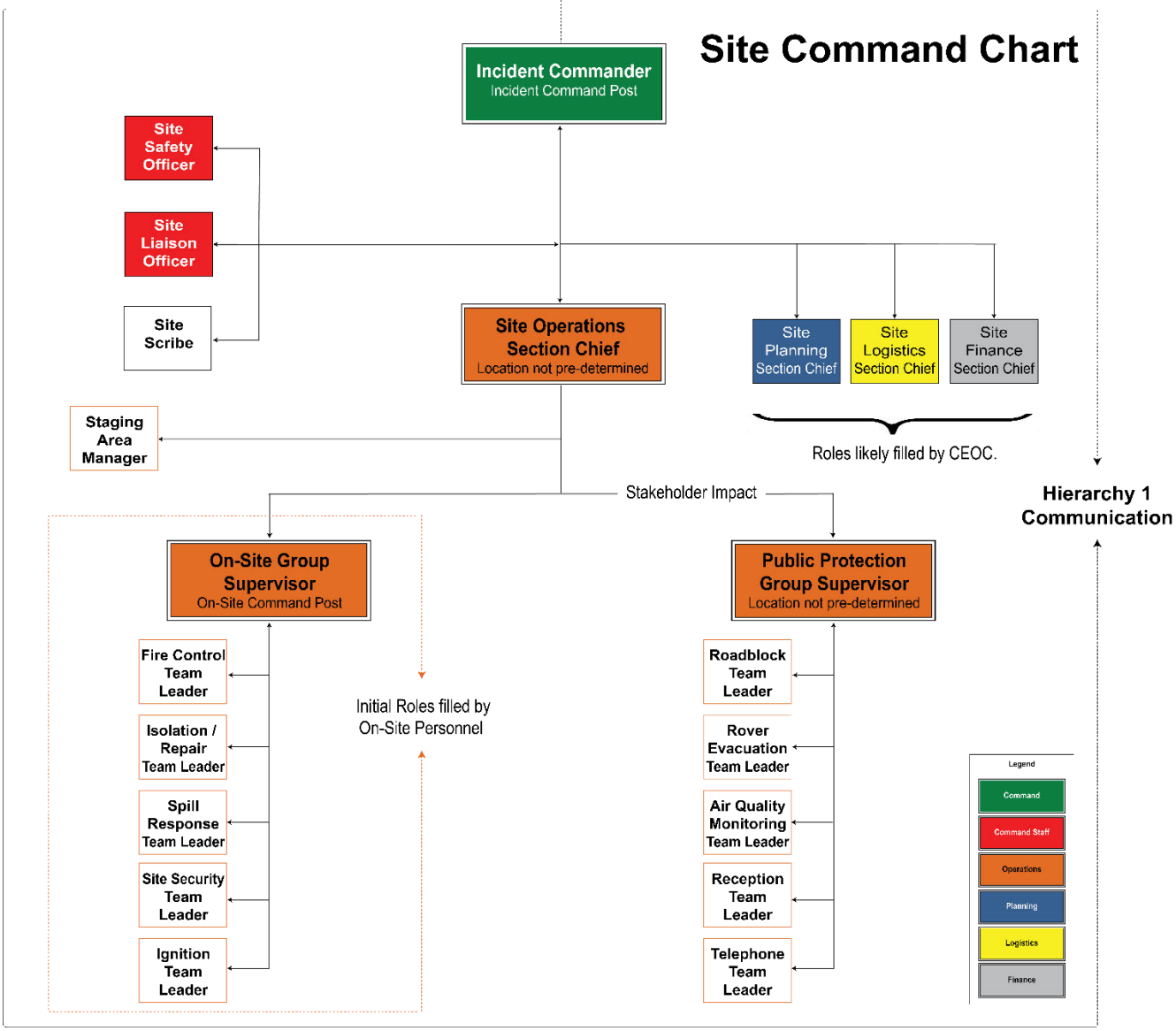
2.6.1 Incident Command System (ICS):

Pine Cliff has adopted ICS model as organizational structure for responding to emergencies. The ICS will ensure that Pine Cliff is:

- Complying with applicable regulations and legislation.
- Aligning with industry standards and best practices.
- Emergency procedures for identifying potential emergency situations and planning for mitigation and control.
- Minimizing consequences of emergency events by ensuring prompt and effective actions.
- Providing appropriate training to ensure Employees understand their roles and responsibilities under the Emergency Response Plans.
- Conducting operational and discussion-based exercises to test the readiness of the organization.
- Supporting response efforts by proving on-call support and emergency management leadership.
- Providing stakeholders with relevant information regarding emergency management activities.
- Reviewing emergency management procedures and evaluating emergency responses to ensure continual improvement.

Field Response Team

See CEOC Command Chart



2.6.2 *Incident Command Roles*

EOC Director	The EOC Director is responsible for coordination of response efforts from corporate to support the Field Response Team (FRT) and for efforts to ensure business continuity during the incident. The EOC Director determines the level of activation of the Emergency Support Team (EST) and assigns all positions to meet the required level of activation.
Communications & Media	Serves as the coordination point for all public information, media relations and internal information sources. Communications & Media is responsible for preparing the FRT and the EST to deal successfully with internal and external communication.
Regulatory / Government Liaison	Provides regulatory guidance and advice to the EST as well as to be a liaison between responding government agencies and the company. The Regulatory / Government Liaison is responsible for providing support to the field Liaison Officer.
Incident Support Manager	The Incident Support Manager is the main link between the FRT and the EST and is the main informant for the EST. The Incident Support Manager speaks directly with the field Deputy Incident Commander, if assigned, or the field Incident Commander. The Incident Support Manager provides operational, public safety, planning and logistics advice and support to assist the FRT with developing an effective field Incident Action Plan (IAP).
Business Impact Support Manager	The role of business impact is to identify and work to mitigate all of the negative impacts of the incident on the business as well as to provide business advice and support. The Business Impact Support Manager provides support to the Company in the areas of finance / accounting, legal, marketing, risk management and insurance.
Admin Support Manager	The Admin Support Manager provides administrative and technical support to the Company in the areas of human resources, information technology, travel, security and reception.
Health, Safety & Environment Support Manager	The Health, Safety & Environment Support Manager is responsible for providing Health, Safety & Environmental support to the FRT. The Health, Safety & Environment Support Manager is also responsible for managing the health / safety / environmental / planning / documentation activities of the EST.

2.6.3 *Emergency Procedures Manual Requirements*

- Policy
- Management Commitment
- Roles, Responsibility, Accountability and Authority
- Legal Requirements
- Goals and Objectives
- Organization Structure
- Emergency Procedures Manual Coordinator
- Document and Document Control
- Records Management
- Competence and Training

- Exercises and Drills
- Hazard Risk and Vulnerability Assessment
- Emergency Response Plans
- Public Awareness and Liaison
- Communications Planning
- Emergency Management Resources
- Situational Awareness
- Crisis Management (Business Continuity) Plans
- Distributions Lists (Internal and External)
- Continuous Improvement

3.0 HAZARD & RISK MANAGEMENT - HAZARD IDENTIFICATION, AND ASSESSMENT

3.1 Introduction

Pine Cliff takes an all hazards approach for emergencies; we define this as:

- An event or imminent event outside the scope of normal operations that requires prompt coordination of resources to protect people, the environment, and property.

The EPM establishes the framework for preparing for, responding to, and recovering from non-routine incidents, regardless of the nature or severity.

The following sections describe the hazard identification procedures used to systematically identify, control, or eliminate potential or actual hazards. People Leaders and Workers can prevent hazards from causing harm when they:

1. Eliminate the hazard,
2. Reduce the hazard, including substitution or isolation,
3. Engineering,
4. Administration by way of following procedures or applying training, or
5. Wear personal protective equipment.

3.2 Purpose and Scope

The objective of the hazard assessment process is to identify, assess, and quantify the consequential emergency events which may result from Pine Cliff specific activities. This is achieved by identifying all relevant substances currently under process / storage containment within a defined area. From that, the realistic worst-case scenario resulting from an incident which could directly or indirectly impact public safety has been determined.

Utilizing best practices in the field of emergency management and with consideration of CSA Z246.2 Emergency Preparedness and Response for Petroleum and Natural Gas Industry Systems, this hazard assessment process will permit Pine Cliff to deliver an effective and timely response protocol for each identified consequential emergency event in order to protect the public, the environment and assets.

This document also intends to meet the following regulations:

- Canadian Energy Regulator Onshore Pipeline Regulations – SOR/99-294
- Canadian Environmental Protection Act, 1999

Note: as the requirements for an Emergency Planning Zone are not materially different Pine Cliff will primarily utilize the acronym EPZ when documenting information on the planning zone.

3.3 Responsibilities

Emergency Procedures Manual Coordinator:

- Ensure that contractors hired:
  - To identify, assess and control known, and reasonably foreseeable hazards are trained, qualified and competent to complete the hazard identification calculations.
  - To document the hazards and describe the controls used to prevent the hazard from causing harm.
- Ensure Hazard assessments of work activities and worksites are completed as required.
- Ensure that documented hazard assessments are retained and made available to all personnel in the organization and affected stakeholders.

Contractors shall:

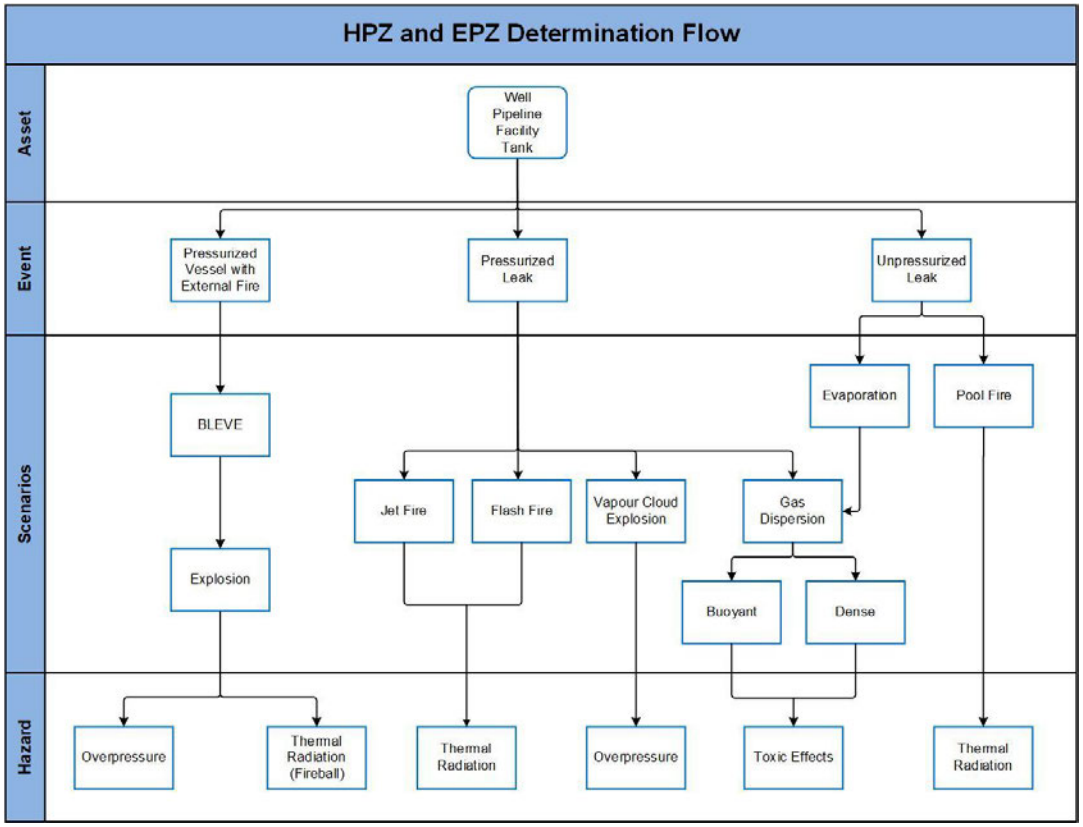
- Understand the hazard assessment and control processes and specific responsibilities as they apply to each emergency response plan.
- Actively participate in the hazard identification, assessment and control process and ensure that an appropriate level of controls is documented in each emergency response plan.
- Communicate the results of the hazard identification and assessment to the Emergency Procedures Manual coordinator.

3.4 Requirements

- Pine Cliff conducts risk and hazard assessments for all of its facilities and business operations to identify risks and hazards to people, property and the environment arising from our business activities.
- Risk and hazard assessments are reviewed regularly to consider changing circumstances and situations and are used in all stages of emergency planning and response activities.
- Pine Cliff has developed & implemented a process for the identification of its Emergency Planning Zones (EPZs) associated with the hazards posed by its pipelines and associated facilities.
- Pine Cliff re-validates its EPZs on a regular basis.
- The Management of Change (MOC) process is in place where new assets, licensing changes, integrity issues (i.e. ESDs not working) are communicated and EPZ calculations are updated to reflect that.
- EPZs are being utilized in the development of other Emergency Management related activities including public awareness, emergency responder continuing education & liaison programs.

3.5 Hazard Planning Zones (HPZs) & Emergency Planning Zones (EPZs)

Below is the methodology used to determine HPZs and EPZs.



The processes used for hazard identification, assessment and control include:

- Hazard Risk Vulnerability Assessment (HRVA).
- Assets – a complete list of assets in a geographical area.
- Events – these are triggers that start an emergency. These can be natural (earthquake, flood) or manmade (human error, equipment failure).
- Scenarios – the event then triggers an emergency scenario to occur. We then review these scenarios to look at Prevention, Preparation, Mitigation, and Recovery.
- Hazards – the various scenarios then create a hazard that can affect people, the environment, or property.

3.6 Planning and Response Zones

- The planning and response zone 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, H_2S is typically the greatest hazard and will often determine the extent of an EPZ.
- Pine Cliff calculates 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).
- For pipelines carrying low volatility, low toxicity product with an EPZ 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 EPZ be less than the right of way.
- For pipelines carrying a high volatility or high-hazard product, the EPZ 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 EPZ distance must consider the cumulative effect of each pipeline, using maximum licensed values.
- For H_2S, the calculations provided in Schedule C of the EMR must be used, however it may be possible with very low percentages of H_2S that other hazards will determine the EPZ distance.
- Pine Cliff calculates Planning Zones for all of its wells, pipelines & facilities based on the following methodologies:
    - Alberta - EPZ Calculations are completed for any well, pipeline or facility with hydrogen sulphide (H_2S) concentration of 0.1 moles per kilomole (mol/kmol) (0.0001 mole fraction or 100 ppm). The EPZs are calculated using the ERCBH_2S models.
    - Vapour Flammability HPZs - are calculated utilizing the ALOHA modelling system for all sweet and sour wells and Thermal Radiation HPZs are calculated for all sweet and sour pipelines. The larger of the HPZs is applied as the final EPZ.
    - HVP Pipelines - EPZs for High Vapour Pressure (HVP) pipelines are determined using the Proposed EPZ Distances for Selected Pipeline Diameters provided by the Working Group in Project No. 1022345 the Effects of HVP System Parameters on Dispersion and Thermal Radiation Hazard Extents.

Pipeline Size		Ethane, Propane, and Butane Mix (No Ethylene)	Ethylene
3”	88.9 mm	250 m	250 m
4”	114.3 mm	300 m	350 m
6”	168.3 mm	500 m	550 m
8”	219.1 mm	700 m	750 m
10”	273.1 mm	900 m	1000 m
12”	323.9 mm	1100 m	1200 m
16”	406.4 mm	1600 m	1600 m

  - CER Regulated Pipelines - EPZ Calculations are completed for any pipeline with hydrogen sulphide (H_2S) concentration of 0.1moles per kilomole (mol/kmol) (0.0001 mole fraction or 100 ppm). The EPZs are calculated using the ERCBH_2S models.
  - Thermal Radiation EPZs are calculated utilizing the ALOHA modelling system for all sweet pipelines.
  - Environment Canada Regulated Facilities - Hazard zones for Environment Canada regulated propane / butane / NGL bullets & condensate tanks are calculated utilizing RMP*Comp™.
  - Facility EPZs - The facility EPZ is the largest of the following:
    - Largest EPZ of any pipeline entering or leaving the facility.
    - Environment Canada calculated hazard zone
    - The EPZ of any well on-site at the facility
  - Pine Cliff ensures its HPZs / EPZs are kept current via the following methods.
    - HPZs / EPZs are calculated for all new assets.
    - HPZs / EPZs are re-calculated for any changes to licensing / operating conditions.
    - HPZs / EPZs are re-calculated due to any integrity issues.
    - A complete refresh of EPZs occurs during the annual update of the ERP.
- If there are changes to the HPZs / EPZs that result in an increase in the hazard zone and new members of the public are impacted, then the ERP will be updated immediately.
- If there are changes to the HPZs/ EPZs that do not impact new members of the public or reduce the HPZs / EPZs then these changes will be rolled into the annual ERP update when it comes due.
- If there is additional public impact, the ERP must be updated prior to Pine Cliff bringing on any new assets, changing licensing or changing operating conditions.

4.0 EMERGENCY PREPAREDNESS AND RESPONSE

4.1 Introduction

This procedure is developed to support the company's requirement to have Site Specific Emergency Response Plans.

4.2 Purpose and Scope

This procedure describes the requirements for each area to have a site-specific Emergency Response Plan.

4.3 Responsibilities

People Leaders shall:

- Ensure the site-specific emergency plan is readily available for all locations.
- Ensure that emergency evacuation maps, phone contacts and other support documents are posted in prominent locations or available at each Company facility.
- Understand and follow the Crisis Communication and Media Response procedures.

Employees shall:

- Attend emergency response training, as required.
- Provide feedback following emergency drills or exercises.

Emergency Procedures Manual Coordinator shall:

- Ensure development of site-specific emergency plans per the provincial requirements for all Company facilities.
- Ensure that all areas have access to the emergency response plans.
- Ensure the emergency response plans are maintain, reviewed, updated and distributed as per this EPM.
- Ensure each ERP list key Company contacts.

4.4 Requirements

4.4.1 General

- Each operating site must have a written emergency response plan that addresses the major unplanned events or exposures that could threaten the facility or public.
- Each plan will contain:
    - A statement of purpose, scope, and objectives;
    - A description of assets and operational activities covered by the ERP;
    - Emergency Response Plan Distribution List;
    - Emergency Response Map, with an appropriate level of detail to allow for effective planning and response;
    - Roles and responsibilities for each internal and external position in accordance with the incident management system;
    - Emergency contact information for an individual, group, or organization that has a role in the management of an emergency;
    - Emergency contact lists for:
        - Notifying directly impacted public; and
        - Enabling the public to contact the operator (e.g., 24 hour emergency contact phone number);
    - A method for classification of incidents and response actions for specific incidents;
    - Response procedures and guidelines to manage site-specific risks;
    - Command and coordination (reception) centers, and other facilities as appropriate;
    - Procedures for communication with response team, support services and government;
    - Procedures for communication with external stakeholders, public and media;
    - Critical resources, Equipment list, and a means of activation;

  - References to copies of mutual aid agreements;
  - Detailed hazardous product information;
  - Internal and external reporting requirements;
  - Documentation processes;
  - Processes and criteria for:
    - Determining the incident classification, including escalation and de-escalation;
    - Activation of the ERP; and
    - Deactivation (downgrading and stand-down of emergency levels);
  - Processes for the preservation of evidence; and
  - Debrief procedures.
- The emergency response plan must conform to the requirements set forth by regulatory agencies and emergency response program requirements.
- The emergency contact list shall be reviewed quarterly to confirm the accuracy of the emergency response phone numbers and accuracy of individual names.
- Emergency planning provisions will be incorporated into each facility's EPMloyee orientation training program.
- All facilities shall conduct an emergency exercise at least annually.
- Following the emergency exercise, the involved Employees shall be debriefed, and the site emergency plan shall be revised as appropriate.

4.4.2 Emergency Response Procedures

Each Emergency Response plan includes specific emergency response procedures for the following events:

- Public Protection Measures
  - Air Quality Monitoring
  - Shelter in Place
  - Evacuation
  - Ignition
  - Road and Airspace Closures
  - Establishing and Isolating a Perimeter (Isolation)
- Spill Response
- Medical Emergencies
- Responder Safety
- Fire/Explosion
- Transportation Incidents
- Weather and Natural Disasters
  - Earthquake
  - Floods
  - Thunderstorm and Lightning
  - Tornados
  - Winter Storms, Blizzards, Freezing Rain, Heavy Snow, Blowing Snow
- Security Incidents
  - Bomb Threats
  - Suspicious Packages
  - Trespassing
  - Vandalism
  - Terrorism
  - Cyber-Attacks
- Animal Encounters
- Drinking Water Emergencies

4.4.3 Resources

- Each operating facility will identify appropriate emergency response resources available for deployment in an emergency.
- The location of personnel, equipment services will be described in the emergency response plan.
- Equipment identified will include:
    - Primary communication method (equipment, radio frequency etc.);
    - Back up emergency communications equipment;
    - Roadblock kits;
    - Ignition equipment;
    - Gas monitoring equipment; and
    - Spill response equipment.

4.4.4 ExEPMtions

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.
- Pine Cliff 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; and
    - any tanks, c-rings, or other containers (including abandoned pipelines) that may contain hydrocarbons, produced water, H_2S, or any other product introduced or extracted for which a Safety Data Sheet (SDS) sheet would be required, or any water storage for industrial use which includes an engineered containment system.
- Pine Cliff 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.
- Should Pine Cliff 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 key recipients, prior to the commencement of any oil or gas operations.

4.4.5 Deactivated Pipelines

- Operating companies deactivating piping shall:
    - Isolate the piping, using blind flanges, weld caps, or blanking plates suitable for the pressure from which the deactivated piping is being isolated;
    - Where required, provide a pressure-relief system; and
    - Fill the piping with a suitable medium, having regard for the intended duration of the deactivation, the effects of the medium on the integrity of the piping, and the potential consequences of a leak.
- Due to the processes required in re-licensing pipelines to deactivated status, there will be no hazards associated with deactivated pipelines and thus will not have EPZs associated with them.

5.0 MANAGEMENT OF CHANGE

5.1 Introduction

Management of Change is a systematic approach to ensuring proposed changes are assessed for risk, and that change is effectively implemented to achieve targeted results.

5.2 Purpose and Scope

Disciplined Management of Change identifies and mitigates risks associated with changes to operations, procedures, site standards, facilities and the organization to ensure that risks associated with change are well understood and addressed.

A Management of Change (MOC) process is in place to address the risks introduced into the workplace through changes (e.g. materials, people, vendors, procedures).

This procedure applies to changes for requests to procedures in this Manual.

5.3 Responsibilities

People Leaders shall:

- Follow all management of change procedures.

Workers shall:

- Follow the management of change procedure to request changes to:
  - Emergency Response Plans.
  - Emergency Planning Zones (EPZs).
  - Public Awareness brochures.
  - Liaison Information.
  - Mutual Aid Agreements.

Emergency Procedures Manual Coordinator shall:

- Review pipeline and facility MOCs to determine if there is an impact to an existing Emergency Planning Zone.
- Ensure all Emergency Planning Zones are updated as a result of changes to:
  - Pipeline design;
  - Flow;
  - Pressure;
  - Product;
  - Size (diameter);
  - Length;
  - Location; and
  - Activation or deactivation.
- If there are changes to the HPZs / EPZs that result in an increase in the hazard zone and new members of the public are impacted, then the ERP will be updated immediately.
- If there are changes to the HPZs/ EPZs that do not impact new members of the public or reduce the HPZs / EPZs then these changes will be rolled into the annual ERP update when it comes due. If there is additional public impact, the ERP must be updated prior to Pine Cliff bringing on any new assets, changing licensing or changing operating conditions.

5.4 Requirements

All Company programs shall follow the Company Integrated Management System Management of Change processes.

6.0 COMPETENCE

6.1 Introduction

Competency assurance is using a variety of means to ensure that individuals have the necessary qualifications, training, and experience to safely respond to emergencies.

6.2 Purpose and Scope

The purpose of competency assurance activities is to ensure individuals on Company worksites are sufficiently qualified, trained, and experienced for the duties they are assigned; or that they are receiving sufficient supervision, training, and experience for duties they will be expected to perform in the future.

Pine Cliff's Training Matrix identifies the training required for those that may fill Emergency Response Roles to ensure that personnel have the appropriate knowledge and skills to comply with regulations and respond to emergencies as per Pine Cliff's Emergency Response Plans. This includes levels of ICS training, participation in emergency response exercises, role specific training, media training and emergency response related software training.

Pine Cliff utilizes a rolling Three Year Training Schedule to ensure that staff are moving towards achieving these training targets. Training requirements and completion rates for each individual are tracked utilizing Pine Cliff's Learning Management System housed in the HR Success Factors system.

6.3 Responsibilities

People Leaders shall:

- Assess the competency of Workers who report to them through a variety of means as applicable, including but not limited to:
    - Confirming any specialized and/or regulated qualification for work assignments has been achieved by the person assigned this type of work.
    - Performing an annual review of Training requirements, matching training assignments to the work assigned, and ensuring training was completed as per required deadlines.
    - Regular worksite visits and/or inspections to allow for firsthand observation of worker competency.
- Ensure that new, inexperienced, or transferred workers work under the direct supervision of another Worker who is sufficiently competent until such a time as they are deemed to be competent in the work assigned at a given worksite.
- Ensure Workers are encouraged to raise concerns about competency, especially if they believe they are not qualified or sufficiently experienced to manage the hazards of an assigned task.

Contractors shall:

- Provide Workers with sufficient competency for the work they are assigned. To that end, Contractors must provide proof of qualification and training records for individual Workers upon demand.

Employees shall:

- Participate in competency assessment or assurance exercises as requested.
- Report to their People Leader(s) any concerns regarding competency issues, especially if they believe they may not be sufficiently qualified or experienced for an assigned task and the hazards it represents or if a required qualification has or is about to expire.

6.4 Requirements

- Pine Cliff's HR department provides support to all departments for the development of departmental training course content and programs and each department manages the content of programs housed in the LMS.
- Workers must be deemed competent by their People Leader / Supervisor in an assigned task to be allowed to perform this task independently.
    - Workers not yet deemed competent may only perform this task under the supervision of another Worker who is deemed competent.
- People Leaders and Supervisors shall assess the competency of Workers under their control. This should include activities such as:
    - Confirming existing qualifications, training, and experience through the onboarding process for new or transferring workers.
    - Performing an annual review of H&S Training requirements for individual workers, matching training assignments to the work assigned, and ensuring training was completed as per required deadlines.
- The Key Response Personnel Document in Section 2 of each ERP identifies those likely to fill specific positions on the Field Response Team.
- The Emergency Support Team Leads Callout List identifies those likely to fill specific positions on the EST.

7.0 EMERGENCY RESPONSE TRAINING

7.1 Introduction

The purpose of this procedure is to establish expectations for Emergency Response Training. This procedure will assist in ensuring Company personnel receive appropriate emergency response training.

7.2 Purpose and Scope

Emergency response training is provided to Company Employees who may be involved in responding to an incident. Training is provided in various forms such as, formal training, table-top exercises, plan reviews, and workshops.

External agencies, stakeholders and subject matter experts are invited to participate in training when applicable to ensure a comprehensive and cohesive response effort. Training requirements are determined by operational and regulatory requirements.

Pine Cliff's Incident and Emergency Management team collaborates with the Company Training department in the development of training materials.

Pine Cliff's EMS Team regularly attends workshops, courses, and conferences for professional development to review industry best practices with a view to continually develop, enhance and improve the Program. to emergencies.

7.3 Responsibilities

People Leaders shall:

- Ensure Employees under their direction are assigned and complete the Emergency Response Training that is:
  - Required based on the type of work they do or where they do their work.
- Support Learning and Development processes and requirements related to training completion records.
- Provide feedback to the Emergency Procedures Manual Coordinator:
  - Whether the Training is relevant and meeting the needs of Employees.
  - Whether additional or different Training offerings are required to meet the needs of these Employees.

Employees shall:

- Complete the training assigned to them within the required timelines.
- Alert Supervisors if they believe their training on a specific workplace hazard or topic is insufficient for the work they do.
- Provide feedback on the training programs they complete.

Area Safety Advisor shall:

- Provide support as needed for area operations to:
  - Deliver instructor led training as required.
  - Assist with Emergency Response training delivery issues.
  - Provide feedback on existing Emergency Response training and training needs arising that should be addressed by the Program and/or Area Management or People Leaders.
  - Provide support in assessing the quality of Emergency Response training content and delivery.

Emergency Procedures Manual Coordinator shall:

- Revise the Company Training Matrix in consultation with:
  - Area Operations personnel.
  - Area Safety Advisors.
- Ensure applicable regulatory requirements regarding training are being met by Training program.
- Provide oversight on Emergency Response Training content to ensure accuracy, quality and consistency.
- May, under certain circumstances, coordinate and/or conduct Emergency Response Training.

7.4 Training Objectives

- Pine Cliff completes Emergency Response Exercises in a frequency that meets or exceeds regulatory requirements as per Pine Cliff's 5 Year Exercise Schedule. Each exercise has specific learning and coordination objectives that are measured as being achieved / not achieved for each exercise. Attendance at emergency response exercises is tracked for each individual EPMloyee via Pine Cliff's learning management system.
- A Functional/Full Scale Exercise Audit Form or Tabletop Exercise Audit Form is shared with each area at the next Safety Meeting following each emergency response exercise to review the positive observations, opportunities for improvement, other learnings and action items.

The objectives of the Emergency Response training include:

- Review of response actions and priorities.
- The emergency response program.
- Review of the Incident Command System (ICS) - structure, roles and responsibilities.
- Hazards and risk identification, including on-scene assessment.
- Use of the AER's incident classification matrix.
- Public protection measures used during an emergency.
- Ignition as mitigation.
- Communication methods.
- Map reading / use of mapping tools.
- When and how to report a security threat or incident.
- Use of equipment (both Company held, as well as that provided by third parties such as Western Canada Spill Services (WSCC) or other mutual aid agreements) used to contain and control an incident.

7.5 Requirements

- The Pine Cliff Training Catalogue shall provide the following for each course or training activity in the Training Matrix:
  - Description of course or training activity.
  - Applicable pre-requisites.
  - Training Determination Question (to ensure training is assigned where applicable).

Training Requirements will be set out in the Pine Cliff Training Matrix. This matrix provides the following:

- Training requirements for Employees by operations type and role. Individual training courses or activities will be broken into two categories:
    - REQUIRED: This includes any Training that is mandatory for all Company Employees, an Asset Area or operation type in Pine Cliff due to core Company commitment or regulation that affects all Workers in each operation type.
    - OPTIONAL: These are any training activities that are only applicable to a subset of Workers within a type of operation or facility. For example, on facilities with a forklift and then only forklift operators within those facilities would be required to take “Forklift Operator” training.
        - These are assigned by People Leaders for Employees that report to them based on the direction provided by the course or activity determination question.
        - If the determination question applies, the EPMloyee is assigned the training and must complete this training to meet their training requirements (i.e., this is not “optional” training).
- Training timing and frequency.
    - Each course or training activity on the Training Matrix will specify whether it needs to be provided on initial hire or on taking on a new role.
- Any course or training activity that must be completed prior to arriving on the jobsite or starting to do a task for the first time will be flagged as such in the training matrix.
    - It needs to be repeated or renewed and how frequently (e.g., annually, biennially, triennially).
- People Leaders must review the training assigned to Employees under their direction:
    - At least once a year and timed to allow assignments to take affect the following calendar year.
    - Whenever operations change, and new hazards introduced or when Employees under their direction change their role or duties.
- All completed Training by an EPMloyee must be electronically recorded.
- The specific processes and requirements for electronic recording are specified by Learning and Development.
- Hard copy training documentation may be used as part of instructor-led training, but all records must be transferred to the Learning and Development electronic system to allow for accurate Training reporting.
    - In the event evidence of training is in hard copy (e.g., training sign in sheet), these should be maintained at the trainees’ local area office or facility and in accordance with any applicable record retention requirements.
    - In the event a regulator requires additional record keeping requirements, Learning and Development will make provisions for this.

The Emergency Procedures Manual Coordinator must perform a review of the Training requirements and potentially individual courses or training activities:

- At least once a year and timed to allow any changes made to take affect the following calendar year.
- In consultation with Operations Support and Area Operations input.
- when any of the following occurs:
    - New regulatory requirements.
    - Revised procedures.
    - Incident reviews, investigation findings, or action plans.
    - Audit results.

7.6 Training Requirements

7.6.1 General Training Requirements

Frequency / Action	As Required	Semi Annually	Annually*	Every Three (3) Years**	Every Five (5) Years***
Training					
EPMloyee Orientation New / Transfer	√				
On-the-job Training	√				
Response Discussion During Pre-Job Meetings	√				
Drills	√				
Tabletop Exercise			√		
Communication / Partial Mobilization Exercises			exercises		
Major (Full Scale) Exercise				√	√
Post Incident (Actual) Review	√				
ERP Review / Self Audit		√			

* Must be held annually.
** CSA Z246.2, CER, AER requires Major Exercises be held every three (3) years.
*** Environment & Climate Change Canada (ECCC) requires Major Exercises be held every five (5) years for facilities with E2 required substances.

Pine Cliff will provide training in the Incident Command System (ICS) for any incident response personnel.

Roles	Training
All Response Personnel	ICS 100
Incident Command Post (ICP) Personnel	ICS 100
	ICS 200
Emergency Operations Centre (EOC) Personnel, EOC Director	ICS 100
	ICS 200

Pine Cliff will ensure that assets with Environmental Emergency (E2) requirements meet the following training requirements.

Role	CEPA Required Tabletop Exercise (Annually)	CEPA Required Full Scale Mobilization Exercise (Every 5 years)
Incident Commander	√	√
Emergency Procedures Manual Coordinator	√	√
Public Safety Staff	√	√
On-Site Area Supervisor	√	√

7.6.2 Exercises

Emergency exercises are designed to evaluate and validate Company emergency response plans. Pine Cliff utilizes tabletop, drill based, functional and full-scale exercises in the emergency exercise program in order to test and evaluate the full range of the Company's emergency processes and procedures that ensure response priorities are achieved and regulatory requirements are met.

These exercises simulate disruptive events and provide the participants with the opportunity to practice their individual roles and responsibilities.

Typical aims of the exercises can be but are not limited to:

- To develop the necessary skills for individuals and organizational units to effectively respond to and manage emergency situations.
- To familiarize individuals and organizations with their roles under the relevant Emergency Response Plans.
- To validate existing plans and identify areas of opportunity.
- To build Employees' confidence with respect to making decisions in an emergency situation.
- To practice and enhance interagency cooperation and communication.

Note: Alberta Energy Regulator (AER) requires 30 days advance notice of scheduled exercise via the AER Digital Data (DDS) System.

Note: It is integral we register all Pine Cliff Alberta based ERP drills through the AER DDS. Failure to use the DDS may result in a formal non-compliance.

Annual exercise plans are developed, outlining exercise dates, locations and types, based on organizational needs and regulatory requirements.

7.6.3 Exercise Scenario Development

Operations leadership will meet annually for a series of meetings to discuss, review, and develop exercise content, determine responsibilities and tasks, and make logistical arrangements and finally participate.

Tabletop Exercises (Annual)

Tabletop exercises are semi-formal, facilitated discussions where participants discuss responses to a theoretical/simulated emergency situation. The focus is to have participants apply specific plans, policies, procedures, and training by discussing how they would respond to a specific emergency event. This type of exercise is designed to validate procedures and to familiarize participants with their roles under the plan. These exercises may test and validate coordination between the Emergency Operations Centre and other entities such as internal departments (e.g. Operations Support). Tabletop exercises may include representatives from stakeholder organizations such as emergency services and government agencies.

Functional Exercises (Annual)

Functional exercises validate and evaluate multiple functions at a single site. The focus is to have participants apply plans, policies, procedures, and training in responding to a specific simulated emergency scenario. Functional exercises may test and validate coordination between the Emergency Operations Centre and other entities such as internal organizations (e.g. Operations Support) and external stakeholders (e.g. fire departments).

Drills (Annual)

Drills are exercises that validate and evaluate a specific operation or function (e.g. Fire Drill or Muster Drill). The focus is to have participants display a level of proficiency and comfort when executing a response plan. Regular drills are scheduled in the field to ensure that immediate actions and emergency response can become second nature for potential responders.

Full Scale Exercises (Every three Years)

Full-scale exercises are the most complex and involved exercises. The focus is to have participants at multiple locations apply plans, policies, procedures, and training in response to a simulated large-scale emergency event. These exercises test both the on-site, tactical response to an emergency by operational personnel and the deployment and coordination of corporate-level and external resources in supporting the site event. Full Scale Exercises thoroughly test and evaluate emergency response procedures across the Company, as well as identify areas of opportunity that serve improve interagency cooperation and communication. The roles of other

agencies are filled by representatives from those agencies when possible however some roles are simulated in order to minimize real-time operational impacts on external emergency organizations. Exercise scenarios generally include an incident at a Pine Cliff facility or asset and where appropriate, have an impact on external stakeholders and other third parties in order to test possible outcomes.

8.0 DOCUMENT CONTROL

8.1 Introduction

The purpose of this section is to outline the requirements for retention all safety related documentation to comply with regulatory and Company policies.

Documentation must be made readily available hard copy or electronic.

8.2 Purpose and Scope

The section applies to Emergency Procedures Manual related material at all Company facilities. Onsite retention establishes a trend of compliance and management review. Once a record has exceeded its onsite retention period, the records management department begins the process of offsite record retention.

8.3 Responsibilities

Supervisors shall:

- Request changes to procedures or practices when required.
- Ensure all required documentation is stored at facility locations.
- Ensure all documentation is readily available hard copy or electronic.
- Contact records management department once the onsite documentation retention period has expired.

Employees shall:

- Know the location where documentation is stored.
- Store documentation in the correct location.

Emergency Procedures Manual Coordinator:

- Assist in the evaluation of changed Emergency Management procedures and plans.
- Assist operations with emergency management documentation storage. (Location, length of time to keep records etc.)

Deviations:

- Any Variance or Deviation to a section, practice or requirement from this Manual is required to be approved by the owner of the manual.
- All Deviations are applicable only to a specific project or requirement and do not create policy.
- A Deviation shall always comply with Applicable Legislation.

8.4 Requirements

- Documentation should be reviewed and revised annually and immediately where changes are required as a result of legal requirements or where failure to make immediate changes could result in negative consequences. Documentation should include:
    a) Organizational structure;
    b) Roles and responsibilities;
    c) Policies, processes, and procedures;
    d) Emergency response plans;
    e) Exercise plan; and
    f) Training plan.
- The company's Corporate and Site-Specific ERPs are to be updated annually and submitted to the CER on or before April 1st of each year, or when significant changes (either operational or identified from exercises/incidents and resulting debriefs) occur or are identified.
- If an update occurs outside of the January 1st to April 1st period, a letter must be submitted to the CER indicating that there have been no changes to operations since the ERP was last submitted.

- ERP updates are performed by a third-party company (Black Gold Emergency Planners Inc.), whose expertise in the field provides company personnel with the education, training, and resources to excel in Emergency Response.
- Approvals for ERP updates will be carried out by the company's Emergency Management Coordinator.

9.0 RECORDS MANAGEMENT

9.1 Introduction

The purpose of this procedure is to establish expectations for the management of Emergency Response Records.

9.2 Purpose and Scope

This procedure applies to all records identified in this Manual.

9.3 Responsibilities

Program Coordinator shall:

- Maintain all records of activities and decisions related to the EPM.
- Follow the Company records management procedure for the identification, storage, protection, retrieval, retention and disposition of records.

9.4 Requirements

9.4.1 General Requirements

Records should include, but not be limited to

- Actions taken to prepare for emergencies;
- Actions taken to respond to emergencies;
- Debrief reports;
- Training records;
- Response equipment records;
- Changes or improvements made to the EPM; and
- Reports of exercises conducted by the operator.

10.0 INCIDENT RESPONSE

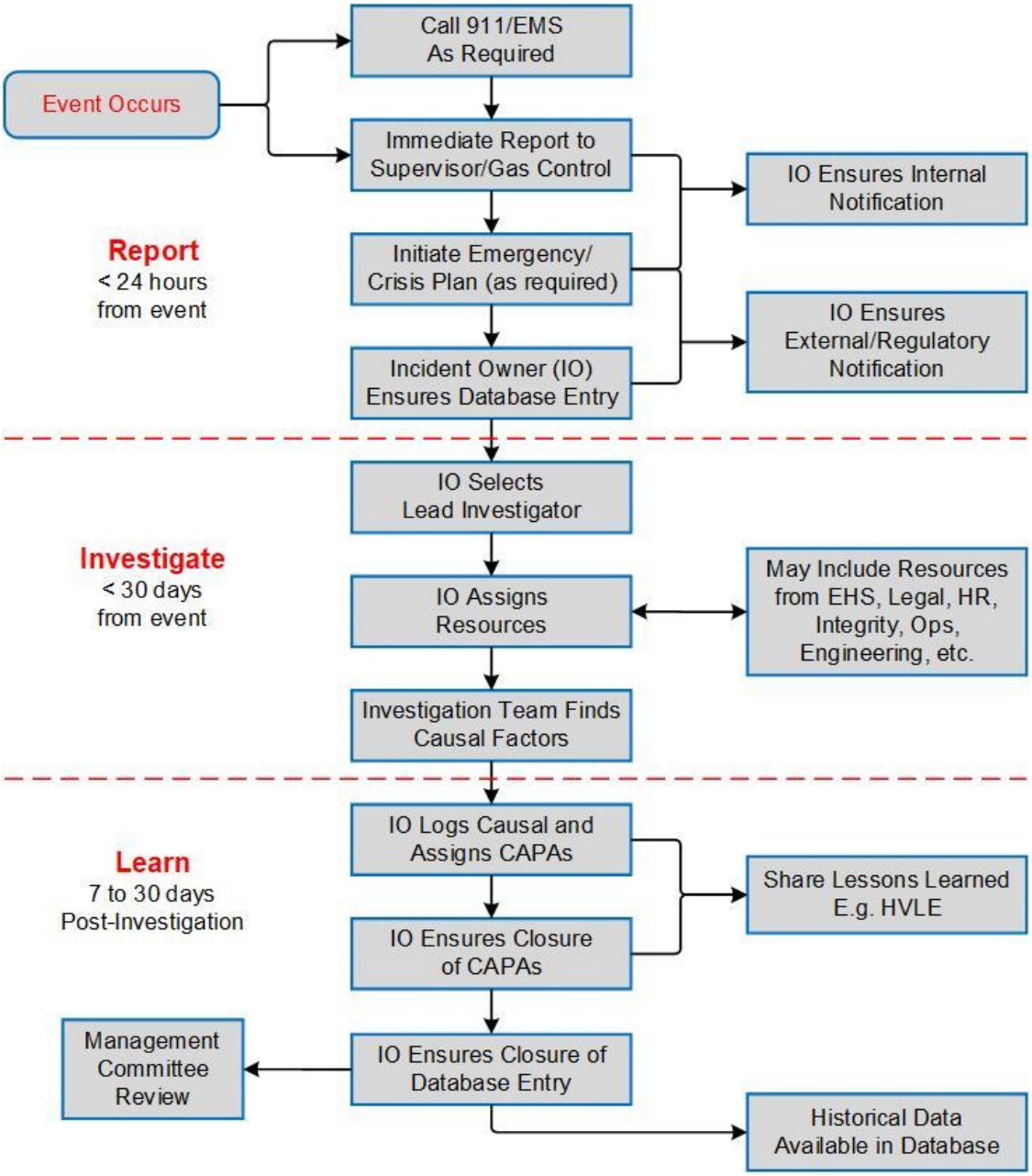
10.1 Introduction

The purpose of this section is to ensure that all incidents and events that occur on Company property or while conducting Company business are reported and investigated. The procedures found in this section will help ensure that accurate and up-to-date incident records are documented, maintained, posted, submitted, and that notifications are made as required.

10.2 Purpose and Scope

This procedure provides a systematic process for the responding to, reporting, investigation, and learning from incidents. This section applies to all Workers that may be involved in any incident or event occurring in Pine Cliff.

The diagram below shows a summary of the Responding to, Reporting, Investigating, and Learning process.



10.3 Responsibilities

Pine Cliff will respond to incidents and Emergencies in accordance with following order of priorities:

1. Protection of emergency response staff.
2. Protection of Employees.
3. Protection of the public.
4. Protection of property.
5. Protection of the environment.

Pine Cliff is responsible for carrying out the response activities until the incident is resolved.

People Leaders shall:

- Ensure this procedure is implemented and followed by all Workers.
- Communicate this procedure to all personnel under their supervision.
- Assume the role of Incident Owner.
- Ensure all incidents are reported to the proper levels of management.
- Ensure the incident is entered into the Incident Database.
- Consult with Regional Health and Safety in the proper incident classification and risk ranking.
- Provide appropriate resources to ensure Corrective and Preventive Actions (CAPA) are identified and resolved in a timely manner.

Workers shall:

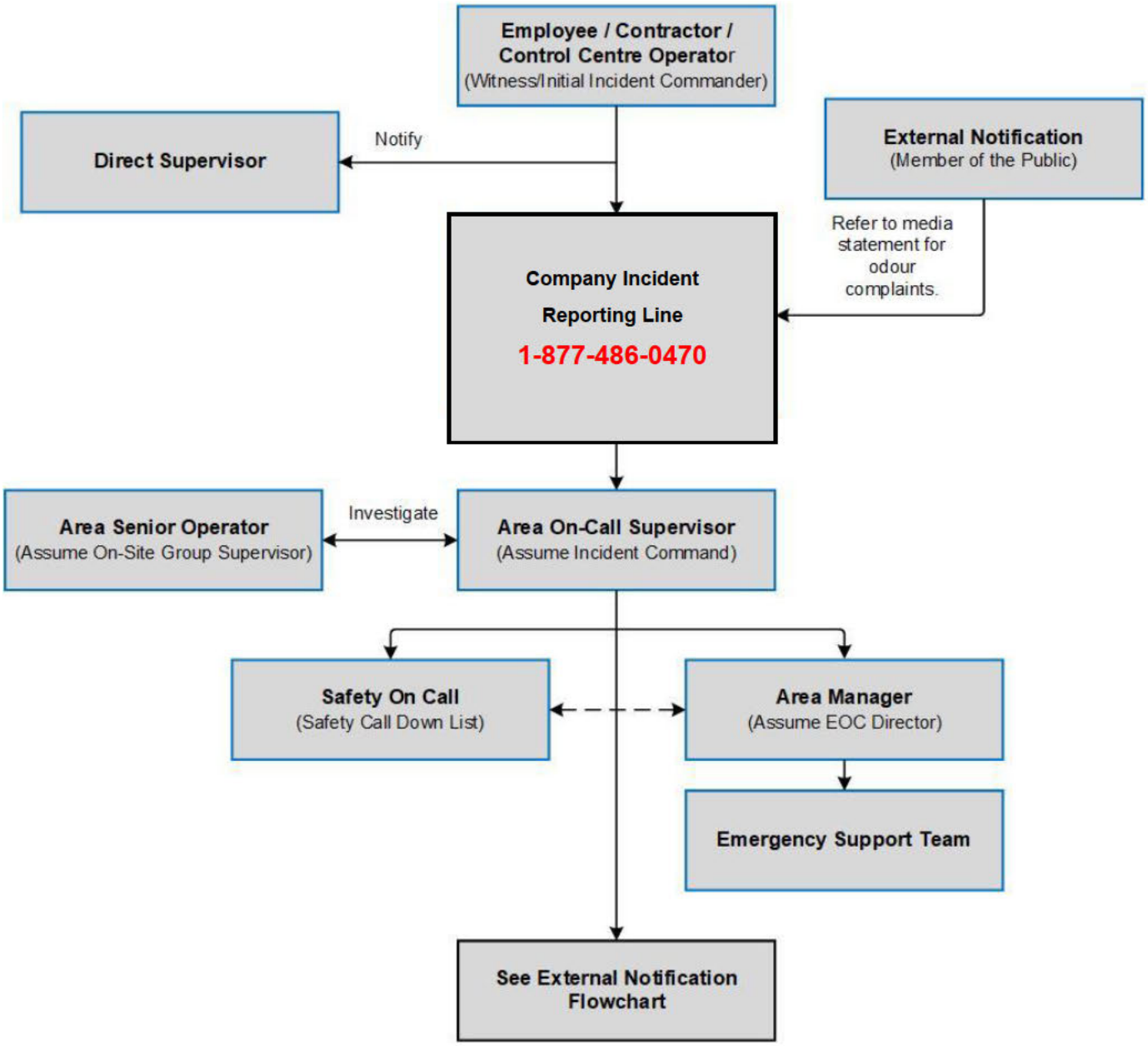
- Immediately report all incidents to your immediate Supervisor.
- Assist with the incident investigation process.
- Emergency Procedures Manual Coordinator:
- Assist in the development of CAPA plans from the emergency response.
- Assist in the proper incident classification and risk ranking.
- Ensure post incident reports are submitted to the appropriate regulatory within 60 days of the event.

Emergency Procedures Manual Coordinator:

- Assist in the development of CAPA plans from the emergency response.
- Assist in the proper incident classification and risk ranking.
- Ensure post incident reports are submitted to the appropriate regulatory within 60 days of the event.

10.4 Requirements

10.4.1 Internal Incident Reporting

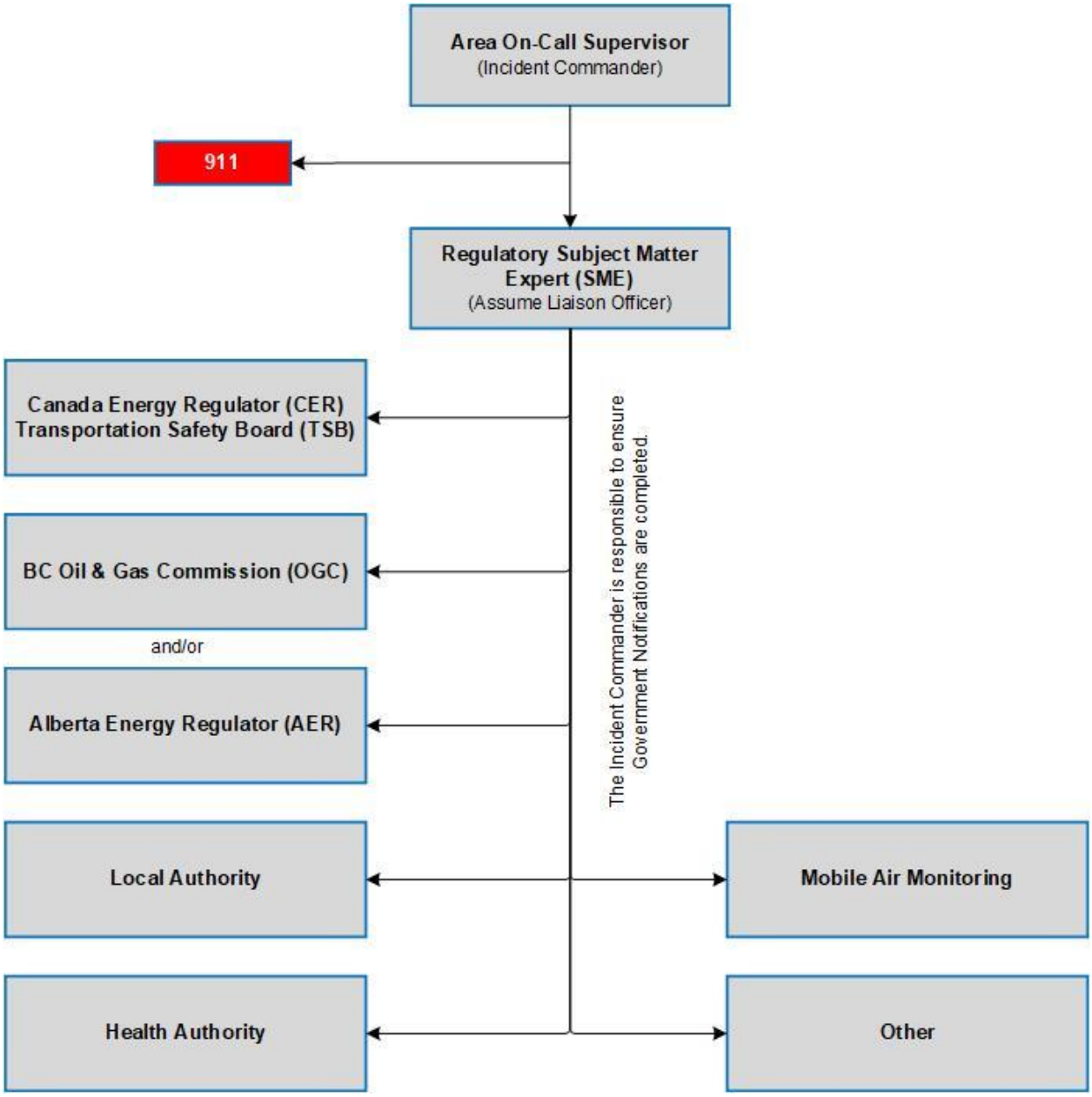


10.4.2 Immediate Response

If the event is an emergency or requires immediate response, the Incident Owner will initiate the Emergency Response Plan and if required the regulatory reporting process. Examples include:

- Injuries or illnesses requiring medical treatment.
- Exposures to chemicals, biohazards or radiation.
- Unplanned Fires or Explosions.
- Spills, leaks, unplanned/uncontrolled emissions.
- Emergency flaring from processing plants.
- Contact with, or damage to a pipeline, equipment or facility.
- Unauthorized Activity(s) (e.g., Ground Disturbance, Construction of a Facility, Vehicle Crossings).
- Events involving or affecting pressure equipment.
- Events involving electrical equipment.
- Maximum operation pressure (MOP) excursions.
- Events impacting wildlife.
- Public complaints.
- Security related incidents (any Police, Sherriff, or RCMP contact).
- Environmental Permit or license deviations.
- Events involving a major structural failure or collapse of a building, bridge, tower, crane, hoist, tEPMorary construction support system or excavation; or TDG occurrences.

10.4.3 External Emergency Notification Flowchart



Prior to commencing contact of the above listed agencies make sure to have an Initial Incident Report Form on hand to reference.

All Agency numbers are located in section 10 of the ERP.

10.4.4 Reportable Event

An event is an unplanned occurrence that interrupts a work activity. Pine Cliff requires these events to be tracked in the Incident Database. Reportable events include:

- People:
  - Injuries or illnesses to Workers or Visitors.
- Environment:
  - Unauthorized or unplanned releases; or
  - Impacts to air, land, water, or wildlife.
- Property Damage:
  - Ruptures, fires, or explosions;
  - Motor Vehicle, aircraft, or watercraft incidents involving Company Workers;
  - Damage to Company, Contractor, or third-party property; or
  - Theft or vandalism.
- Regulatory and Other:
  - Government agency visits or contact;
  - Permit / license contraventions;
  - Unauthorized activity on ROW;
  - Landowner / public complaints; or
  - Security Threats.
- Near Misses involving any of the above.

10.4.5 Incident Reporting

Pine Cliff must report all spills or releases that are or may cause an adverse effect as defined in the Responsible Energy Act and the Alberta Environmental Protection and Enhancement Act (EPEA) regarding the Energy Industry. The AER must be notified through the 24-Hour Response Line. This system is designed to streamline and standardize the reporting of spills and to ensure a coordinated, integrated response from different government agencies. The AER 24-Hour Response Line notifies both Alberta Environment and Parks (AEP) and Environment and Climate Change Canada.

For both refined and unrefined products, upon becoming aware of a reportable release, Pine Cliff must orally notify the AER at the first available opportunity.

Upon completing the oral notification, the AER sends the licensee the Field Inspection System Number (FIS) along with the Initial Incident Report which is to be completed within seven days of receiving the document from the AER.

Note: Pine Cliff must notify the landowner of any release that occurs off lease, or that occurs on an easement or right-of-way (Landowners can be private or any of the following: on Crown land (AEP), on reserves (First Nations), in provincial parks (tourism, parks and recreation). Landowner cooperation is essential in being able to quickly respond to a release.

For the purposes of reporting, Pine Cliff shall use the following guidelines and considerations to assess whether the release may cause, is causing or has caused an adverse effect.

- Any third-party impact (off lease) e.g. crop damage, vegetation damage and livestock impact.
- Spilled substance likely to contaminate surface or ground water.
- Groundwater and/or surface water is contaminated.
- Release or spill has potential for offsite odour complaints.
- Toxic or flammable release to air going offsite.
- Chemical and physical characteristics of the substance released.
- Receiving or potential to receive media attention.

The onus is on the party who causes the release and has control of the situation to assess the adverse effect.

10.4.6 Regulatory Notification

- The Incident Owner is accountable to complete regulatory reporting on time. They may delegate the actual call to an appropriate SME.
- Refer to the Regulatory Reporting Requirements document.
- Refer to the Environmental Program for environmental reporting requirements.
- Refer to the Security Program for security reporting requirements.

For Emergencies involving inter-provincial pipelines, the Canada Energy Regulator (CER) is the primary management agency.		
THIS MUST BE YOUR FIRST CALL		
Transportation Safety Board	**24-Hour Reporting Hotline***	**1-819-997-7887**
	Email	PipelineNotifications@tsb.gc.ca
*CER-regulated companies are advised to use the single-window approach for event reporting and contact the Transportation Safety Board (TSB) Reporting Hotline.		
For all Canada Energy Regulator regulated pipelines and facilities call the TSB Reporting Hotline when an event meets any of the definitions as per Section 3.0 Immediately Reportable Events under the Canada Energy Regulator Event Reporting Guidelines are to be reported to the CER **immediately**.		
Both the phone notification and the input of information into the CER's Online Event Reporting System (OERS): https://apps.cer-rec.gc.ca/ERS/Home/Index/ are required to occur as soon as possible and no later than three hours of the incident being discovered.		
For all other events that do not meet any of the definitions in Section 3, companies are not required to phone the TSB Reporting Hotline but must report the event as soon as possible and no later than twenty-four hours after the event was discovered.		
Secondary Calls Contact as needed AFTER contacting the TSB and CER.		
Alberta Energy Regulator (AER)	24-Hour Response Line	1-800-222-6514
Saskatchewan Ministry of Energy and Resources - PNG Division	Emergency Support Line	1-844-764-3637

10.4.7 Public Protection

If the health and safety of the public cannot be assured, then the Company must determine the best approach for protecting the public. Depending on the severity of the emergency, the Company will implement one of three approaches to public protection: sheltering, evacuation, or ignition.

The purpose of public protection measures is to proactively address public health and safety concerns and to take appropriate response actions to protect the public from harm. This may include removing or reducing the hazards and asking public stakeholders to shelter and/or evacuate as required.

It is the Company's responsibility to initiate public protection measures in the EPZ for any incident involving a release of sour gas product if there is potential for the release to impact members of the public. This could also include SO_2 if the sour gas release was ignited.

The type of public protection measure EPMloyed depends on the severity of the incident and/or on the monitored results in the unevacuated areas. The licensee is responsible for ensuring that appropriate emergency response procedures are in place and can be implemented, including for areas of potential impact beyond the EPZ.

Public Protection Measures Flowchart

Is there potential for the release to impact the public within the EPZ?

NO → **Continue with control / containment measures**

YES → **Do any of the following apply?**

- ☐ The release is expected to pass over quickly.
- ☐ The public would be at a higher risk if evacuated.
- ☐ There is not enough time or warning to safely evacuate the public.
- ☐ The source and nature of the release has not been identified.

NO → **Evacuation**
- ☐ Begin evacuating the public

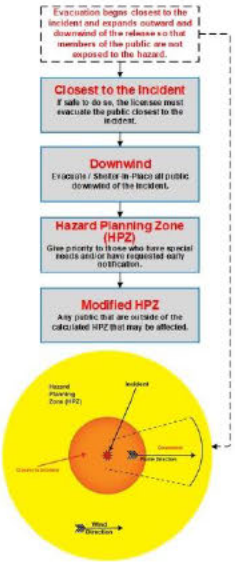
Refer to media statement for evacuation.

YES → **Shelter**
- ☐ Begin sheltering the public.

Refer to media statement for sheltering.

Ignition must take place when one of the following conditions have been met.

- ☐ Although required, evacuation of the response zones has not taken place.
- ☐ H_2S concentrations in excess of 15 ppm for 15 minutes in unevacuated areas.
- ☐ H_2S concentrations exceed 1 ppm per one hour average in urban density developments.
- ☐ Monitoring is not taking place due to weather or other unforeseen circumstances.
- ☐ The release cannot be brought under control in the short term (ignition decision will be made by Incident Commander. Notify Regulatory Agency intention to ignite.
- ☐ Personnel working at the site can be cleared to a safe distance.



Has ignition criteria been met?

YES → Refer to the H_2S / HVP Ignition Procedures in the Emergency Response Plan.
- ☐ Continue air monitoring for SO_2.
- ☐ Continue evacuation / shelter procedures.

NO
- ☐ Continue air monitoring for H_2S.
- ☐ Continue evacuation / shelter procedures.

Is there potential for the release to impact the public outside of the EPZ?

NO
- ☐ Continue air monitoring for H_2S or SO_2.
- ☐ Continue evacuation / shelter procedures in the HPZ.

YES
- ☐ Work with local authority to determine the need for evacuation / shelter outside of the HPZ
- ☐ Continue air monitoring for H_2S or SO_2.

10.4.8 Incident Management Database Entry

- The Incident Owner is accountable to record incidents into the Incident Management Database within 24 hours.
- The Incident Management Database record must include:
  - Identification of the Incident Owner;
  - Objective and factual description of the incident without speculation as to cause;
  - Events leading up to the incident; and
  - Any actions taken in response to the incident.
- The Area Safety Advisor is an internal resource to all parties on incident investigation. In addition to their support role, they verify the information in the Incident Management Database and that the event is properly classified and categorized.

10.4.9 Incident Classification (Assessment Matrix)

Pine Cliff will classify incidents as per AER Directive 071 Assessment Matrix for Classifying Incidents, (See section 9.1 of the Emergency Response Plan)

Table 1. Consequence of Incident

Rank	Category	Example of consequence in category
1	Minor	• No worker injuries. • Nil or low media interest. • Liquid release contained on lease. • Gas release impact on lease only.
2	Moderate	• First aid treatment required for on-lease worker(s). • Local and possible regional media interest. • Liquid release not contained on lease. • Gas release impact has potential to extend beyond lease.
3	Major	• Worker(s) require hospitalization. • Regional and national media interest. • Liquid release extends beyond lease – not contained. • Gas release impact extends beyond lease – public health/safety could be jeopardized.
4	Catastrophic	• Fatality. • National and international media interest. • Liquid release off lease not contained – potential for or is impacting water or sensitive terrain. • Gas release impact extends beyond lease – public health/safety jeopardized.

Table 2. Likelihood of incident escalating*

Rank	Descriptor	Description
1	Unlikely	The incident is contained or controlled, and it is unlikely that the incident will escalate. There is no chance of additional hazards. Ongoing monitoring required.
2	Moderate	Control of the incident may have deteriorated but imminent control of the hazard by the licensee is probable. It is unlikely that the incident will further escalate.
3	Likely	Imminent and/or intermittent control of the incident is possible. The licensee has the capability of using internal and/or external resources to manage and bring the hazard under control in the near term.
4	Almost Certain or currently occurring	The incident is uncontrolled and there is little chance that the licensee will be able to bring the hazard under control in the near term. The Licensee will require assistance from outside parties to remedy the situation.

* What is the likelihood that the incident will escalate, resulting in an increased exposure to public health, safety or the environment?

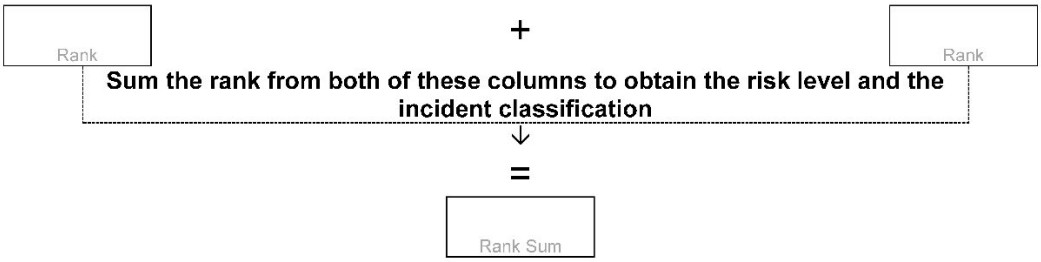


Table 3 Incident Classification

Risk Level	Assessment results
Very Low 2-3	Alert
Low 4-5	Level – 1 Emergency
Medium 6	Level – 2 Emergency
High 7-8	Level – 3 Emergency

Incident Response Table

Incident Classification				
Responses	**Alert**	**Level 1 Emergency**	**Level 2 Emergency**	**Level 3 Emergency**
Communications				
Internal	Discretionary, depending on licensee policy.	Notification of off-site management.	Notification of off-site management.	Notification of off-site management.
External Public	Courtesy, at licensee discretion.	Mandatory for individuals who have requested notification within the EPZ.	Planned and instructive in accordance with the specific ERP.	Planned and instructive in accordance with the specific ERP.
Media	Reactive as required.	Reactive as required.	Proactive media management to local or regional interest.	Proactive media management to national interest.
Government	Reactive, as required. Notify the AER 24-Hour Response Line if public or media is contacted.	Notify the AER 24-Hour Response Line. Call local authority and AHS if public or media is contacted.	Notify the AER 24-Hour Response Line, local authority and AHS.	Notify the AER 24-Hour Response Line, local authority, and AHS.
Actions				
Internal	On site as required by licensee.	On site as required by licensee. Initial response undertaken in accordance with the specific or corporate level ERP.	Predetermined public safety actions are under way. Corporate management team alerted and may be appropriately engaged to support on-site responders.	Full implementation of incident management system.
External	On site as required by licensee.	On site as required by licensee.	Potential for multi-agency (operator, municipal, provincial or federal) response.	Immediate multi-agency (operator, municipal, provincial or federal) response.
Resources				
Internal	Immediate and local. No additional personnel required.	Establish what resources would be required.	Limited supplemental resources or personnel required.	Significant incremental resources required.
External	None.	Begin to establish resources that may be required.	Possible assistance from government agencies and external support services required.	Assistance from government agencies and external support services required.

ALERT

An incident that can be handled on site by the licensee through normal operating procedures and is deemed to be a very low risk to members of the public.

LEVEL 1 EMERGENCY

There is no danger outside the licensee's property, there is no threat to the public, and there is minimal environmental impact. The situation can be handled entirely by licensee personnel. There will be immediate control of the hazard. There is little or no media interest.

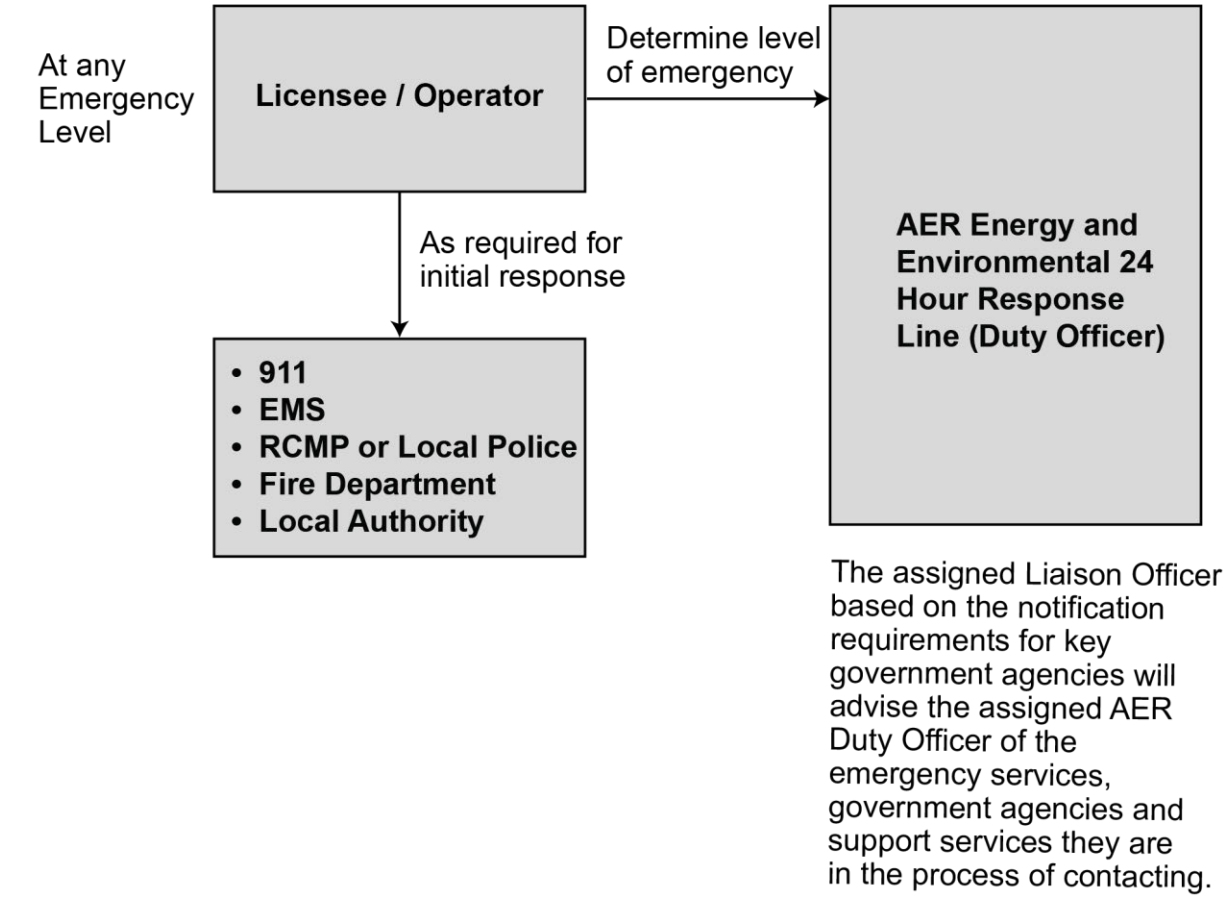
LEVEL 2 EMERGENCY

There is no immediate danger outside the licensee's property or the right-of-way, but there is potential for the emergency to extend beyond the licensee's property. Outside agencies must be notified. Imminent control of the hazard is probable but there is a moderate threat to the public and/or the environment. There may be local and regional media interest in the event.

LEVEL 3 EMERGENCY

The safety of the public is in jeopardy from a major uncontrolled hazard. There are likely significant and ongoing environmental impacts. Immediate multi-agency municipal and provincial government involvement is required.

Initial Notification Process



10.4.10 Share Learning

To create a learning organization, it is critical to share learnings across the organization. We can learn the lesson once, in one location, and share that learning with the entire organization.

Identify Lessons Learned

Not all lessons learned have organization wide application. The Incident Owner, with support from: Leadership; SME; and Technical staff, will review the investigation learnings and identify the lessons to share. Early engagement of the Legal Department is critical, as their approval is required for wider distribution.

Consider the following when selecting lessons:

- CAPA that affect organization-wide systems; and
- Risk tolerance factors and human factors, uncovered in an investigation that have broad applicability to the organization.

Communication Tools

- Initial Incident Alert.
- Use the Initial Incident Alert when timely action is required to prevent similar events. The intent of the Initial Incident Alert is to:
    - Notify the organization that an event has occurred;
    - Identify the issues; and
    - Outline interim actions.

Bulletin

- Use a Bulletin when the investigation is complete, and action is required to prevent similar events.
- Use the Bulletin tEPMlate for general communications.

11.0 EVALUATIONS

11.1 Introduction

This section explains the process for evaluation and continual improvement. Evaluation serves several purposes:

- Improves field operations compliance.
- Helps meet regulatory and corporate requirements.
- Promotes consistency across field operations.
- Provides a method of integrating new operations into existing operations.
- Helps to familiarize operation Employees with emergency management compliance requirements.

11.2 Purpose and Scope

This section applies to all emergency response evaluations. The Company will conduct assessments to evaluate the emergency response capacities and capabilities.

Pine Cliff has determined that the federal (CER) and provincial regulatory requirements are substantially the same. This determination will enable Pine Cliff to hold single exercise to which several regulators can attend and evaluate.

11.3 Responsibilities

People Leader shall:

- Assist the Emergency Procedures Manual Coordinator during the assessment process.
- Resolve any assessment findings.
- Complete an Assessment Review Report to document the actions to be taken to resolve any deficiencies.

Emergency Procedures Manual Coordinator:

- Complete Exercise Assessment Reports discussing all deficiency resolutions and items still outstanding.
- Ensure exercise assessment reports are submitted with 30 days of completion of event.
- Develop the schedule to complete the assessments.
- Perform the assessment with the Assessment Team members.
- Write the assessment report documenting the assessment findings.
- Assist operations personnel with the Assessment Review Report.

Area Safety Advisor shall:

- Assist People Leader with resolving any assessment findings.
- Assist People Leader with the Assessment Review and Final Assessment Reports.

11.4 Requirements

Exercise Evaluation Process.

- All emergency response exercise will be evaluated.
- When Regulatory Bodies are present, they will use their exercise evaluation processes and form.
- Evaluations will be used to confirm knowledge, skills and ability of field emergency response teams to respond effectively to incidents relevant to their operations.
- The evaluation will also consider:
    - Complexity of scenario.
    - Potential worse-case scenario.
    - Gaps in training.
    - Gaps in plans.
    - And emergency program capacity.
- Exercise evaluations will grade the components of the emergency response as:

  - Satisfactory – meaning Pine Cliff has demonstrated an effective emergency management process.
  - Satisfactory with conditions – meaning most elements of a competent emergency management process are in place and corrective actions are required.
  - Unsatisfactory – meaning Pine Cliff needs significant effort to meet regulatory requirements and corrective and preventive actions are required.
- The exercise evaluation report shall be submitted to the regulatory bodies within 30 days of completing the exercise.

12.0 CORRECTIVE AND PREVENTIVE ACTION

12.1 Introduction

Corrective and Preventive Action (CAPA) are taken to systematically resolve non-conformances and continuously improvement the Emergency Procedures Manual (EPM).

12.2 Purpose and Scope

To describe the process, by which the Company follows to address non-conformances to the Emergency Procedures Manual, identified from incidents, evaluations, audits, assessments, management reviews and through stakeholder engagement.

12.3 Responsibilities

Management shall:

- Generate a CAPA from planned or unplanned assurance activity such as:
  - Management review meeting.
  - Recurring problems with procedures.
  - Previous corrective or preventive actions are no longer effective.
  - Audit findings.
  - Assessment findings.
  - Incidents.
- Use the CAPA tools provided by the Assurance team.

Emergency Procedures Manual Coordinator shall:

- Report identified program non-conformances to the Director EHS.
- Initiate corrective and preventive actions to address non-conformances within the Emergency Procedures Manual.

12.4 Requirements

There are seven steps to an effective CAPA procedure:

1. Initiate the CAPA.
2. The program owner (Director EHS) acknowledges the non-conformance.
3. An investigation into the systemic cause of the non-conformation is completed.
4. A plan to correct the non-conformation is developed, proposed, approved and implemented.
5. The CAPA plan at a minimum should list:
   - The action;
   - Who is accountable; and
   - The due date.
6. The program owner (Director EHS) verifies the effectiveness of the CAPA.
7. The CAPA is then closed.

13.0 PUBLIC AWARENESS AND INVOLVEMENT

13.1 Introduction

Pine Cliff is committed to an open dialogue and informed decision making through regular communication with person and entities in the Emergency Planning Zones (EPZs).

Frequent and consistent communication is an integral part in achieving a safe work environment and is an effective way of raising emergency management awareness.

13.2 Purpose and Scope

To ensure that persons or entities within our emergency planning zones (EPZs) have information about Pine Cliff's emergency response program and plans and how they will be impacted or effected in the event of an emergency.

Pine Cliff is required to share information with persons or entities in our Emergency or Hazard Planning Zones (EPZs).

13.3 Responsibilities

People Leaders Shall:

- Ensure that each facility has signs posted that clearly display the 24 hour emergency contact number at the primary entrance.
- Ensure that all calls to the 24 hour emergency number initiate immediate action.
- Carry out public and local authority notification and consultation when required.

Emergency Procedures Manual Coordinator shall:

- Ensure that Pine Cliff provides emergency management information to persons or entities located with the EPZs regarding the potential hazards of our activities.
- Develop, maintain and deliver public information pamphlets to all persons living within an EPZ or required to transit an EPZ to access their residence or tenure.
- Develop and maintain a list of residents and stakeholders in each EPZ.
- Exchange information with residents and stakeholders to ensure that there is a process to contact persons or other entities in an EPZ and if necessary, evacuate them in the event of an emergency.
- Develops and maintains a First Responder information presentation to provide upon request.
- The Emergency Procedures Manual Coordinator will provide details of the emergency response procedures in place and to address questions and concerns that may arise; and address any request for additional information or for modifications to the ERP by the individual consulted.

Persons or Entities shall:

- Describe how they may be affected by an emergency.

13.4 Requirements

13.4.1 Notification and Consultation

Pine Cliff will carry out public and local authority notification and consultation as required by AER Directive 71.

<table>
<tr><th>Situation</th><th colspan="2">Notification and Consultation Requirements</th></tr>
<tr><td rowspan="3">Developing a site-specific ERP
• Sour Well
• Sour Operations
• HVP Pipeline
• Cavern Storage Facility</td><td colspan="2">Notification of and consultation with members of the public within the EPZ are required prior to submitting an application to the Provincial Regulator for approval when:
• Developing a sour well site-specific drilling and/or completions ERP.
• Developing a sour operations ERP.
• Developing an ERP for HVP pipeline and cavern storage facilities.</td></tr>
<tr><td colspan="2">Consultation is required with the local authority to confirm and coordinate each party's roles and responsibilities.</td></tr>
<tr><td colspan="2">Notification and consultation are required if an existing EPZ either increases or decreases from its current size based on the following:</td></tr>
<tr><td rowspan="3">Change in EPZ Size</td><td>Change</td><td>Action</td></tr>
<tr><td>New EPZ is smaller than current EPZ</td><td>Residents who are no longer within the EPZ and the local authority are to be notified and informed of the change.</td></tr>
<tr><td>New EPZ is larger than current EPZ</td><td>Residents within the expanded portion of the EPZ and the local authority are to be notified and informed of the change in accordance with the requirements.</td></tr>
</table>

13.4.2 Public Awareness and Involvement

- Pine Cliff will request that person or entity within the EPZ provide:
  - Name and contact information that can be used for ongoing communications and for contact in the event of an emergency.
  - Provide the preferred method of contact for regular communications and emergencies. It should include:
    - 24 hour telephone number.
    - Legal address of any residence, business or facility.
    - In the event the legal address is not tied to the actual location being occupied the address or location that should be used by emergency responders.
    - Email address for non-emergency communications.
    - Any other method of communication as identified by the person or entity.
  - Additional relevant information regarding other occupants and their contact information.
- Persons or other entities will be given the opportunity to identify concerns, vulnerabilities or make requests to Pine Cliff regarding response procedures and individual emergency response requirements. Issues that should be considered and noted include:
  - Health sensitivities.
  - Mobility Issues.
  - Effects on and needs of pets and livestock.
  - Concerns about security of premises during an emergency.

- Pine Cliff will prepare an information pamphlet to provide to each person or entity that contains information to assist them in the event of an emergency. The pamphlet will contain:
    - Overview;
    - Why you are being contacted;
    - What to do during an emergency;
    - Warning signs;
    - Levels of emergency;
    - Emergency Procedures;
    - Shelter In-Place Procedure;
    - Procedure for Evacuation;
    - Ignition Procedure;
    - 24 hour emergency number;
    - Company overview;
    - Key Government Contacts;
    - Reception Center Location;
    - And any Potential Health Impacts; and
    - A map of the emergency planning zone that indicates how the person or other entity can get to safety in the event of an emergency.
- Pine Cliff will ensure that the emergency communication system (cell phone, telephone, and radio) is capable of enabling communications between:
    - Emergency response staff (EPMloyee and contractor).
    - The public (persons and other entities).
    - The regulator (AER, EMR or CER).
    - Other government departments (provincial health, environment or safety) or Supporting Agencies (Transport Canada).
- Pine Cliff will contact all municipalities when any part of the EPZ is located within the right of way of an arterial or municipal highway within that municipality.
- Pine Cliff will contact any Rights Holders within the EPZ. (Forestry License Holder, Grazing Permit Holder, Guide License Holder, Mineral Claim Holder, Water License Holder).
- Pine Cliff will contact any federally owned installation or federally regulated land within the EPZ including:
    - First Nations.
    - Military Installations.
    - Railways.
    - National Parks.
- 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 information are subject to the Act, which sets out the rules for how personal information may be collected, used or disclosed.
- Pine Cliff will comply with PIPA when collecting information from persons or entities within the EPZ.

13.4.3 Conducting Consultation

- Pine Cliff will conduct public consultation through face to face visits with persons and other entities in the EPZ.
- Offer to conduct the consultation by telephone if residents do not wish to meet with Company representatives face to face.
- Offer to send residents the public awareness pamphlet by regular or registered mail if they do not wish to participate in the consultation process.
- Review key emergency response information with members of the public identified in the EPZ who wish to participate in the consultation process, to familiarize them with potential emergencies and corresponding public protection measures pertaining to emergency response procedures.
- The Emergency Procedures Manual Coordinator will provide details of the emergency response procedures in place and to address questions and concerns that may arise; and address any request for additional information or for modifications to the ERP by the individual consulted.

14.0 MANAGEMENT REVIEW

14.1 Introduction

Management review can help improve the quality of the Emergency Procedures Manual.

14.2 Purpose and Scope

The Management Review is a quality control process whereby the management reviews and evaluates the continued suitability, adequacy and effectiveness of the Emergency Procedures Manual. The objectives are to review the following:

- The status of actions from previous management reviews;
- Changes in external and internal issues that are relevant to the Emergency Procedures Manual including;
  - Legal requirements and
  - Risk and opportunities;
- The extent to which the policy and aims have been met;
- Incident, non-conformances, corrective actions and continual improvement;
- Monitoring and measuring results;
- Audit results;
- Consultation with workers; and
- Adequacy of resources.

The management review findings may result in corrective action recommendations which, when implemented, will help eliminate unsafe behaviors, and improve work practices and conditions.

14.3 Responsibilities

Leadership and Management:

- Review management review information provided by Emergency Procedures Manual owner.
- Attend and participate in management review meetings.
- Make recommendations for continuous improvement to the Emergency Procedures Manual

14.4 Requirements

The Emergency Procedures Manual must be reviewed as a minimum every three years or more often if there is a change in circumstances at the work site that create or could create a hazard to workers and revise as appropriate. (AB OHS Act Part 5 section 37 (4)

14.4.1 Proceedings

- The Integrated Management System Coordinator:
  - Set a date, time and location for the review; and
  - Distribute the agenda.
- The Director EHS or designee will:
  - Prepare data for review.

14.4.2 Recommended Action Items

- The Area Management is accountable for seeing that all recommended action items are completed and documented within an approved timeline as agreed upon during the review.
- Action items will be added and tracked in the data management systems.

14.4.3 Summaries

- Director EHS or designee will develop a summary after each review giving a brief description findings and recommendations.
- This summary is provided to the senior leadership and the Operations Managers.

14.4.4 Information Sharing

- Learnings from management reviews will be shared via other communication avenues such as presentations, etc. as determined by the operations management team.
- These communications will be distributed in a timely manner and are geared to share learnings broadly across the organization through all EPMloyee meetings.

15.0 APPENDIX: ERP REFERENCE MATERIAL

15.1 Maintenance Schedule

Core Revisions	Semi-Annually	Annually	Every 2 Years	Every 3 Years
Distribution List	☑			
Emergency Telephone List	☑			
ERP Roles and Responsibilities	☑			
Mutual Aid Agreements, if applicable	☑			
Response Agencies and Government Support	☑			
Non-Regulated Field Area	**Semi-Annually**	**Annually**	**Every 2 Years**	**Every 3 Years**
Asset Tables		☑		
Safety Equipment		☑		
Map		☑		
Orientation and Tabletop Training except in a year when a major exercise is held		☑		
Registered Site Specific	**Semi-Annually**	**Annually**	**Every 2 Years**	**Every 3 Years**
Stakeholder Consultation - personal visit			☑	
Stakeholder database verification - except in a year when a personal visit is completed		☑		
Hazard Assessments		☑		
Area users contact information		☑		
Major Exercise Training				☑

15.2 Glossary

10^3m^3 (e^3m^3):	1000 cubic metres per day.
Absolute Open Flow:	The rate at which a well would produce against a zero sandface back pressure.
Adjacent to:	For the purpose of this plan, refers to the immediate 25 metres.
Adverse Effect:	The impairment of or damage to the environment, human health or safety, or property.
Agency:	A division of government with a specific function offering a particular kind of assistance. Agencies are defined as jurisdictional (having statutory responsibility for incident management) or as assisting or cooperating (providing resources or other assistance).
Air Quality Monitoring:	The measurement of atmospheric concentrations of a gas such as H_2S or SO_2.
ALS	An abbreviation for Advance Life Support.
Auto-Ignition TEPMerature:	All NGL products are flammable and will flash at extremely low tEPMeratures. An open flame or spark is not necessary to cause ignition. Any hot surface which exceeds the auto-ignition tEPMerature of a product can cause a fire if the vapours reaching the hot surface are within their flammable range.
Battery:	A group of tanks in the gathering system, they receive oil directly from the wells.
bbl:	An abbreviation for barrel.
BLS	An abbreviation for Basic Life Support.
Boiling Liquid Expanding Vapour Explosion (BLEVE):	A boiling liquid expanding vapour explosion is usually associated with natural gas liquids and high vapour pressure liquids. This is a type of explosion that can occur when a vessel containing a pressurized liquid is ruptured.
Booster Pump:	A small pump that pulls product from the source of supply and pumps it into the suction or input of the main pump unit.
Businesses:	Industrial operators, retail suppliers, service providers, trappers, loggers and other entities who normally operate within the EPZ, but do not necessarily reside in the EPZ.
Camp:	A geographical site equipped and staffed to provide sleeping, food, water, and sanitary services to personnel.
Ceiling – Recommended Exposure Limit:	The concentration that should not be exceeded during any part of the working exposure. An EPMloyee's exposure to a hazardous substance shall at no time exceed the ceiling value.
CER	Canada Energy Regulator
Chain of Command:	A series of command, control, executive, or management positions in hierarchical order of authority.
Command Staff:	In an incident management organization, the Command Staff consists of the Incident Command and the special staff positions of Officer, Chief and other positions as required, who report directly to the Incident Commander. They may have assistants as needed.
Condensate:	The liquid formed by the condensation of a vapour or gas; specifically, the hydrocarbon liquid separated from natural gas because of changes in tEPMerature and pressure when the gas from the reservoir was delivered to the surface separators.
Control Valve:	A valve that will automatically maintain a predetermined pressure upstream or downstream of the valve or will maintain a controlled flow rate through the valve.
Corporate Emergency Operations Centre (CEOC):	Focal point for the communication of support functions provided by Head Office personnel and (potentially) contract specialists. They should provide advice, direction and logistical support to the Site Command personnel.

Downstream:	With reference to a pumping station, indicates the discharge side of that station.
Emergency Planning Zone (EPZ):	An EPZ is a geographical area surrounding a well, pipeline, or facility containing hazardous product that requires specific emergency response planning by the licensee.
Emergency Response Plan (ERP):	A comprehensive plan to protect the public that includes criteria for assessing an emergency situation and procedures for mobilizing response personnel and agencies and establishing communication and coordination among the parties.
Emergency Shutdown Valve (ESD):	A valve that blocks the passage of material from both directions and can automatically close when the amount of material passing through the valve exceeding allowable limits.
ERAC:	An abbreviation for Emergency Response Assistance Canada. A not-for-profit emergency preparedness and response organization who develops, implements and responds to Emergency Response Assistance Plans (ERAPs) for more than 300 Plan Participant Members of ERAC.
ERAP:	An ERAP or Emergency Response Assistance Plan is a plan that describes what is to be done in the event of a transportation accident involving certain higher risk dangerous goods. The ERAP is required by the Transportation of Dangerous Goods Regulations (TDGR) for dangerous goods that require special expertise and response equipment to respond to an incident. The plan is intended to assist local emergency responders by providing them with technical experts and specially trained and equipped emergency response personnel at the scene of an incident.
Explosive Limit:	Each gaseous hydrocarbon substance has a minimum lower explosive limit (LEL) and a maximum upper explosive limit (UEL) percentage in the air below or above which combustion will not take place. Explosive limit and flammability limit are used interchangeable. The terms ‘too lean’ and ‘too rich’ are used for levels outside of the explosive range.
Facility:	Any building, structure, installation, equipment or appurtenance over which the Regulatory Authority has jurisdiction and that is connected to or associated with the recovery, development, production, handling, processing, treatment or disposal of hydrocarbon-based resources or any associated substances or wastes. This term does not refer to or include wells or pipelines.
Field Separator:	A vessel in the oil and gas field for separating gas, hydrocarbon liquid, and water from each other.
Flammability Limit:	The lower flammability limit is the minimum percentage volume of a combustible gas in an air mixture that will support combustion at certain pressure and tEPMerature conditions. The higher flammability limit is the maximum percentage volume of a combustible gas in an air mixture that will support combustion at certain pressure and tEPMerature conditions. Note: Data for flammability limits is often published for standard atmospheric and tEPMerature conditions. Refer to the Safety Data Sheet (SDS) for specific product information.
Flaring/Venting:	The controlled burning (flare) or release (vent) of natural gas that cannot be processed for sale or use because of technical or economic reasons.
Flash Point:	The lowest tEPMerature at which vapours over a volatile combustible substance will ignite when exposed to an external source of ignition (and will continue to burn after the source is removed).
Flexibility:	A principle of ICS that provides a consistent and adjustable framework within which government and private entities at all levels can work together to manage domestic incidents, regardless of their cause, size, location, or complexity. This flexibility applies across all phases of the incident

	management: prevention, preparedness, response, recovery, and mitigation.
Flow Rate:	The speed in which the product is flowing, computed in cubic metres per second (m^3/s).
Gathering System:	The network of pipelines, pumps, tanks and other equipment that carry oil and gas to a processing plant or to other separation equipment.
Government Emergency Operations Centre (GEOC):	An operations centre with the capacity to accommodate representatives from each government department.
Hazard:	A situation with potential to cause harm to persons, property, or the environment.
High Vapour Pressure (HVP):	HVP products have a vapour pressure greater than 240 kPa at a tEPMerature of 38º C (34.8 psig at 100 ºF). They include ethane, propane, butane, and pentanes plus either as individual products or as a mixture. A leak from a vessel or pipe containing HVP products can result in a BLEVE.
High Vapour Pressure (HVP) Pipeline:	A pipeline system conveying hydrocarbons mixtures or hydrocarbon mixtures in the liquid or quasi-liquid state with a vapour pressure greater than 100 kPa absolute at 38°C, as determined using the Reid method. Some examples are liquid ethane, ethylene, propane, butanes, and pentanes plus.
Hazard Planning Zone (HPZ):	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 planning zones are used by the applicant or permit holder to identify an EPZ where immediate response actions are required in the event of an emergency. The HPZ has been determined by CANUTEC as the area that requires immediate precautionary measures whereby the spill or leak is to be isolated in all directions for the specified distance.
Hydrogen Sulphide (H_2S):	A naturally occurring gas found in a variety of geological formations and also formed by the natural decomposition of organic matter in the absence of oxygen. H_2S is colourless, heavier than air, and extremely toxic. In small concentrations it has a rotten egg smell and causes eye and throat irritation.
Hydrogen Sulphide (H_2S) Release Rate:	The rate at which the sour gas escapes into the atmosphere is calculated for sour gas wells. The rate is usually given in cubic metres per second (m^3/s). The size of the EPZ is calculated based on the H_2S release rate.
Hydrogen Sulphide (H_2S) Release Volume:	The volume of sour gas that escapes into the atmosphere is calculated for facilities that have a defined retention volume. It is usually defined in cubic metres (m^3). EPZ sizes are calculated using the volume of gas that may be released from a facility.
Ignition Team:	A two person team assigned the responsibility of igniting a sour gas plume.
Incident:	An unexpected occurrence or event that requires action by emergency response personnel to prevent or minimize the impacts on the safety and health of people as well as on property and the environment.
Incident Action Plan (IAP):	An Incident Action Plan formally documents incident goals, operations period objectives and the response strategy defined by incident command during emergency response planning.
Incident Classification:	A system that examines the risk level to members of the public following an incident and assigns a level of emergency based on the consequence of the incident and the likelihood of the incident escalating.
Incident Command System (ICS):	The incident command system is a standardized response protocol. It is a combination of facilities, equipment, personnel, procedures and communications operating with a common organization structure with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to the incident.

Incident Commander:	The Incident Commander role should be assigned to the most experienced Company supervisor or representative at the incident site. The Incident Commander has the responsibility to manage the on-site activities and the implementation of a safe and effective tactical response.
Incident Objectives:	Statements of guidance and direction necessary for selecting the appropriate strategy and tactical direction of resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed. Incident objectives must be achievable and measurable, yet flexible enough to allow strategic and tactical alternatives.
Joint Venture Partner:	Two companies working together to combine resources to complete a capital project.
Kick:	A situation where the formation pressure exceeds the static pressure in the well bore allowing formation fluid to enter.
Km:	An abbreviation for kilometre; a unit of length in the metric system, equal to one thousand metres.
kPa:	An abbreviation for kilopascal; it is a measure of force per unit area, defined as one newton per square metre. One kilopascal is about 1% of atmospheric pressure.
Leader:	The ICS title for an individual responsible for a Task Force, Strike Team, or functional unit.
Liaise:	A form of communication for establishing and maintaining mutual understanding and cooperation.
Licensee:	A term used to designate the responsible duty holder (e.g. licensee, operator, company, and applicant).
Liquefied Petroleum Gas (LPG):	Mixture of heavier, gaseous hydrocarbons (butane and propane), liquefied as a portable source of energy.
Local Authority:	Council of a city, town, village, or municipal district. An improvement district or special area. The Settlement Council or a settlement under the Métis Settlements Act. The Band Council of an Indian Band if an agreement has been entered into with the Government of Canada in which it is agreed that the Band Council is a local authority for the purposes of the Disaster Services Act.
Local State of Emergency:	A local state of emergency is authorized for a limited period of time and limited geographical area by members of the municipal authority (city, town, municipal district or county). A local state of emergency grants extraordinary powers to the authorities such as forcibly removing public from an area or preventing the public from entry into a designated area.
Logistics:	Providing resources, material support and other services to support incident management.
Lower Explosive/Flammable Limit (LEL/LFL):	The lowest concentration of gas of vapour (per cent by volume in air) that burns or explodes if an ignition source is present at ambient tEPMeratures.
m^3:	An abbreviation for cubic metres.
MAWP:	An abbreviation for “maximum actual or allowable working pressure”.
Maximum Operating Pressure (MOP):	The maximum licensed operating pressure for a vessel or pipeline.
mcf:	An abbreviation for one thousand cubic feet of gas.
Mercaptans:	A sulphur containing organic compound with the general formula RSH where R is any radical, especially ethyl mercaptan, C2H5SH.
Mmcf:	An abbreviation for one million cubic feet of gas.
mSv/h	The sievert (symbol: Sv) is a derived unit of ionizing radiation dose in the International System of Units (SI). It is a measure of the health effect of low levels of ionizing radiation on the human body.

	In the SI system, a millisievert (mSv) is defined as "the average accumulated background radiation dose to an individual for 1 year, exclusive of radon, in the United States." 1 mSv is the dose produced by exposure to 1 milligray (mG) of radiation.
Mobile Air Monitoring Unit:	Personnel with sophisticated portable equipment capable of tracking substances such as H_2S or SO_2 and of measuring very low (ppb) atmospheric concentrations.
MOU:	An abbreviation for Memorandum of Understanding.
Multi-Agency Incident:	An incident where one or more agencies assist a jurisdictional agency or agencies. May be single or Unified Command.
Municipal Emergency Operations Centre (MEOC):	The centre from which responsible municipal officials manage and support operations within their jurisdiction. The MEOC personnel will formulate protective actions and provide public information. The centre should have adequate workspace, maps, status boards, and communications capability.
Mutual Aid Understanding:	An understanding between two or more public and (or) private parties, such as oil and gas companies, service companies, and local authorities that defines each party's commitment to provide aid and support during an incident.
Natural Gas Liquid (NGL):	These are hydrocarbons liquefied under pressure in field facilities or in gas processing plants. Natural gas liquids include ethane, propane, butanes and pentanes plus, and normally occur as a mixture of these compounds.
Notice to Airmen (NOTAM):	This is a notice issued by Transport Canada. A NOTAM restricts access to airspace in a defined area. NOTAMs are generally issued through the nearest flight service station.
Odour Complaint:	A member of the public has submitted either a written or verbal complaint of an odour problem due to a gas release or venting incident.
Off-Site:	The area beyond the asset property boundary.
OHS:	An abbreviation for Occupational Health and Safety.
Oil Spill Containment and Recovery Unit (OSCAR):	A trailer or truck style unit which contains recovery equipment to assist in spill containment and recovery.
On-Site:	The area within the asset property boundary.
On-Site Command Post (OSCP):	An emergency operations centre established in the immediate vicinity of the incident to provide immediate and direct response to the emergency and initially staffed by Company personnel.
Operating Personnel:	Refers to the people working in a given field area.
Operations Section:	The section responsible for all tactical incident operations. In ICS, it normally includes subordinate branches, divisions, and/or groups.
Parts Per Million (ppm):	The unit for measuring the concentration of a particular substance equal to one (1) unit combined with 999,999 other units.
Personal Consultation:	Consultation through face-to-face visits or telephone conversations with identified parties and providing the required information packages.
Personal Protective Equipment (PPE):	Safety equipment used for an individual's protection.
Plain Language:	Common terms and definitions that can be understood by individuals for all responder disciplines. The intent of plain language is to ensure the clear and accurate communication of information during the incident.
Planning Section:	Responsible for the collection, evaluation, and dissemination of operational information related to the incident, and for the preparation and for the documentation of the Incident Action Plan. This section also maintains information on the current and forecasted situation and on the status of resources assigned to the incident.
Plume:	An elongated mobile column of gas or smoke. The term plume is often used to describe the area in which hazardous gas, such as sour gas, disperses into the atmosphere from a facility, well or pipeline. Eventually gases will

	dilute (with distance away from the source) to concentrations that are not considered hazardous. Plumes are generally elongated shapes that are oriented downwind of the point of the gas release.
ppb:	An abbreviation for parts per billion.
Preparedness:	The range of deliberate, critical tasks and activities necessary to build, sustain, and improve the operational capability to prevent, protect against, respond to, and recover from domestic incidents. Preparedness is a continuous process. Preparedness involves efforts at all levels of government and between government, the private sector and non-government organizations to identify threats and determine vulnerabilities and required resources. Preparedness is operationally focused on establishing guidelines, protocols, and standards for planning, training and exercises, personnel qualification and certification, equipment certification, and publication management.
Public:	Individuals (or groups of people) who may be impacted by an emergency. Example: Employees, contractors, nearby residents, emergency response organizations, regulatory agencies, the media, appointed or elected officials, visitors, customers, etc.
Pump Unit:	Consists of an electric motor or engine connected to a centrifugal pump, either directly as in the case of constant speed units, or through a fluid drive, as in the variable speed pump units.
Reception Centre:	A centre established to register evacuees for emergency shelter, to assess their needs, and, if tEPMorary shelter is not required because evacuees will stay elsewhere, to ascertain where they can be contacted.
Regional Emergency Operations Centre (REOC):	An operations centre established in a suitable off-site location near the emergency to manage the large-scale aspects of the emergency response. It is manned jointly by government and industry personnel.
Regulatory Authority:	The local petroleum Regulatory Authority will participate in the emergency response to all situations involving or threatening oilfield wells, production facilities, or pipelines.
Relief System:	The system for safely relieving excess pressure to avoid exceeding equipment design pressure.
Residence:	A dwelling that is occupied full time or part time.
Response:	Activities that address the short term, direct effects of an incident. Response includes immediate actions to save lives, protect property, and meet basic human needs. Response also includes the execution of emergency operations plans and incident mitigation activities designed to limit the loss of life, personal injury, property damage, and other unfavourable outcomes.
Roadblock Team:	Operator or Contract personnel responsible for controlling access to the EPZ.
Rover:	Individual responsible for assisting the evacuation of the Emergency Planning Zone.
Safety Officer:	A member of the Command Staff responsible for monitoring and assessing safety hazards or unsafe situations and for developing measures for ensuring personnel safety.
SCADA:	Acronym for Supervisory Control and Data Acquisition.
SCBA:	Acronym for Self Contained Breathing Apparatus.
Serious Injury:	Can be defined as any of the following: • An injury that results in death. • A fracture or crush of a major bone. • Penetrating injury to eye, head, neck, chest, abdomen or groin. • Amputation other than a portion of a finger or toe. • Severe haemorrhaging - internal or external. • Third degree burn or any other degree burn with complications.

	• Unconsciousness. • An injury that results in paralysis (permanent loss of function or sense).
SDS:	Acronym for Safety Data Sheets. A Safety Data Sheet (SDS) is a document that contains information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with a chemical product.
Shelter in Place:	The use of a structure and its indoor atmosphere to tEPMorarily separate individuals from a hazardous outdoor atmosphere. It entails closing all household doors, windows and vents and taking immediate shelter in a readily accessible location that puts as much indoor air and mass between the individual and the hazardous outside air, such as a basement or centrally located medium to small room, and trying to make it as airtight as possible by shutting off all ventilation/HVAC systems and extensively sealing the shelter's doors and windows from all outside air contaminants with damp towels, or if available, plastic sheeting and adhesive tape.
SITREP:	An abbreviation for Situation Report.
Solution Gas:	Gas that originates from the liquid phase in an oil reservoir.
Sour:	Liquids and gases are said to be “sour” if they contain hydrogen sulphide (H_2S), carbon dioxide (CO_2), and/or mercaptans over a specified level.
Sour Gas:	Natural gas, including solution gas, containing hydrogen sulphide (H_2S).
Sour Gas Facility:	Any facility that produces, processes, or transports sour gas.
Span of Control:	The number of individuals a supervisor is responsible for, usually expressed as a ratio of supervisors to individuals. Under ICS an appropriate span of control is between 1:3 and 1:7 with 1:5 being established as optimum.
Spill:	Means a release or discharge of a substance into the natural environment.
Special Needs:	Those persons for whom early response actions must be taken because they require evacuation assistance, requested early notification, do not have telephones, require transportation assistance, have a language or comprehension barrier, or have specific medical needs. Special needs also include those who decline to give information during the public consultation process and any residences or businesses where contact cannot be made.
Staging Area:	Location established where the resources can be placed while awaiting a tactical assignment. The Operations Section manages Staging Areas.
Stakeholders:	Industry activities often affect surrounding areas and populations. People with an interest in these activities are considered stakeholders. They may include nearby landowners, municipalities, Aboriginal communities, recreational land users, other industries, environmental groups, governments and regulators.
Substance:	Any matter that is capable of being dispersed in the environment and that is capable of causing transformations in the environment.
Sulphur:	A yellow, non-metallic chemical element. In its elemental state, it has a crystalline or amorphous form. In many gas streams, sulphur may be found in volatile sulphur compounds, e.g. hydrogen sulphide, sulphur oxides, mercaptans, carbonyl sulphide. Reduction of their concentration levels is necessary for corrosion control and, in many cases, necessary for health and safety reasons.
Sulphur Dioxide (SO_2):	A colorless, water soluble, suffocating gas formed by burning sulphur in air; also used in the manufacture of sulphuric acid. SO_2 has a pungent smell similar to a burning match. SO_2 is extremely toxic at higher concentrations. The molecular weight of SO_2 is heavier than air; however, typical releases are related to combustion, which makes the gaseous mixture lighter than air (buoyant).
Surface Development:	Dwellings that are occupied full time or part time publicly used development, public facilities, including campgrounds and places of business, and any other surface development where the public may gather on a regular basis. Surface development includes residences immediately

	adjacent to the EPZ and those from which dwellers are required to egress through the EPZ.
Sump:	An underground tank located at each pump station used to catch products that leak through valves, meters, pump units, seal housing, etc.
Sweet:	Gas containing essentially no objectionable sulphur compounds. Also, the term sweet is used to describe treated gas leaving a sweetening unit.
Tabletop Exercise:	An informal exercise generally used to review resource allocation, roles and procedures for emergency response. It also serves to orientate new personnel to emergency operations without the stress and time constraints of a full scale exercise.
Technical Specialist:	Personnel with special skills that can be used anywhere within the ICS organization.
Telephoner(s):	Personnel assigned the responsibility to contact the area residents and/or users in the event of an Emergency.
Transient:	A person who is tEPMorarily in the response zones (examples: camper, cross-country skier, and hunter).
Trapper:	Holder of a licensed and registered trapline for the purpose of hunting and trapping fur-bearing animals.
Uncontrolled Flow:	A release of product that the licensee cannot shut off at the licensee's discretion.
Unified Command:	The Unified Command is a structure that brings together the "Incident Commanders" of all major organizations involved in the incident in order to coordinate an effective response while at the same time carrying out their own jurisdictional responsibilities. The Unified Command links the organizations responding to the incident and provides a forum for these entities to make consensus decisions.
Urban Center:	A city, town, new town, village, summer village, hamlet, with no fewer than 50 separate buildings, each of which must be an occupied dwelling or any similar development the AER may designate as an urban centre.
Vapour Density:	A measure of the weight of the gas compared to air (air = 1).
Vapour Pressure:	The pressure exerted by the vapour when the rate of evaporation is equal to the rate of condensation of the vapour. All NGL products have vapour pressure greater than atmospheric pressure air and therefore have to be kept under pressure or else they will vaporize.
Well Servicing:	The maintenance procedures performed on a producing or injecting well after the well has been completed and operations have commenced. Well servicing activities are generally conducted to maintain or enhance well productivity or injectivity.
Workovers:	The process of re-entering an existing well to perform remedial action that will restore or improve the productivity or injectivity of the target formation.