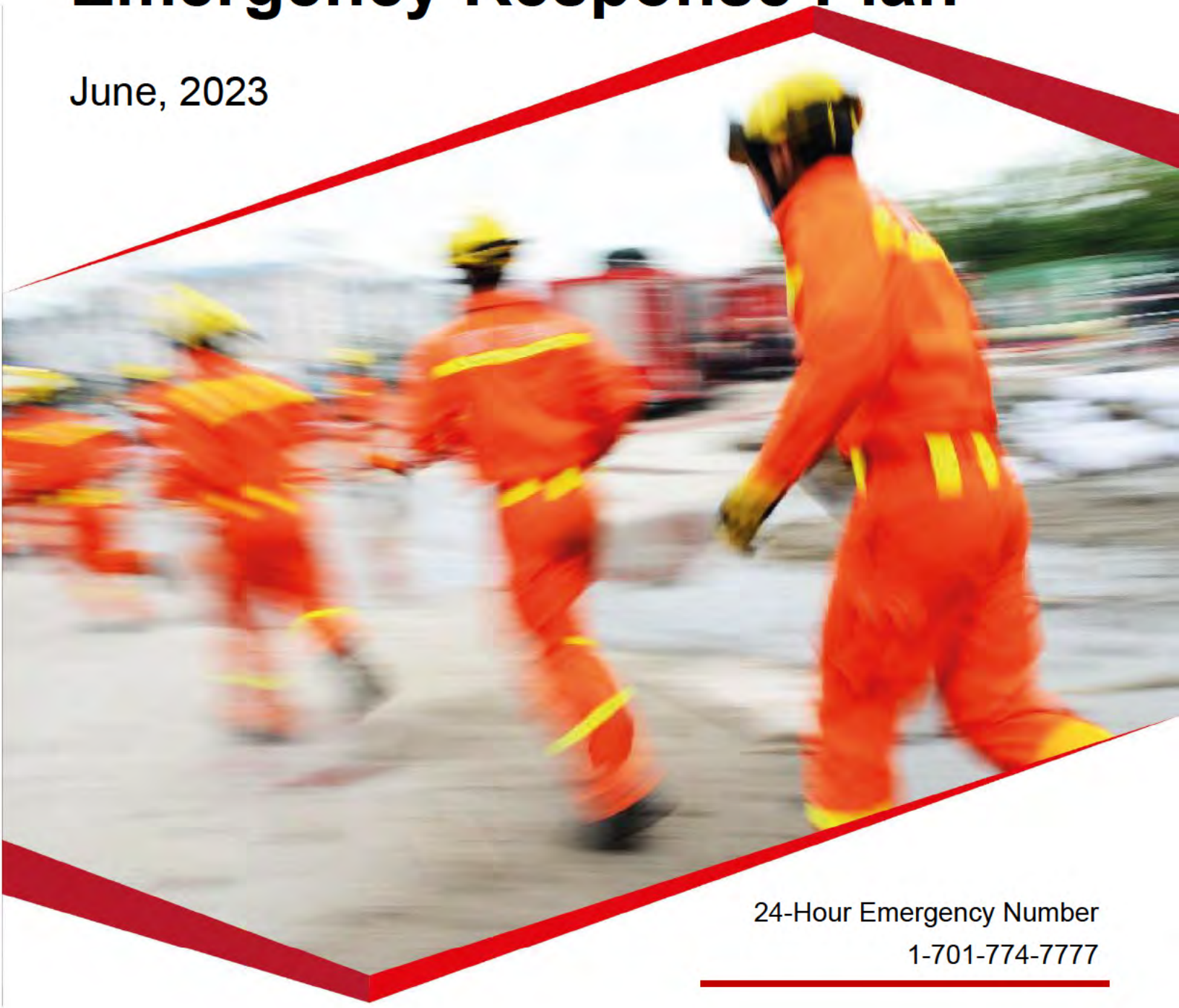
PetroShale

Corporate Emergency Response Plan

June, 2023



24-Hour Emergency Number

1-701-774-7777

PetroShale

CORPORATE
EMERGENCY RESPONSE PLAN

Prepared by:

BLACK GOLD Emergency Planners Inc.

June, 2023

EMERGENCY RESPONSE PLAN
MANUAL RECEIPT FORM

Upon receipt of this Emergency Response Plan Manual, this Receipt Form must be completed and returned to the Manager, HSE 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: _____

Date: _____

Signed: _____

ERP Number (from Distribution List): _____

Name of ERP: _____

Return signed copy to:

PetroShale (US) Inc.
421 - 7th Avenue SW
Calgary, AB T2P 4K9

Phone: 1-701-774-7777

Attention: [redacted]

MANAGEMENT OF CHANGE REQUEST FORM

PetroShale (US) Inc.

Attn: [redacted]
421 - 7th Avenue SW
Calgary, AB T2P 4K9

Email address: [redacted]

Section Number: _____

Page Number: _____

Copies of revised pages attached: ☐ yes ☐ no

Description of Amendment:

_____

_____

_____

_____

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_____

Requested By: _____

Address: _____

_____

_____

Request Acknowledgement: _____

Request Numbered and Logged: _____

Correspondence Required: _____

Approved By: _____

Approval Date: _____

Revision Date: _____

Issue Date: _____

MANAGEMENT OF CHANGE LOG

Date Completed (DD/MM/YYYY)	Revision #	Section(s) Updated	Description	Revision [1]	Annual Update [2]	Date Inserted into ERP: DD/MM/YYYY	Signature
04/07/2023	1	Section 10	Operational updates and contacts	☐	☒		
15/07/2022	New	All	NEW ERP	☐	☒		
				☐	☐		
				☐	☐		
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[1] **Revision**: An interim revision to the ERP when significant changes occur to Company personnel or infrastructure (drilling, facilities, pipelines). A revision does not replace the requirement for an annual update.

[2] **Annual Update**: A comprehensive update to all sections of the ERP. The entire document is reviewed and updated to ensure current distribution list, emergency telephone list, roles and responsibilities, mutual aid agreements, response agencies information, government support information, asset tables, safety equipment, and maps. In a Registered Site-Specific ERP, the stakeholder database is also verified, a hazard assessment is conducted, and area user contact information is updated.

DISCLAIMER

The Emergency Response Plan has been designed to provide a series of guidelines for responding to emergency situations. This plan identifies, defines and recommends actions for dealing with incidents that could impact facilities within the plan. This plan provides a logical and responsible approach to classifying and responding to incidents.

Verification of the information contained in this plan is the sole responsibility of PetroShale. Black Gold Emergency Planners Inc. does not accept any liability arising from the implementation or use of this plan. The Emergency Response Plan must be available on site. Unauthorized reproduction is strictly prohibited.

This plan is administered by:

BLACK GOLD Emergency Planners Inc

Suite 212, 4000 – 4th Street SE
Mountainview Business Campus
Calgary, AB T2G 2W3

Office: 403-216-7052
Fax: 403-216-7053

TABLE OF CONTENTS

DISTRIBUTION LIST

The following individuals will have a copy of this Emergency Response Plan for use as a reference document in the event of an emergency arising from Company operations.

CEOC COMMAND TEAM

ERP Number	Name/Title	Company	Core Plan	Registered Supplement	Partial	Field Name	ERP Type	Quick Ref
ERP 01	Mike Rushton, Manager, Operations	Petroshale (US) Inc.	☒	Choose an item.	☐	All Fields	Paper	☐
ERP 02	Jim Gordon, Manager, HSE	Petroshale (US) Inc.	☒	Choose an item.	☐	All Fields	Paper	☐
ERP 03	Jason Skehar, COO	Petroshale (US) Inc.	☒	Choose an item.	☐	All Fields	Paper	☐
ERP 04	CEOC, Calgary Office	Petroshale (US) Inc.	☒	Choose an item.	☐	All Fields	Paper	☐
ERP 05	CEOC, Calgary Office	Petroshale (US) Inc	☒	Choose an item.	☐	All Fields	Paper	☐
ERP 06	CEOC, Denver Office	Petroshale (US) Inc	☒	Choose an item.	☐	All Fields	Paper	☐

SITE COMMAND TEAM

ERP Number	Name/Title	Company	Core Plan	Registered Supplement	Partial	Field Name	ERP Type	Quick Ref
ERP 07	Watford City Field Office (ICP)	Petroshale (US) Inc	☒	Choose an item.	☐	All Fields	Paper	☐
ERP 08	Tim Schmit, Production Foreman	Petroshale (US) Inc	☒	Choose an item.	☐	All Fields	Paper	☐
ERP 09	Richard Arp, Key Site Contractor	Saddlerock	☒	Choose an item.	☐	All Fields	Paper	☐
ERP 10	Trevor Kalberer, Key Site Contractor	TTK Enterprises	☒	Choose an item.	☐	All Fields	Paper	☐
ERP 11	Troy Greff, Well Site Consultant	Decca Consulting	☒	Choose an item.	☐	All Fields	Paper	☐

OTHER CONSULTANTS

ERP Number	Name/Title	Company	Core Plan	Registered Supplement	Partial	Field Name	ERP Type	Quick Ref
N/A	Emergency Response Planner	Black Gold Emergency Planners Inc.	☒	Choose an item.	☐	All Fields	WEB	☐

ERP Types Paper, WEB, Email, Memory Stick, APP

1.0 CEOC TELEPHONE LIST / ROLE ASSIGNMENT

1.1 Corporate Contact / Call Down List

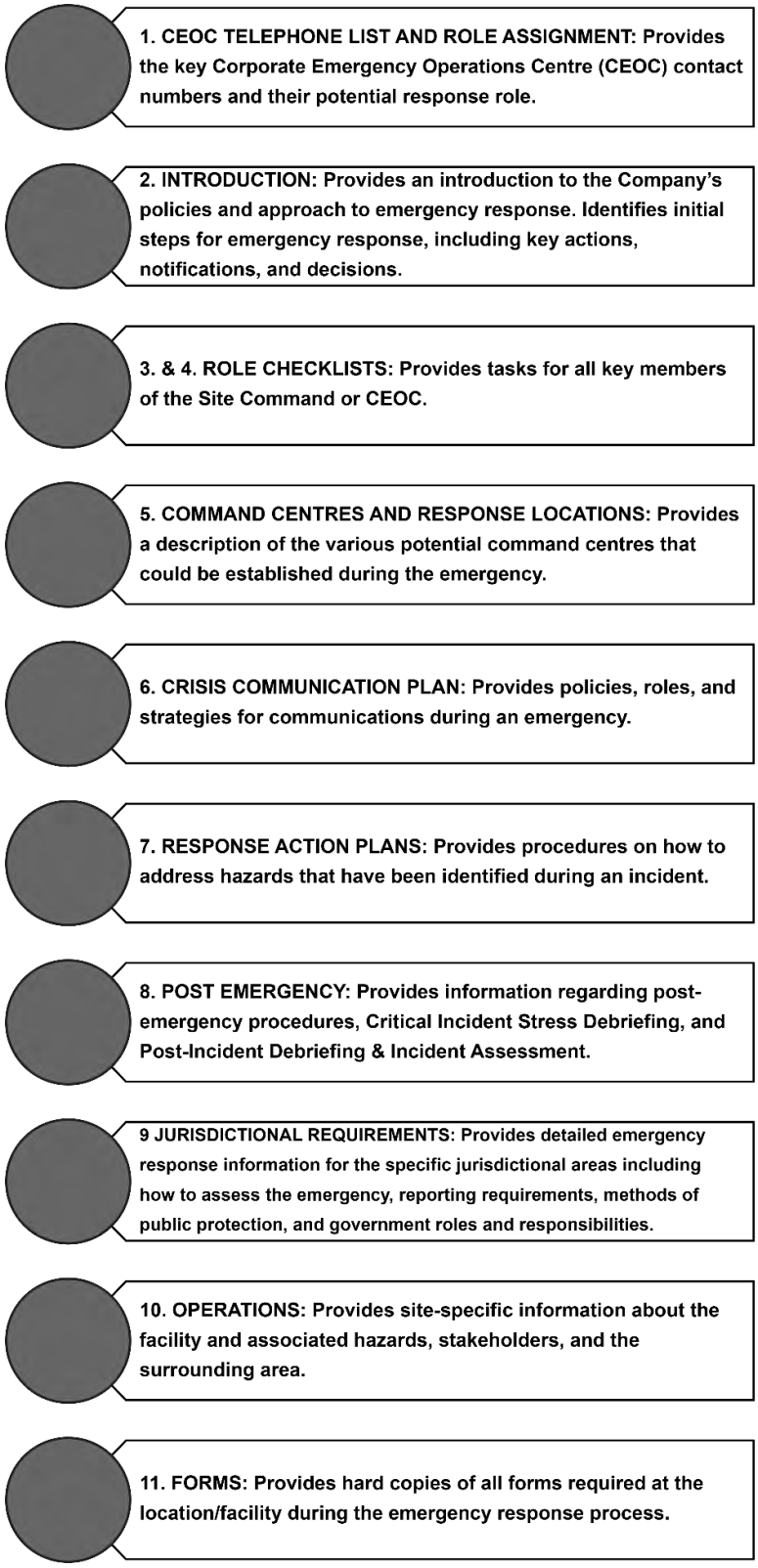
PetroShale (US) Inc. 24-Hour Emergency Number 1-701-774-7777 Company Main Number 1-701-774-7777				
Name	**Position**	**Office**	**Cell**	**Other**
[redacted]				

1.2 Potential Corporate Role Assignments

Name	Title
CEOC Director	
[redacted]	
CEOC Operations Chief	
[redacted]	
CEOC Liaison Officer	
[redacted]	
CEOC Information Officer	
[redacted]	
Corporate Executive Team	
[redacted]	

2.0 INTRODUCTION

2.1 How to Use the ERP



2.2 Incident Response Quick Guide

- Evacuate and/or isolate the hazard area.
- Sound the alarm.
- Call for assistance, as needed.
  - Backup personnel.
  - Emergency Services.
  - Response specialists.
- Notify immediate Supervisor, provide all known information.
  - What happened.
  - Any known injuries.
  - Additional hazards.
- Assess the situation and identify additional hazards.
  - Unplanned ignition.
  - Dangerous levels of toxins.
- Develop an Incident Action Plan.
- Expand the isolated area, as needed.
- Ensure personal safety. Don appropriate PPE.
- Account for all personnel on-site.
  - If safe to do so, conduct search and rescue procedures for anyone missing.
  - Establish personnel accountability system for on-site responders.
- If safe to do so, determine how to respond to any persons injured or trapped.
  - Rescue and evacuate the injured to a safe location.
  - Provide first aid or medical treatment to the injured.
  - If safe to do so, begin control and containment actions.
- Shutdown or modify operations.
  - Isolate and depressurize equipment.
  - Contain spilled/leaking product.
  - Ignite the release.
- Initiate public protection measures in the hazard area, as required.
  - Shelter in Place.
  - Evacuation.
  - Isolation.
  - Air monitoring.
- Ensure required regulatory agencies are notified and confirm the Level of Emergency.
- Ensure all local authorities, health authorities, and other responding agencies are notified, as required.
- Re-evaluate the Action Plan and identify additional strategies and objectives.

Refer to the Response Action Plans section in the appropriate Emergency Response Plan (ERP) for incident specific response guidelines.

2.3 Understanding the Situation

The overarching priority of any emergency response is to manage the **People** aspects first, then the impact on the **Environment**, followed by protecting further company **Assets** within the vicinity of the event and protecting **Reputation** which would be based on potential social and financial impacts during the event.

The Incident Command Post (ICP) and the Corporate Emergency Operations Centre (CEOC), as directed by the Incident Commander, will assess the situation using the following step.

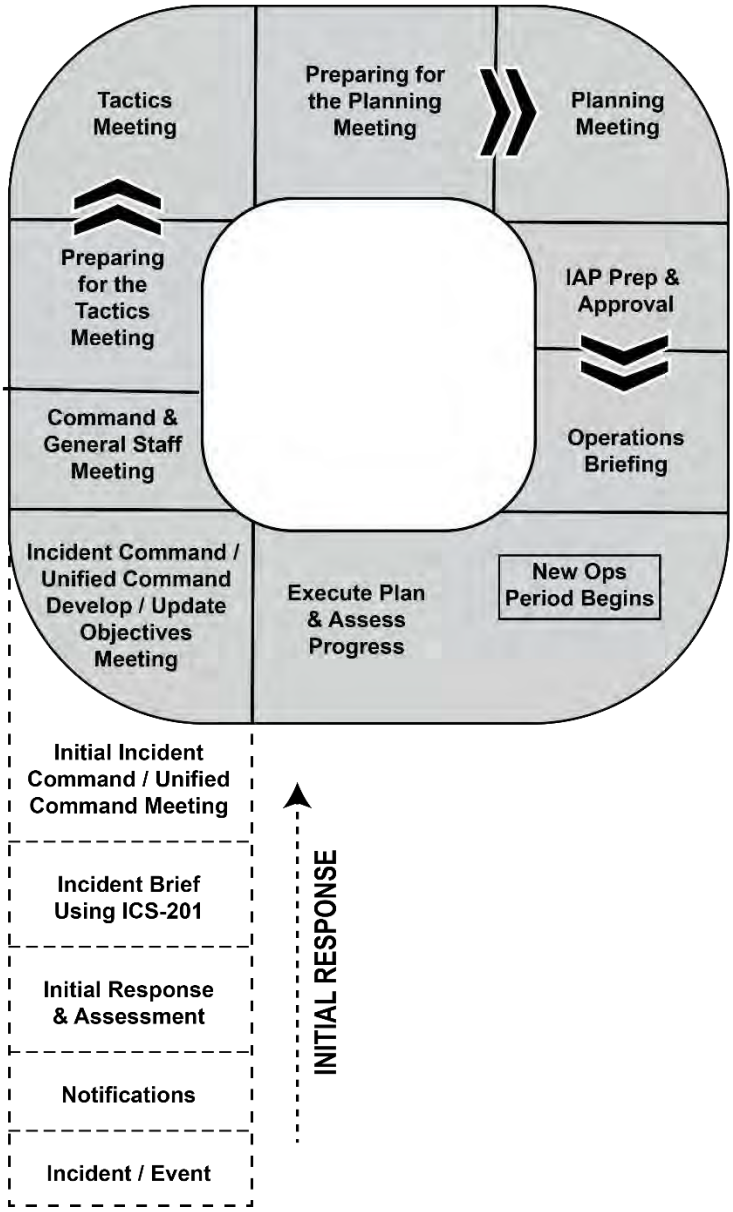
Capture information relating to:

- Incident history and responses already taken
- Current response actions
- Response organizations that are activated

2.3.1 PEAR Response Priorities and Objectives

P	**PEOPLE** Preserve safety of human life, consider the safety of all people in the immediate area including your own.
	❑ Minimize impact of the incident on all personnel and local communities.
	❑ Ensure the safety and welfare of all responders.
	❑ Confirm status of employees and contractors.
	❑ Contact incident site to clarify field and headquarters responsibilities.
E	**ENVIRONMENT** Minimize adverse effects to the environment and property.
	❑ Conduct situation assessment of the incident.
	❑ Protect lives and the well-being of those people impacted by the environmental hazard.
	❑ Establish communications with the incident site response team(s).
	❑ Ensure the dispatch of appropriate equipment/personnel to control the environmental hazard.
	❑ Appoint technical and specialist assistance to eliminate/control environmental impacts.
	❑ Continually monitor control and containment.
	❑ Ensure compliance tracking for emissions levels, limits, or permit exceedances.
	❑ Develop IAP in coordination with response team and agency/authority.
A	**ASSETS** Protect Company's assets, stabilize the situation to prevent the event from worsening.
	❑ Determine potential impacts on other Company infrastructure.
	❑ Minimize impact of incident on Company assets and quickly restore normal business operations.
	❑ Evaluate and minimize impact on other Company assets.
	❑ Provide requested technical and legal assistance.
	❑ Assist in asset restoration and business recovery.
	❑ Protect the operational integrity of Company asset base.
	❑ Provide requested financial support.
	❑ Establish communications with incident site response team(s).
R	**REPUTATION** Minimize reputational and business impacts and maintain effective internal and external communications.
	❑ Determine lead position on assumption of incident responsibility.
	❑ Protect Company reputation.
	❑ Mitigate adverse publicity surrounding the incident to reduce impact to Company image.
	❑ Coordinate government interface.
	❑ Develop and implement communications plan.
	❑ Defend the reputation of our company with key external audiences.
	❑ Coordinate high level Company Management communications.
	❑ Coordinate discovery and litigation preparation.
	❑ Coordinate performance of incident investigation and reporting.
	❑ Establish key liaisons (e.g. media, investor relations).
	❑ Monitor all type social media reporting on the emergency event (i.e. News agencies, social media, etc.

2.3.2 Planning 'P' Process



PetroShale response teams utilize the Incident Command System (ICS) incident planning process, also referred to as the Planning 'P' process.

The Incident Action Plan (IAP) provides formal documentation of incident and operational period objectives and associated strategies outlined during the planning process.

The following guidance is provided in relation to the Planning 'P' process, and should be utilized when:

- Establishing incident objectives
- Developing, preparing and disseminating the incident action plan
- Executing, evaluating and reviewing the incident action plan

For simple incidents of short duration, the Incident Action Plan (IAP) will be developed by the Incident Commander and communicated to subordinates in a verbal briefing. The planning associated with this level of complexity does not demand the formal planning meeting process as noted below:

	PLANNING 'P' GUIDANCE		
	What	**Who**	**When**
ESTABLISH INCIDENT OBJECTIVES	Determine the Operational Period, which is the amount of time for which the group is planning. Operational Periods typically range 2 to 24-hours.	Incident Commander	Prior to Objectives Meeting
	Determine the Objectives for the incident and have them universally agreed upon and communicated between activated command posts.	Incident Commander Section Chiefs	Objectives Meeting
	Identify safety hazards and immediate safety actions to be taken to protect against the hazards. The purpose of this meeting is to gather input or to provide immediate direction that cannot wait until the planning process is completed. This meeting occurs as needed and should be as brief as possible.	Incident Commander General Staff	Command & General Staff Meeting
	Document the Objectives from the Incident Commander and a General Safety Message / Plan from the Site Safety Officer.	Site Planning Section Chief or CEOC Planning Chief	
DEVELOP THE INCIDENT ACTION PLAN	Discuss how the Objectives will be accomplished. Strategies are the general plan or direction selected to accomplish Objectives for individual Sections. Tactics are the short-term specific actions taken to complete or satisfy the Objectives.	Operations Section Chief or CEOC Planning Chief Site Safety Officer Site Logistics Section Chief or CEOC Logistics Chief Site Finance Section Chief or CEOC Finance Chief	Tactics Meeting
	Discuss what resources will be needed to accomplish the Objectives.	Site Operations Section Chief Site Logistics Section Chief or CEOC Logistics Chief Site Finance Section Chief or CEOC Finance Chief	
	Document resource requests.	Site Logistics Section Chief	
	Coordinate obtaining resources and appropriate financial tracking.	Site Operations Section Chief. Site Logistics Section Chief or CEOC Logistics Chief Site Finance Section Chief or CEOC Finance Chief	
	Ensure all Objectives have been assigned to someone for action.	Incident Commander	
	Record assignments against Objectives.	Site Planning Section Chief or CEOC Planning Chief	

PREPARE & DISSEMINATE IAP	Compile the Incident Action Plan.	Site Planning Section Chief Incident Commander General Staff	Planning Meeting
	Approve the Incident Action Plan.	Incident Commander	
	Distribute the Incident Action Plan to all Incident Command Post members.	Site Planning Section Chief or CEOC Planning Chief	
	Distribute the Incident Action Plan to CEOC Director/CEOC.	Site Operations Section Chief	
	Distribute the Incident Action Plan to external response organizations.	Site Liaison Officer	

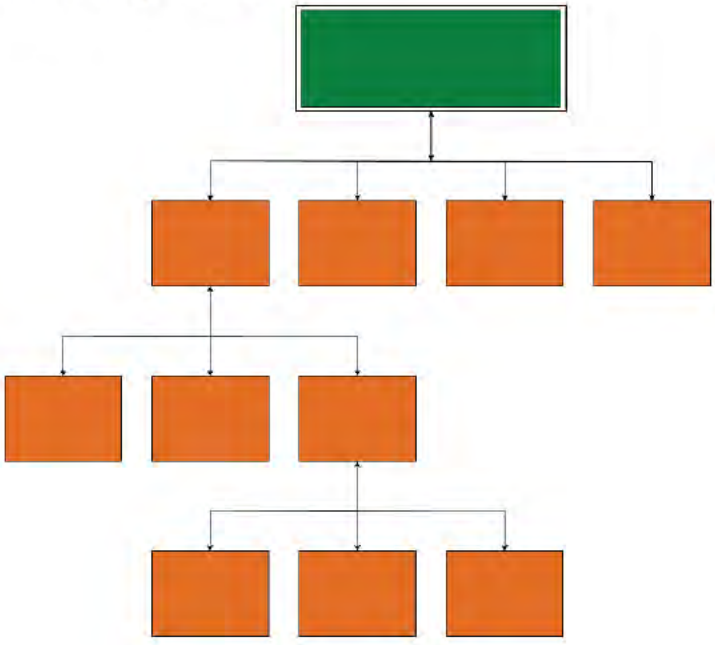
EXECUTE, EVALUATE, REVIEW	Execute the Incident Action Plan, including evaluating the need for changes.	All	Operations Briefing
	Make corrective actions as needed through consultation with the Incident Commander and other Section Chiefs.	All	
	As the first (or current) Operational Period is concluding, the Incident Action Plan process begins again.	All	New Operational Period

2.4 ICS Guidelines

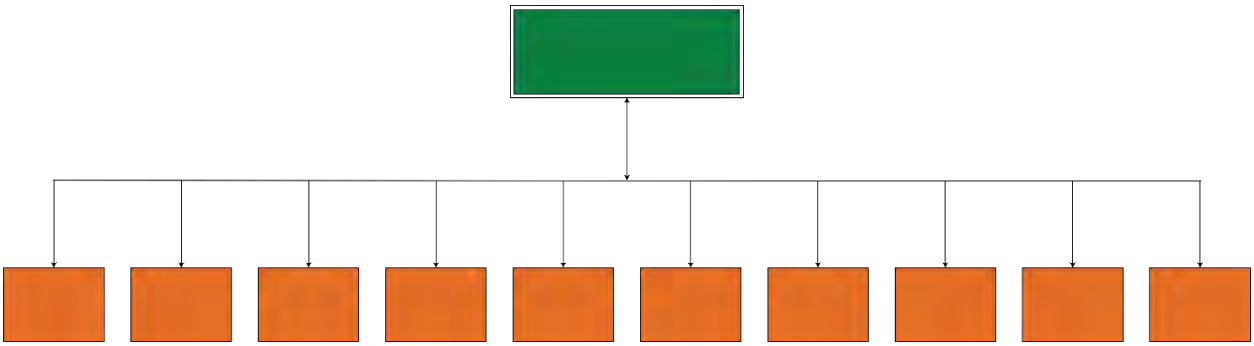
2.4.1 Span of Control

Span of Control is a term to describe how many resources can be directly managed by another person. Maintaining adequate Span of Control is very important and is most effective in a range from three to seven - a ratio of one to five reporting elements is recommended. If the number of reporting elements falls outside of these ranges, the expansion or consolidation of the organization is likely necessary.

This diagram shows effective Span of Control.

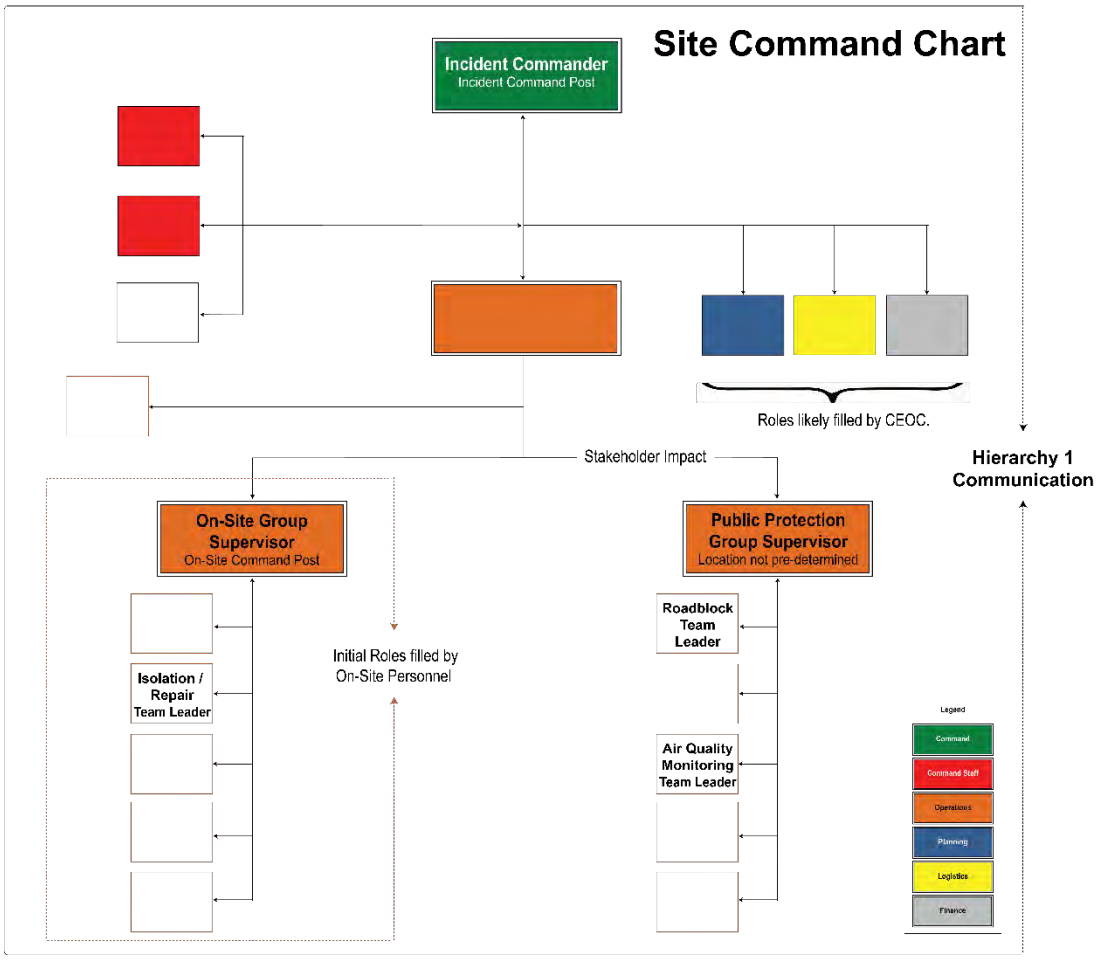


The following diagram shows Span of Control that is considered ineffective and possibly dangerous.



Organization Flexibility

The Response Organization needs to be flexible and scalable where functions required to appropriately respond will determine the extent of the response organization. As needs arise or are reduced, the organization can easily adapt to the change. In the following diagram of a Response Organization only the named resources are currently active.

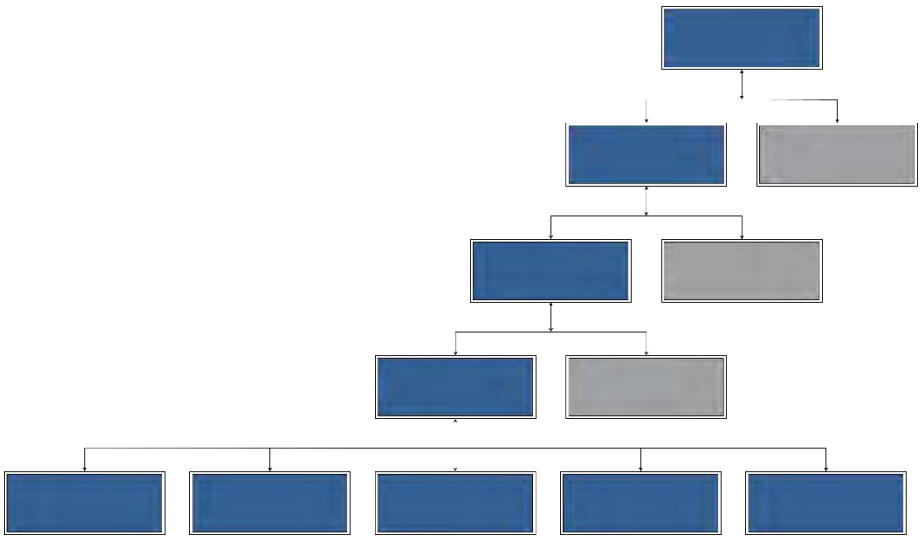


2.4.2 Unity and Chain of Command

Unity of Command means that every individual has a designated supervisor. There is a clear line of supervision.

Chain of Command means that there is a line of authority in the Response Organization with lower levels subordinate to, and connected to, higher levels. This achieves an orderly ranking of management positions in line of authority.

This diagram shows Unity and Chain of Command.



Establishment and Transfer of Command

Command at an incident is initially established by the highest-ranking authority at the scene. Transfer of Command at an incident will take place for the following reasons:

- A more qualified person assumes control.
- The incident situation changes to where the authority is transferred to the jurisdictional authority because of legal requirement or good management sense.
- Normal turnover of personnel on long or extended incidents.

Unified Command

Unified Command is a management process which allows all stakeholders who have jurisdictional or functional responsibility for the incident to jointly develop a common set of incident objectives and strategies.

This is accomplished without losing or giving up authority, responsibility or accountably.

Unified Command allows stakeholders who have legitimate responsibility at an incident to be part of the Incident Command function.

Under Unified Command the following always applies:

- The incident will function under a single, coordinated Incident Action Plan.
- One Operations Section Chief will have responsibility for implementing the Incident Action Plan.
- Only one On-Site Command Post will be established.

2.4.3 Transfer of Command

The process of moving the responsibility for incident command from one Incident Commander to another is called “transfer of command.”

During a command transfer, a role can be transferred during an incident for several reasons: as the incident grows a more qualified person may be required to take over as Incident Commander, or conversely where an incident reduces in size command can be passed down to free up highly qualified resources for other tasks. This can also occur when those involved in the ICP have exceeded a 12-hour day with no breaks and need to transfer command to other qualified individuals.

In the unlikely event of an incident larger, or more involved, than PetroShale’s scope of management, there may be additional agencies involved, in which case incident control may be handed over to the most suitable commander.

2.4.4 Five Steps of Transfer of Command

There are five important steps in effectively assuming command of an incident in progress.

Step 1: The incoming Incident Commander should, if at all possible, personally perform an assessment of the incident situation with the existing Incident Commander.

Step 2: The incoming Incident Commander must be adequately briefed.

This briefing must be by the current Incident Commander and take place face-to-face if possible. The briefing must cover the following:

- Incident history (what has happened)
- Priorities and objectives
- Current plan
- Resource assignments
- Incident organization
- Resources ordered/needed
- Facilities established
- Status of communications
- Any constraints or limitations
- Incident potential
- Delegation of Authority

The ICS Form 201 is especially designed to assist in incident briefings. It is available in the Corporate ERP. It should be used whenever possible because it provides a written record of the incident as of the time prepared. The ICS Form 201 contains:

- Incident objectives.
- A place for a sketch map.
- Summary of current actions.
- Organizational framework.
- Resources summary.

The ICS 201 form is typically duplicated and distributed before the initial briefing of the Command and General Staff (or other responders, as appropriate). The following sections of the briefing form are provided to the Planning Section: "Map Sketch", "Current and Planned Actions, Strategies, and Tactics", “Current Organization", and "Resource Summary"

Step 3: After the incident briefing, the incoming Incident Commander should determine an appropriate time for transfer of command.

Step 4: At the appropriate time, notice of a change in incident command should be made to:

- Agency representatives.
- General Staff members (if designated).
- Command Staff members (if designated).
- All incident personnel.

Step 5: The incoming Incident Commander may give the outgoing Incident Commander another assignment on the incident. There are several advantages of this:

- The outgoing Incident Commander retains first-hand knowledge regarding the incident.
- This strategy allows the outgoing Incident Commander to observe the progress of the incident and to gain experience.

2.5 Scope

An emergency is any unexpected event that may result in a serious injury, loss of life, major property or environmental damage. This manual provides solutions to:

- Promote the safety of workers, responders, and the public.
- Promote the protection of the environment and reduce the magnitude of environmental impacts.
- Reduce the potential for destruction of goods and other property.
- Help responders quickly determine and initiate proper remedial actions.
- Reduce recovery times and costs.
- Make responders, industry, and the public more confident that emergencies will be properly managed.

Should communications fail, and the first responder is unable to make contact with a direct supervisor, the responder must be able and willing to take action to minimize the negative impact resulting from the incident. They should also know that they will be fully supported by their supervisors and the Company for whatever actions they deemed necessary to address the incident.

2.6 Purpose

Every ERP should be concise, well organized, and include enough detail to ensure quick access to critical information required during an emergency. Preparedness can shorten an initial period of confusion and reduce the impact of the emergency.

The ERP identifies common types of emergencies and helps personnel prepare an adequate response to the incident. These documents may include the following:

- **Core Plans** – These plans tend to be a more static document, with set processes, policies, and procedural authorities to activate plans, ICS structure, establishment of an emergency operations centres, corporate communications and information policies, ignition protocols, and processes for roadblocks, securing an incident site, preserving evidence, etc.

- Supplemental (field area)/Site Specific Plans
  - **Drilling and Completions** – These plans are valid for the timeframe of the project. A Supplemental/Site Specific Plan may also be created for and applied to a multi-well pad.
  - **Facilities, Fields, and Pipelines** – These supplemental (field area) plans are typically organized by operating area or when a large or unique facility requires specialized training for an effective incident response. Supplemental (field area) ERPs generally contain site-specific information.

PetroShale has no broadly available safety equipment and resources (i.e. equipment caches). For a list of all site-specific equipment and available resources please refer to the Supplemental (field area) /Site Specific ERP.

The emergency response community includes company personnel, local service providers, fire department, police, EMS, mutual aid responders, and other governmental agencies.

Serious emergencies can arise from many sources and can be difficult to manage. Emergency management incorporates prevention, preparedness, response, and recovery. It also involves a wide range of activities that prepare responders for incidents.

2.7 Emergency Preparedness Policy

PetroShale (US) Inc. (PetroShale), strives to provide and maintain a workplace free of incidents, but despite our best efforts to prevent incidents, there may be occasions where our actions, the actions of others or natural occurrences result in the need for emergency response actions.

All employees across our organization share responsibility for ensuring our Company is capable of effective emergency response. By accepting this responsibility, we take control of our own health and safety and contribute to the health and integrity of the company and the communities in which we work.

To ensure our Company is prepared to respond effectively, we will:

- Provide the resources necessary to prepare for, respond to and recover from incidents in a timely manner.
- Comply with regulatory requirements and industry best practices for all aspects of emergency response.
- Develop an appropriate emergency response process for the control of emergencies within company sites.
- Respond as quickly as possible to protect the health and safety of our employees, contractors, stakeholders and individuals in the communities near our operations.
- Ensure we have an adequate pool of trained response personnel available to us at all times.
- Provide appropriate training for all members of our emergency response organization.
- Provide appropriate information for employees, with emphasis on induction of new employees and persons with disabilities.
- Be responsive, understanding and compassionate to the needs of stakeholders impacted by any incident related to our operations.
- Respect the rights of our employees and other stakeholders to be kept informed about the risks and outcomes of incidents that do occur.

- Adopt a positive and pro-active approach to emergency response with the aim of minimizing adverse effects resulting from any emergency.
- Encourage participation in and ownership of emergency response procedures to ensure individuals can take part in their own safety management.
- Establish meaningful methods for tracking and measuring our response capabilities, particularly during incidents.
- Use the lessons we learn through training exercises, audits, inspections and actual incidents to continuously improve our emergency response capabilities.
- Listen to our employees and other stakeholders who offer comments on our response capabilities.

2.8 Authority to Activate the ERP

Any Employee or Contractor detecting an incident has the authority to activate and implement any part of the plan to prevent the emergency situation from escalating. An immediate notification process must be followed as part of the activation.

The Employee or Contractor detecting the incident has the responsibility to determine if the unplanned operational event has the potential to cause:

- A threat to worker or public health, and safety.
- Loss of property.
- A negative impact on the environment.
- A perception of risk by the public and neighbouring stakeholders.

If it is determined that there is an actual emergency situation (or the perception of an emergency by the public) the ERP must be activated, and appropriate response action taken to address the incident.

When the ERP is activated, it is of the utmost importance and urgency that the appropriate Company Personnel and government agencies are notified as outlined in this document.

2.9 Program Administration

The responsibility for maintaining this Emergency Response Plan (ERP) is as follows:

- The Manager, HSE is responsible for updating the company-wide sections of the manual. Any requests for revisions to these sections should be forwarded to the Manager, HSE for approval and implementation.
- The Manager, HSE is responsible for ensuring the ERP is reviewed by all personnel annually and immediately after any changes have been made to the manual.
- The appropriate field office is responsible for updating the Field Area Section of the manual and distributing to those on the distribution list.
- All manual recipients are responsible for ensuring that their assigned manuals are current.

Before any new or major modification to an existing facility is brought on-stream, relevant data will be added to the appropriate Field Area Section. It is the responsibility of the Manager, HSE to ensure that this data is included. Company personnel and contractors will attend ERP review meetings before major facility modifications are commissioned.

2.10 Training and Testing the ERP

Emergency response training is a required and regulated activity where PetroShale personnel are to demonstrate that they are able to take action, solve problems, and make decisions in a team structure as if they are responding to a real emergency. The training should contain an appropriate balance between theoretical and practical hands on content and it should be structured so that each new skill builds upon those previously acquired.

Simulated emergency response exercises, such as a tabletop exercise, are essential in developing, maintaining and improving Emergency Response Plan programs. Exercises are particularly important for training and evaluating roles and responsibilities during an emergency. Testing or exercising enables critical aspects of the Emergency Response Plan to be examined in a structured way, simulating conditions to reveal mistakes and omissions so that they can be subsequently corrected without consequences.

The exercise scenario created must reflect a credible type of event for the location. When designing an exercise, the facilitator should ensure that the scenario reinforces any previous training, is simple enough that available resources are adequate and difficult enough to be challenging. The goal of the training is to provide maximum lessons learned and include a post-exercise evaluation with corrective actions.

An appropriate exercise design process is composed of four main steps:

- Planning the exercise.
- Holding the exercise.
- Evaluating the outcomes.
- Reporting on the outcomes.

The training should be designed to ensure that the following objectives are met:

- Appropriate assignment of personnel to fill the roles required to manage an efficient response.
- Effective communication amongst response personnel, agencies and support organizations.
- Accurate determination of the level of emergency.
- Worker and public safety considerations.
- Effective source control and incident mitigation.
- Coordinated and efficient response activities.
- Identification of gaps in the ERP and recommend changes to the document.
- Identification of additional training that may be required.

The Company will undertake training sessions on a regular basis for fulfilling functions defined in its to ensure that responsible personnel retain competency in emergency response procedures. Personnel will be trained and capable of carrying out their responsibilities at all times. The Company will accomplish this by providing training sessions and response exercises.

The various types of Emergency Response Plan Training are as follows:

2.10.1 Orientation

Orientation training is designed to familiarize team members with emergency response, business continuity and crisis communications plans. Orientation of newcomers to emergency response operations can be completed without the demands of a Tabletop Exercise or Major Exercise.

2.10.2 Tabletop Exercise

Per FEMA CPG 101 guidelines an informal exercise generally used to review resource allocations and roles and responsibilities of personnel and to familiarize personnel with emergency operations.

Tabletop exercises are discussion-based sessions where team members meet in an informal, classroom setting to discuss their roles during an emergency and their responses to a particular emergency situation. A facilitator guides participants through a discussion of one or more scenarios. The duration of a tabletop exercise depends on the audience, the topic being exercised, and the exercise objectives. Many tabletop exercises can be conducted in a few hours, so they are cost-effective tools to validate plans and capabilities.

2.10.3 Communication Exercise

These exercises are considered expanded tabletop exercises and focus on the internal and/or external communication required during an incident. The scope of these exercises can vary greatly and may include public protection radio communication, internal telephone communication, as well as external agency communication.

2.10.4 Functional Exercise

Functional exercises allow personnel to validate plans and readiness by performing their duties in a simulated operational environment. Functional exercises are designed to exercise specific team members, procedures, and resources (e.g. communications, warning, notifications and equipment set-up) but they do not typically include outside agencies or stakeholders.

2.10.5 Major Exercise

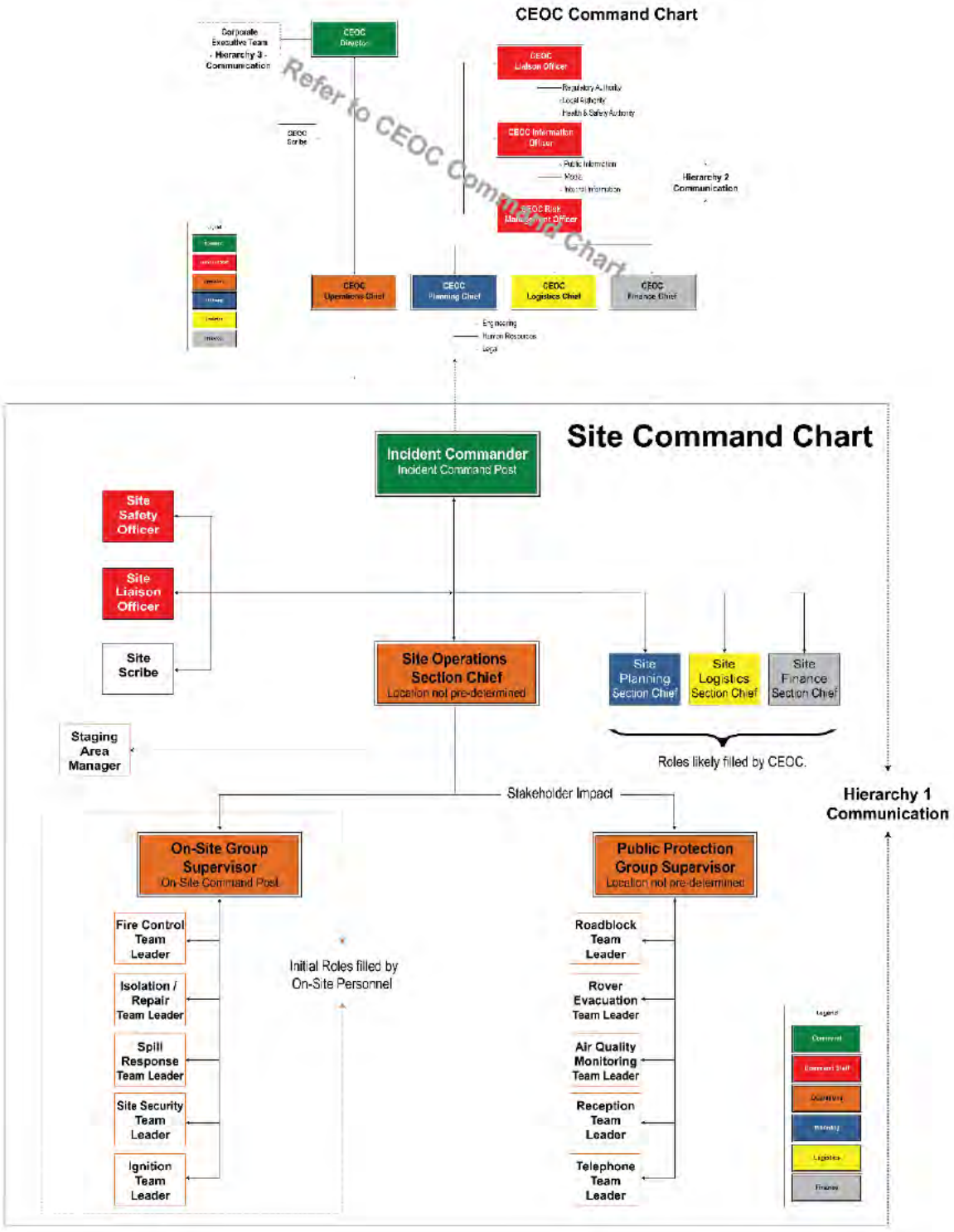
Per FEMA CPG 101 regulations, an exercise involving emergency response agencies and the permit holder that entails the deployment of all resources required to test the permit holder's ERP. It is intended to provide a realistic simulation of an emergency response.

A Major Exercise is as close to the real thing as possible. It takes place on location using the equipment and personnel that would be called upon in a real event. Major exercises are conducted in conjunction with public agencies and regulatory authorities. They often include participation from local stakeholders.

2.10.6 Training Cycle

3.0 SITE INCIDENT COMMAND STRUCTURE - ROLES AND RESPONSIBILITIES

3.1 Site Command Chart



3.2 First Responder

The First Responder is the first person at the incident location. If properly trained and qualified, the First Responder will be responsible for the following checklist.

Location	On-Site
Evacuate (Protect yourself)	❑ Remain calm. ❑ Get to a safe area away from the hazard. ❑ Direct others to a safe area.
Sound the Alarm	❑ Alert other personnel on-site. ❑ Call for help (your supervisor or control room, as appropriate). ❑ Activate mutual aid and emergency services, as required.
Assess Incident	❑ Resist the urge to rush in, others cannot be helped if you are injured. ❑ Gather at muster stations and conduct a head count. ❑ Consider wind direction. ❑ Identify exposure to environments that may be toxic, flammable, explosive, or otherwise harmful. ❑ Ensure personnel understand hazards and control actions.
Protect	❑ Assume on-site ICS duties until relieved, refer to Incident Commander checklist. ❑ Take action to shutdown, isolate, control, or contain incident. ❑ Don personal protective equipment. ❑ Control entry into hazardous area. ❑ Secure the area. ❑ Release non-essential on-site personnel.
Rescue Operations	Only if safe to do so: ❑ Rescue victim to safe area.
Medical Aid	❑ Revive victim. ❑ Administer first aid, maintain ongoing care and confirm emergency services have been dispatched.
Continue Response	❑ Continue to implement ICS response actions.

Forms	
❑	ICS 214 – Activity Log

3.3 Incident Commander

The Incident Commander assumes responsibility for the implementation and management of emergency response procedures at the incident site. Even if other functions are not filled, an Incident Commander will always be designated.

The Incident Commander role should be assigned to the most experienced company supervisor or representative near the incident site. The Incident Commander has the responsibility to establish the Incident Command Post and manage the implementation of a safe and effective tactical response.

The Incident Commander is responsible for all response functions until he/she delegates those response activities.

INCIDENT COMMANDER	
Location	
	Incident Command Post.
Confers With	
❑	CEOC Operations Chief.
Gives Direction To	
❑	Site Operations Section Chief.
❑	Site Planning Section Chief.
❑	Site Logistics Section Chief.
❑	Site Finance Section Chief.
❑	Site Safety Officer.
❑	Site Liaison Officer.
❑	Site Scribe.
Situation Assessment	
❑	Consider evacuating non-essential personnel to safety and place them on standby to fill public protection roles.
❑	Dispatch trained and appropriately equipped personnel (preferably in pairs) to investigate.
❑	If the situation assessment confirms that company assets are involved, activate the ERP and establish Incident Command.
❑	If the incident involves another company's asset, ensure that their personnel are notified. Maintain contact with the responsible operating company until they arrive on scene.
❑	Contact the person who reported the incident and advise them of the result of the situation assessment.
❑	Notify appropriate company personnel.
❑	Assess the situation using the appropriate matrix for classifying incidents.
Alert/Minor	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Develop an initial response strategy that adheres to the PEAR emergency response priorities. These response priorities are protecting people, environment, assets and reputation.
❑	Establish method of communications with the CEOC Operations Chief.
❑	Schedule regular briefings with the CEOC Operations Chief.
❑	Evaluate resource requirements and advise CEOC Operations Chief.
❑	For an incident that is not impacting public safety, consider public notification as a courtesy.
❑	Ensure Regulatory Authority notification according to the applicable requirements.
❑	Refer to the Notification Requirements for Key Government Agencies and Resources in the Jurisdictional section of this document.
Level 1	
❑	Continue with previous actions.
❑	Determine the Operational Period.
❑	Complete the ICS 201 – Incident Briefing Form.
❑	Facilitate Objectives Meeting with Section Chiefs. Determine the objectives for the incident and communicate them between activated command posts.

INCIDENT COMMANDER

INCIDENT COMMANDER

❑	Facilitate Command and General Staff Meeting, as required. Identify safety hazards and immediate safety actions to be taken to protect against the hazards.
❑	Request resources, personnel and equipment to address emergency situation.
❑	Take steps to protect personnel, the public, and the environment.
❑	Direct on-site operations; take steps to control the incident (e.g. shutdown, isolate, depressurize) to protect the property.
❑	Initiate first aid, as required.
❑	Ensure that a head count and personnel accountability record is maintained for the duration of the incident.
❑	Immediately report any suspected threats of violence, sabotage, or terrorism.
❑	Report worker exposure exceeding allowable limits.
❑	Develop Incident Action Plan in coordination with the Section Chiefs. Ensure all objectives have been assigned to someone for action.
❑	Develop Incident Action Plan in coordination with the Section Chiefs.
❑	Secure the scene and restrict access to authorized personnel only.
❑	Initiate on-site monitoring.
❑	Establish an Incident Command Post and communications with other Command Centres.
❑	Define the boundaries of the response zones and identify the boundaries on the area map.
❑	Ensure that the Site Operations Section Chief evaluates how many members of the public could be inside the response zones.
❑	Initiate stakeholder notification within the EPZ of the incident.
❑	Ensure Site Operations Section Chief initiates a transient survey of the area.
❑	Dispatch Mobile Air Monitoring Unit to the incident scene.
❑	For an incident with the potential of odours, smoke, or hazardous airborne release initiate monitoring at nearest downwind occupied location.
❑	Discuss actions, media requirements, resource requirements and conditions with CEOC Operations Chief.
❑	Delegate responsibilities to Company personnel and contract support resources.
❑	Assign roles to personnel as appropriate for the size and complexity of the incident.
❑	Notify police in the event of an industrial fatality or motor vehicle incident.
❑	If the incident involves a pressure vessel notify the designated Company Chief Inspector.
Level 2	
❑	Continue with previous actions.
❑	Reassess level of emergency and confer with the CEOC Operations Chief in the event of a change.
❑ .	Determine the potential for the incident to escalate
❑	Ensure the Site Operations Section Chief has established site security and is working to address source control.
❑	Secure response zones and set up roadblocks, if required.
❑	Establish a sign-in post/station as required.
❑	Evacuate non-essential personnel.
❑	Initiate first line emergency services such as firefighters, police, ambulance, safety contractors, or oil spill contractors.
❑	Dispatch helicopter, if required, to survey area, transport supplies and/or assist with control measures.
❑	If the emergency has the potential to require ignition, ensure a qualified Ignition Team is chosen, duties are discussed, and ignition equipment is on-site.
❑	Evaluate ignition criteria and communicate with the Site Operations Section Chief, CEOC Operations Chief and applicable Regulatory Authority regarding ignition decision.
❑	Establish a Unified Command structure with government agencies at the Incident Command Post, if necessary.
❑	Ensure field responders are promptly notified of any status updates.
❑	Continually reassess the situation and the risk to life and safety.
Level 3	
❑	Continue with previous actions.
❑	Reassess the level of emergency and confer with the CEOC Operations Chief in the event of a change.
❑	Confer with CEOC Operations Chief to discuss additional control measures.
❑	Determine if ignition criteria have been met.

INCIDENT COMMANDER	
❑	Consult with CEOC Operations Chief and applicable Regulatory Authority, if possible. Initiate ignition procedures as required
❑	Determine the need for Site Planning Section Chief, Site Logistics Section Chief, and Site Finance Section Chief and activate as required.
❑	Expand the response zones if monitoring indicates it is necessary.
❑	Ensure Site Operations Section Chief has established an appropriate staging area and is providing resource support.
❑	Update previous contacts if there is a change of status.
Deactivation	
❑	Where applicable, commence reclamation activities once the spill has been isolated and the area has been secured.
❑	Coordinate the removal of the impacted waste material and dispose of the waste to an approved facility.
❑	Obtain a sufficient number of samples of the remediated site to demonstrate containment.
❑	Downgrade the emergency in consultation with the CEOC Operations Chief and the applicable Regulatory Authority.
❑	Ensure all appropriate government agencies are notified of the stand-down of the emergency.
❑	Ensure any notified media are updated of the stand-down of emergency.
❑	Ensure all affected stakeholders are notified of the stand-down of emergency.
❑	Ensure the Site Operations Section Chief coordinates the ventilation of all residences and businesses as required and that monitoring for gas pockets continues to take place.
❑	Ensure evacuee expenses and damage claims are collected.
❑	Ensure post-incident reports are completed and submitted, if applicable.
❑	Ensure all members of the Emergency Response Team and other key participants are invited to the debriefing.
❑	Conduct post-incident debriefing.
❑	Assess the physical and emotional health of responders and make recommendations for Critical Incident Stress Debriefing.

Forms	
❑	ICS 201 – Incident Briefing
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix
❑	Notification Record

3.4 Site Operations Section Chief

The Site Operations Section Chief is responsible for the direction and coordination of all incident tactical operations and resources. Initially the Site Operations Section Chief consists of those few resources first assigned to an incident (these resources will initially report directly to the Incident Commander until the Site Operations Section Chief is assigned).

SITE OPERATIONS SECTION CHIEF	
Location	
	Location not pre-determined.
Takes Direction From	
❑	Incident Commander.
Confers With	
❑	Section Chiefs, if applicable.
❑	Site Safety Officer
Gives Direction To	
❑	On-Site Group Supervisor.
❑	Public Protection Group Supervisor.
❑	Staging Area Manager.
Alert/Minor	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Establish method of communications with the Incident Commander and provide support as required.
❑	Schedule regular briefings with the Incident Commander.
❑	Designate Public Protection Group Supervisor and On-Site Group Supervisor, as required.
Level 1	
❑	Continue with previous actions.
❑	Establish On-Site Command Post.
❑	Facilitate Tactics Meeting with the Site Safety Officer, Site Logistics Section Chief, and Site Finance Section Chief. Discuss how the objectives will be met. Review strategy and required resources to satisfy the objectives.
❑	Prepare the ICS 215 – Operational Planning Worksheet with assistance from the Site Safety Officer and Site Logistics Section Chief or CEOC Logistics Chief. Document all decisions made during the Tactics Meeting concerning resource assignments and needs for the next operational period. Share completed ICS 215 with all Command and General Staff.
❑	Prepare the ICS 204 – Assignment List, obtain sign-off from the Planning Section and approval from Incident Commander prior to dissemination as part of the Incident Action Plan.
❑	Distribute approved Incident Action Plan to the Incident Commander.
❑	Participate in the Operations briefing.
❑	Implement Incident Action Plan in coordination with the Incident Commander, On-Site Group Supervisor, Public Protection Group Supervisor, and Staging Area Manager.
❑	Identify EPZ boundaries.
❑	Evaluate how many stakeholders could be inside the EPZ. Account for residents, businesses, transients, highways, waterways, railroads and public facilities.
❑	Determine applicable public protection method.
❑	Direct Public Protection Group Supervisor to initiate area resident notifications.
❑	Determine what methods of communication are available to the Team Directors and Team Leaders and schedule regular briefings.
❑	Provide any required voluntary evacuation assistance to residents identified as having special needs.
❑	Review the topographical information, weather data, and weather forecast information.
❑	Ensure an appropriate air quality monitoring strategy is employed.
❑	Develop a roadblock strategy.
❑	Determine resource requirements.
❑	Provide direction to the On-Site Group Supervisor to address fire control, isolation, equipment damage, repair, spill response, site security, and waste management, as required.

SITE OPERATIONS SECTION CHIEF

SITE OPERATIONS SECTION CHIEF	
❑	Assess the requirements for on-site safety supervision, personnel, equipment, and other contract services.
❑	Coordinate with the Logistics Section Chief (if assigned) to obtain equipment and resources.
❑	Compile and display incident information.
❑	Assign roles to personnel as appropriate for the size and complexity of the incident.
Level 2	
❑	Continue with previous actions.
❑	Direct Public Protection Group Supervisor to review EPZ boundaries.
❑	Direct Public Protection Group Supervisor to initiate shelter and/or evacuation procedures.
❑	Ensure transient surveys are completed.
❑	Ensure mobile environmental and/or air quality monitoring is taking place.
❑	Ensure roadblocks are established.
❑	When required, dispatch a Staging Area Manager to establish and coordinate operations at the Staging Area. The Staging Area must be located outside the EPZ and near the emergency site.
❑	Evaluate ignition criteria and communicate with the Incident Commander regarding ignition decision.
❑	Ensure field responders are promptly notified of any status updates.
❑	Continually reassess the situation and the risk to life and safety.
Level 3	
❑	Continue with previous actions.
❑	Confirm with Public Protection Group Supervisor that all members of the public in the EPZ have been evacuated and/or sheltered.
❑	Ensure Public Protection Group Supervisor has established a protocol for resident updates and evacuees are provided with updated information.
❑	Maintain security.
❑	Evaluate monitoring data and expand planning zone if required.
❑	Review Ignition Criteria to determine if any one of the conditions have been met and coordinate with the Incident Commander.
Deactivation	
❑	Discuss downgrading of emergency with Incident Commander once it has been determined that the incident site is controlled.
❑	Notify all responders once the decision to downgrade the emergency has been made.
❑	If a serious injury or death has occurred, the scene must be left as undisturbed as possible until the appropriate authorities can complete a site investigation.
❑	Ensure that the Public Protection Group Supervisor ventilates residences/businesses as required and that monitoring for gas pockets continues to take place.
❑	Ensure that the Public Protection Group Supervisor notifies all evacuees that the emergency has been downgraded.
❑	Ensure that the Public Protection Group Supervisor assists evacuees in returning to their residences/businesses as required.
❑	Ensure that the Public Protection Group Supervisor collects all Resident Expense Claims forms.
❑	Participate in post-incident debriefing held by Incident Commander.
❑	Participate in any Critical Incident Stress Debriefing, as required.

Forms	
❑	ICS 204 – Assignment List
❑	ICS 214 – Activity Log
❑	ICS 215 – Operational Planning Worksheet (to be completed with support from Site Safety Officer and Site Logistics Section Chief or CEOC Logistics Chief)
❑	ICS 234 – Work Analysis Matrix
❑	Status Board

3.5 Public Protection Group Supervisor

The Public Protection Group Supervisor is responsible for initiating and managing public protection measures. Working closely with air quality monitoring, evacuation and roadblock personnel, the Public Protection Group Supervisor ensures the efficient notification and/or evacuation of residents, businesses, industrial operators and transients.

PUBLIC PROTECTION GROUP SUPERVISOR	
Location	
❑	Location not pre-determined.
Takes Direction From	
❑	Site Operations Section Chief.
Gives Direction To	
❑	Roadblock Team Leader.
❑	Rover Evacuation Team Leader.
❑	Air Quality Monitoring Team Leader.
❑	Reception Team Leader.
❑	Telephone Team Leader.
Alert/Minor	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Determine operating location and setup as necessary.
❑	Determine what job aids your position may require.
❑	Review ERP map.
Level 1	
❑	Continue with previous actions.
❑	Establish communication with the Site Operations Section Chief.
❑	Proceed to On-Site Command Post.
❑	Review the Public Protection requirements.
❑	Record the wind direction and speed.
❑	Review EPZ inventory.
❑	As required, activate the following positions: Roadblock Team Leader, Rover Evacuation Team Leader, Air Quality Monitoring Team Leader, Reception Team Leader, and Telephone Team Leader.
❑	Establish and maintain reporting cycles with all of the Public Protection Team Leaders.
Level 2	
❑	Continue with previous actions.
❑	Ensure the Telephone Team Leader contacts residents to evacuate by phone.
❑	Designate Reception Centre.
❑	Dispatch Reception Team Leader to the Reception Centre.
❑	Ensure the Rover Evacuation Team contacts residents in person.
❑	Ensure the EPZ has been evacuated in a timely fashion, and roadblocks are in place to isolate the EPZ.
❑	Ensure EPZ has been checked for transients and that they are evacuated as required.
❑	Ensure air quality monitoring occurs downwind, with priority being directed to the nearest unevacuated residence or areas where people may be present.
❑	Record all air quality monitoring results from the Air Quality Monitoring Team Leader.
❑	Ensure field responders are promptly notified of any status updates.
❑	Continually reassess the situation and the risk to life and safety.
❑	Review information from the Roadblock, Rover Evacuation, Air Quality Monitoring and Telephoner Teams.
❑	At pre-determined intervals, report status and discuss responses with Site Operations Section Chief.

PUBLIC PROTECTION GROUP SUPERVISOR

PUBLIC PROTECTION GROUP SUPERVISOR	
Level 3	
❑	Continue with previous actions.
❑	Update the Site Operations Section Chief of status
❑	Ensure Rover Evacuation Team has successfully evacuated the EPZ.
❑	Ensure the Roadblock Team Leader maintains roadblocks as required.
❑	Ensure the EPZ is being monitored effectively by the Air Quality Monitoring Team Leader.
❑	Ensure Telephone Team Leader is providing ongoing status updates to impacted stakeholders.
❑	Ensure Reception Team Leader has a record of all evacuees.
Deactivation	
❑	Ensure all evacuees are notified of the downgrading of the level of emergency.
❑	Ensure residences/businesses are ventilated as required and that monitoring of gas pockets continues to take place.
❑	Ensure evacuees are assisted in returning to their residences/businesses as necessary.
❑	Ensure evacuee's evacuation expenses and damage claims are collected.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in any Critical Incident Stress Debriefing as required.

Forms	
❑	ICS 214 – Activity Log
❑	Stakeholder Contact Record
❑	ICS 234 – Work Analysis Matrix
❑	Status Board

3.5.1 Roadblock Team Leader

The Roadblock Team Leader has the responsibility to secure the perimeter of the EPZ through road closures and monitoring in coordination with the local police, local authority, or road maintenance personnel.

ROADBLOCK TEAM LEADER	
Location	
	Location not pre-determined.
Takes Direction From	
❑	Public Protection Group Supervisor.
Confers With	
❑	Public Protection Team.
Gives Direction To (via Roadblock Team)	
❑	Road Traffic.
Alert/Minor	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Review the ERP map.
❑	Obtain safety equipment including SCBA, H_2S and LEL monitors (handheld instruments), barricade tape and radio communication, as required.
❑	Obtain roadblock kit, if not nearby arrange to have it brought to you.
❑	Ensure a sufficient supply of appropriate forms.
❑	Review vehicle requirements to carry out your assignment.
❑	Fill vehicle fuel tank.
Level 1	
❑	Continue with previous actions.
❑	Establish communication with the Public Protection Group Supervisor.
❑	Determine if there are roads and how many lead into a Planning Zone.
❑	Assess weather conditions in and around the area of emergency.
❑	Implement Incident Action Plan in coordination with the Public Protection Group Supervisor.
❑	As required, dispatch roadblock teams to their assigned roadblock locations using a safe route.
❑	Contact the local police, and/or local authority to inform them of the location of roadblocks. The authority contacted will be dependent on whether the roadway is a numbered highway, urban roadway, or rural road. Provide them with sufficient information regarding the incident and allow them to determine if they choose to take control of the roadblock.
Level 2	
❑	Continue with previous actions.
❑	Establish roadblocks at required sites to secure identified EPZ.
❑	Engage the four-way flashers on your vehicle and don illuminated traffic vest so you are visible to traffic.
❑	Do not completely block the road, leave at least one lane open.
❑	Take air quality monitoring readings periodically for your safety and reposition as necessary.
❑	Record any incoming and outgoing vehicles and equipment.
❑	Ask the residents leaving the EPZ to proceed to the designated Reception Centre.
❑	Update the Public Protection Group Supervisor of status at scheduled intervals.
Level 3	
❑	Continue with previous actions.
❑	Report any significant or unusual activities.
Deactivation	
❑	Ensure all roadblock equipment is cleaned and returned to its proper location.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in any Critical Incident Stress Debriefing as required.

Note: The permit holder has the responsibility to protect the public by activating roadblocks. Restricting access to the hazard area will remain under the authority of the applicable agency (i.e. police, fire department, road maintenance contractor, regulatory authority, etc). If someone insists on going through the roadblock, ask him or her for emergency contact numbers, this may encourage the driver to stop.

Forms	
❑	ICS 214 – Activity Log
❑	Roadblock Checkpoint Record
❑	Environmental Monitoring Record

3.5.2 Rover Evacuation Team Leader

The Rover Evacuation Team Leader is responsible for identifying and evacuating all members of the public within the response zones. He/she provides support to those who need evacuation assistance by checking residences, businesses (where no phone contact has been made), transients, and seasonal and casual area users.

ROVER EVACUATION TEAM LEADER	
Location	
	Location not pre-determined.
Takes Direction From	
❑	Public Protection Group Supervisor.
Confers With	
❑	Public Protection Team.
Gives Direction To (via Rover Evacuation Team)	
❑	Residents.
❑	Businesses.
❑	Transients.
❑	Seasonal and casual area users.
Alert/Minor	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Review the ERP map.
❑	Obtain safety equipment including SCBA, H_2S and LEL monitors (handheld instruments) and radio communication, as required.
❑	Ensure a sufficient supply of appropriate forms.
❑	Review vehicle requirements to carry out your assignment.
❑	Fill vehicle fuel tank.
❑	Review product release rates, wind direction, and safest egress routes.
Level 1	
❑	Continue with previous actions.
❑	Establish communication with the Public Protection Group Supervisor.
❑	Review the boundaries of the response zones.
❑	Evaluate how many members of the public could be inside the EPZ and the response zones. Account for residents, businesses, and transients.
❑	Identify highways, waterways, railroads, airports, campgrounds, hiking trails, etc. where stakeholders may be located.
❑	Assess weather conditions in and around the area of the emergency. Determine if weather conditions could impact or impede emergency response efforts.
❑	Identify the required number of Rovers and prepare to dispatch.
❑	Implement Incident Action Plan in coordination with the Public Protection Group Supervisor.
❑	Commence transient survey.
❑	Advise members of the public identified as having special needs of the incident. Provide evacuation assistance if requested.
Level 2	
❑	Continue with previous actions.
❑	Report any observations or issues which may negatively impact evacuations.
❑	Take air quality monitoring readings periodically for your safety.
❑	Ensure all public locations are visited and evacuated.
❑	When contacting stakeholders, identify yourself, speak slowly and confidently.
❑	Document time of arrival.

ROVER EVACUATION TEAM LEADER

ROVER EVACUATION TEAM LEADER	
❑	Account for all members of the household, business or dwelling. Inquire as to the whereabouts of anyone not present.
❑	Review the condition of stakeholders and identify any special requirements.
❑	Relay travel time and directions to the reception centre using safe egress routes.
❑	Check all fields and vacant locations to ensure that they are empty.
❑	Post a Notice of Evacuation on all doors of each unoccupied residence and business, on each outbuilding and the windshield of each unattended vehicle within the evacuated zones.
❑	Expand transient survey if EPZ is increased.
❑	Update the Public Protection Group Supervisor of status at scheduled intervals.
Level 3	
❑	Continue with previous actions.
❑	Ensure EPZ has been evacuated.
❑	Update the Public Protection Group Supervisor of status at scheduled intervals.
Deactivation	
❑	Continue to monitor for gas pockets.
❑	Assist evacuees in returning to their residences/businesses as required.
❑	Ventilate residences/businesses as required.
❑	Provide Company phone number in the event of additional concerns or questions.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in any Critical Incident Stress Debriefing, as required.

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix
❑	Stakeholder Contact Record
❑	Notice of Evacuation

3.5.3 Air Quality Monitoring Team Leader

The Air Quality Monitoring Team uses air quality monitoring equipment and personnel to identify and track the extent of the plume associated with a gas release to atmosphere.

AIR QUALITY MONITORING TEAM LEADER	
Location	
	Location not pre-determined.
Takes Direction From	
❑	Public Protection Group Supervisor.
Confers With	
❑	Public Protection Team.
Gives Direction To	
❑	Mobile air quality monitoring unit.
Alert/Minor	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Review ERP map, product release rates, wind direction, and safest egress routes.
❑	Review stakeholder locations and proximity to urban developments.
❑	Obtain radio communication equipment, as required.
❑	Verify operational condition and appropriateness of plume monitoring equipment.
❑	Ensure a sufficient supply of appropriate forms.
❑	Review vehicle requirements to carry out your assignment.
❑	Fill vehicle fuel tank.
Level 1	
❑	Continue with previous actions.
❑	Establish communication with the Public Protection Group Supervisor.
❑	Implement Incident Action Plan in coordination with the Public Protection Group Supervisor.
❑	If safe to do so, perform air quality monitoring with hand-held aspirating detectors until mobile air quality monitoring unit arrives.
❑	Confirm dispatch of the mobile air quality monitoring unit, if required.
Level 2	
❑	Continue with previous actions.
❑	Track the plume perimeter and record measured concentration.
❑	Where a release has the possibility of being sustained, the EPZ must be redefined using mobile monitoring vehicles equipped with devices to continuously measure and record wind speed, directions and concentrations.
❑	Air quality monitoring must occur downwind with priority being directed to the nearest un-evacuated residence or area where people may be present.
❑	If the EPZ includes a portion of an urban density development, mobilize sufficient air quality monitoring units so that one unit will be dedicated to the urban density development.
❑	In coordination with the Public Protection Group Supervisor, provide monitored information to applicable Regulatory Authority, local authority, local health authority and environmental authority on a regular basis throughout the emergency.
❑	Update the Public Protection Group Supervisor of status at scheduled intervals.
Level 3	
❑	Continue with previous actions.
❑	Ensure the EPZ is being monitored effectively.
❑	Provide Air Quality Monitoring Record reports to the Public Protection Group Supervisor.
❑	Update the Public Protection Group Supervisor of status at scheduled intervals.

AIR QUALITY MONITORING TEAM LEADER

AIR QUALITY MONITORING

AIR QUALITY MONITORING TEAM LEADER

Deactivation	
❑	Collect and submit all reports and documents to the Public Protection Group Supervisor.
❑	Determine from the Public Protection Group Supervisor if your position will require any follow up actions before you leave the scene.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

Forms	
❑	ICS 214 – Activity Log
❑	Environmental Monitoring Record

3.5.4 Reception Team Leader

The Reception Team Leader is responsible for establishing a Reception Centre at a suitable location outside the EPZ and addressing the concerns and immediate needs of evacuated stakeholders.

RECEPTION TEAM LEADER	
Location	
	Reception Centre.
Takes Direction From	
❑	Public Protection Group Supervisor.
Confers With	
❑	Public Protection Team.
Gives Direction To	
❑	Evacuated stakeholders.
Alert/Minor	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Prepare reception centre kit (pen, paper, area phone book, registration forms, and title badges).
Level 1	
❑	Continue with previous actions.
❑	Identify appropriate Reception Centre.
❑	Contact reception centre to make necessary arrangements.
❑	Implement Incident Action Plan in coordination with the Public Protection Group Supervisor.
❑	Proceed to designated Reception Centre and prepare facility to receive evacuees if evacuation is probable.
❑	Set up communication with the Public Protection Group Supervisor.
Level 2	
❑	Continue with previous actions.
❑	Receive evacuees and record names of evacuees who arrive at the Reception Centre.
❑	Receive school children who live inside the EPZ whose school buses have been redirected to the Reception Centre. Children must be supervised until they are picked up by their parents or guardians.
❑	If necessary, arrange for a school administrator to come to the Reception Centre.
❑	Address evacuees' immediate needs for food and housing.
❑	Provide information to the evacuees on the status of the incident.
❑	Record details of temporary destinations and contact numbers when evacuees leave the Reception Centre.
❑	Discuss immediate expense issues.
❑	Relay concerns regarding requirements for ongoing care of livestock to the Public Protection Group Supervisor, if applicable.
❑	Provide support to evacuees who may be emotionally upset.
❑	Update the Public Protection Group Supervisor of status at scheduled intervals.
Level 3	
❑	Continue with previous actions.
❑	Verify with Public Protection Group Supervisor that all members of the public have been evacuated.
❑	Continue with status updates for residents and other concerned members of the public.
❑	Update telephone contacts for evacuees as required.
❑	Update the Public Protection Group Supervisor of status at scheduled intervals.
Deactivation	
❑	Advise evacuees that they may return to their residences and arrange any assistance.
❑	Collect and document all evacuation expense claims, provide copies to the Site Finance Section Chief and/or CEOC Finance Chief, if activated.
❑	Provide Company phone number in the event of additional concerns or questions.
❑	Participate in post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

Forms	
❑	ICS 214 – Activity Log
❑	Evacuee Expense Claim Form
❑	Reception Centre Registration Form

3.5.5 Telephone Team Leader

The Telephone Team Leader is responsible for contacting impacted stakeholders to provide updates regarding any emergency situation when necessary. Communication will be facilitated using the appropriate scripts as a guide.

TELEPHONE TEAM LEADER	
Location	
❑	Location not pre-determined.
Takes Direction From	
❑	Public Protection Group Supervisor.
Confers With	
❑	Public Protection Team.
Gives Direction To (via Telephone Team)	
❑	Area Stakeholders.
Alert/Minor	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Review the ERP map.
❑	Assemble required telephone team forms.
❑	Review area stakeholder list and phone numbers, if applicable.
❑	Review the Communication Plan scripts.
❑	Identify appropriate space and communication devices to facilitate stakeholder telephone notification, if required.
Level 1	
❑	Continue with previous actions.
❑	Implement Incident Action Plan in coordination with the Public Protection Group Supervisor.
❑	Standby and prepare to initiate stakeholder telephone notification.
❑	Prepare evacuation or shelter-in-place phone messages based on direction from the Public Protection Group Supervisor. Use scripts in the manual for consistent wording and clarity.
❑	Notify stakeholders and other area users inside the EPZ so they may choose whether to voluntarily evacuate.
❑	An automated telephone notification system can be used but prepare to follow-up the automated system with personal contact from the Telephoner Team.
❑	Record all details of contacts using the Stakeholder Contact Record for documentation.
❑	Advise the Public Protection Group Supervisor about stakeholders requiring assistance.
❑	Update the Public Protection Group Supervisor of status.
Level 2	
❑	Continue with previous actions.
❑	Contact stakeholders and other area users in EPZ and advise them to evacuate.
❑	Confirm the location of the Reception Centre so coordination with stakeholders can occur.
❑	If school is in session, contact impacted schools and school bus authorities. This contact is not to be made by an automated telephone system.
❑	Coordinate with the Reception Team Leader and request a school administrator assist with the effective management of the students and parents at the Reception Centre.
❑	Document and track the status of stakeholders who have evacuated or sheltered.
❑	Update the Public Protection Group Supervisor of status at scheduled intervals.
Level 3	
❑	Continue with previous actions.
❑	Continue phoning stakeholders who have been unreachable.
❑	Remain on standby to assist with telephone calls as required.
❑	Update the Public Protection Group Supervisor of status at scheduled intervals.

TELEPHONE TEAM

TELEPHONE TEAM LEADER	
Deactivation	
❑	As instructed by the Public Protection Group Supervisor, advise all evacuees that they may return.
❑	Ensure a post-incident telephone message is communicated to the public impacted by the emergency.
❑	Collect and submit all reports and documents to the Public Protection Group Supervisor.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix
❑	Stakeholder Contact Record

3.6 On-Site Group Supervisor

The On-Site Group Supervisor is responsible for establishing the On-Site Command Post and coordinating personnel and equipment to address control, containment and recovery from the incident.

ON-SITE GROUP SUPERVISOR	
Location	
❑	On-Site Command Post.
Takes Direction From	
❑	Site Operations Section Chief.
Confers With	
❑	Public Protection Group Supervisor.
Gives Direction To	
❑	Fire Control Team Leader.
❑	Isolation/Repair Team Leader.
❑	Spill Response Team Leader.
❑	Site Security Team Leader.
❑	Ignition Team Leader.
Alert/Minor	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Identify hazards.
❑	Attend to medical needs.
❑	Request emergency medical services, as required.
❑	Isolate the scene.
Level 1	
❑	Continue with previous actions.
❑	Establish communication with the Site Operations Section Chief.
❑	Discuss the incident situation and actions to be taken with the Site Operations Section Chief.
❑	Release non-essential personnel.
❑	Isolate the immediate area until the Public Protection Group Supervisor assumes this responsibility.
❑	Activate appropriate Source Control Team Leaders to address the incident.
❑	Ensure all on-site personnel follow the appropriate safe work procedures.
❑	Ensure all on-site personnel have the appropriate training and personal protective equipment.
❑	Assess the requirements for on-site safety supervision, equipment, and personnel.
❑	Coordinate on-site responses to gain control, shutdown, isolate, and depressure equipment, as required.
❑	Review dangerous conditions near the incident site. For example fuel leaks, toxic gas releases, oxygen deficiency, BLEVE, ignition sources, and chemical leaks.
❑	Build dykes with available materials to stop leaks from travelling off-lease or into waterways.
❑	Evaluate ignition criteria and communicate with the Site Operations Section Chief regarding ignition decision.
❑	Obtain spill samples as required and monitor environment for adverse effects.
❑	Record and report all readings at established intervals to the Site Operations Section Chief.
Level 2	
❑	Continue with previous actions.
❑	Update the Site Operations Section Chief of status.
❑	Continue spill sampling.
❑	Ensure field responders are promptly notified of any status updates.
❑	Continually reassess the situation and the risk to life and safety.
❑	In conjunction with the Site Operations Section Chief, choose a qualified ignition team, discuss ignition duties, and check ignition equipment in advance of meeting any ignition criteria.
❑	Confirm with the Site Operations Section Chief that you have the authority to ignite, if required.

ON-SITE GROUP SUPERVISOR

ON-SITE GROUP SUPERVISOR	
Level 3	
❑	Continue with previous actions.
❑	Update the Site Operations Section Chief of status at scheduled intervals.
❑	Initiate ignition procedure if ignition criteria have been met (upon consultation with Site Operations Section Chief).
Deactivation	
❑	Ensure site is safe.
❑	Ensure the incident site is not disturbed until all necessary site investigations have been completed by the appropriate authority.
❑	Ensure all work areas, safety equipment, machinery, and tools are cleaned, repaired, and returned to their proper location.
❑	Ensure that on-site personnel and equipment including contracted services are decontaminated before leaving the incident site.
❑	Complete and submit all documents to the Site Operations Section Chief.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in any Critical Stress Incident Debriefing, as required.

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix
❑	Spill/Release Written Report Form

3.6.1 Fire Control Team Leader

The Fire Control Team Leader is responsible for coordinating the fire suppression efforts with the local fire department, industrial firefighting contractors, and the On-Site Team members.

FIRE CONTROL TEAM LEADER	
Location	
	On-Site Command Post.
Takes Direction From	
❑	On-Site Group Supervisor.
Confers With	
❑	Local Fire Department.
❑	Industrial Firefighters.
❑	On-Site Team.
Gives Direction To	
❑	On-Site Fire Control Personnel.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Inventory number, type and location of fire extinguishers.
❑	Proactive notification to local Fire Department.
❑	Establish communication with the On-Site Group Supervisor.
❑	Determine classification of fire.
❑	Implement Incident Action Plan in coordination with the On-Site Group Supervisor.
❑	Request assistance from local Fire Department or Industrial Firefighters.
❑	Use a fire extinguisher only when it can be done safely.
❑	Contain fire until fire department or additional firefighting resources arrive.
Deactivation	
❑	Ensure site is safe.
❑	Ensure all work areas, safety equipment, machinery, and tools are cleaned, repaired, and returned to their proper location.
❑	Complete and submit all documents to the On-Site Group Supervisor.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in any Critical Stress Incident Debriefing, as required.

Forms	
❑	ICS 214 – Activity Log

3.6.2 Isolation/Repair Team Leader

The Isolation/Repair Team Leader is responsible for emergency shutdown, isolation, depressurization, troubleshooting, and repair efforts with the On-Site isolation/repair personnel and the On-Site Team members.

ISOLATION/REPAIR TEAM LEADER	
Location	
	On-Site Command Post.
Takes Direction From	
❑	On-Site Group Supervisor.
Confers With	
❑	On-Site Team.
Gives Direction To	
❑	On-Site isolation/repair personnel.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Identify hazards involved.
❑	Account for all personnel on-site.
❑	Evacuate immediate work area.
❑	Go to muster point.
❑	When possible confirm situation with back-up personnel.
❑	Determine if situation requires isolation and/or emergency shutdown of an individual piece of equipment.
❑	Determine if situation requires complete shutdown of facility.
❑	Contact the On-Site Group Supervisor for further instructions and provide the exact location of the incident.
❑	Implement Incident Action Plan in coordination with the On-Site Group Supervisor.
Deactivation	
❑	Ensure site is safe.
❑	Ensure all work areas, safety equipment, machinery, and tools are cleaned, repaired, and returned to their proper location.
❑	Complete and submit all documents to the On-Site Group Supervisor.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in any Critical Stress Incident Debriefing, as required.

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix

3.6.3 Spill Response Team Leader

The Spill Response Team Leader is responsible for coordinating spill, containment, and clean-up efforts to minimize impairment to the environment, human health, or property.

SPILL RESPONSE TEAM LEADER	
Location	
	On-Site Command Post
Takes Direction From	
❑	On-Site Group Supervisor.
Confers With	
❑	On-Site Team.
Gives Direction To	
❑	Spill Responders.
Alert/Minor	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Collect date, time, name, and contact numbers from the person who reports the spill.
❑	Dispatch initial responders to incident site.
❑	Establish site control.
❑	Analyze the situation.
❑	Establish a muster point.
❑	Identify the type and volume of spill product.
❑	Report the incident to the On-Site Group Supervisor.
❑	Implement spill response objectives in coordination with the On-Site Group Supervisor.
Level 1	
❑	Continue with previous actions.
❑	Dispatch spill responders and equipment to the incident site.
❑	Control all access to the incident site.
❑	Identify the contamination zone, support zone, and equipment staging area.
❑	Identify an emergency signal, escape routes, and meeting location for response personnel.
❑	Place a wind indicator at appropriate locations.
❑	Establish an entry and exit checkpoint at the periphery of the incident site.
❑	Monitor weather conditions that could hinder the spill response.
❑	Identify area stakeholders and environmental sensitivities.
❑	Identify designated spill control points.
❑	Initiate containment and recovery operations.
❑	Develop a waste management plan.
❑	Develop sampling and analysis strategy.
Level 2	
❑	Continue with previous actions.
❑	Establish a bulletin board.
❑	Post site safety plan, SDS, crew roster sheets, status reports, and other relevant information.
❑	Obtain radios and megaphones to direct communications on-site.
❑	Establish first aid station in a visible area with appropriate facilities and supplies.
❑	Establish a decontamination area where responders can remove contaminated clothing, wash up, and return clean equipment.
❑	Create diagrams of response strategies, e.g. trenching berm, setting up a boom, blocking a culvert, etc.

SPILL RESPONSE TEAM LEADER

SPILL RESPONSE TEAM LEADER	
Level 3	
❑	Continue with previous actions.
Deactivation	
❑	Ensure site is safe.
❑	Ensure all work areas, safety and spill equipment, machinery, and tools are cleaned, repaired, and returned to their proper location.
❑	Complete and submit all documents to the On-Site Group Supervisor.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in any Critical Stress Incident Debriefing, as required.

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix
❑	Spill/Release Written Report Form

3.6.4 Security Team Leader

The Security Team Leader is responsible for the security of the site and establishing boundaries to prevent unauthorized entry.

SECURITY TEAM LEADER	
Location	
	On-Site Command Post.
Takes Direction From	
❑	On-Site Group Supervisor.
Confers With	
❑	On-Site Team.
Gives Direction To	
❑	Security Personnel.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Investigate and report a security breach that has the potential to impact people, property, or the environment.
❑	Monitor and ensure security of the site.
❑	Develop security guidelines for the site and potentially affected area.
❑	Establish communication with the On-Site Group Supervisor at scheduled intervals.
❑	Implement Incident Action Plan in coordination with the On-Site Group Supervisor.
❑	Establish a security perimeter.
❑	Control access to the incident site of non-essential personnel.
❑	Report any significant or unusual activities immediately to the On-Site Group Supervisor.
Deactivation	
❑	Complete and submit all documents to the On-Site Group Supervisor.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in any Critical Stress Incident Debriefing, as required.

SECURITY TEAM LEADER

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix
❑	Roadblock Checkpoint Record

3.6.5 *Ignition Team Leader*

The Ignition Team Leader is responsible for reviewing pre-ignition considerations, preparing ignition equipment and assembling a trained ignition team in the event that ignition criteria is met.

IGNITION TEAM LEADER	
Location	
	On-Site Command Post.
Takes Direction From	
❑	On-Site Group Supervisor in coordination with the Site Operations Section Chief and Incident Commander.
Confers With	
❑	On-Site Team.
Gives Direction To	
❑	Ignition Team Members.
Alert/Minor	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Consider safety and health risks to emergency personnel.
❑	Consider proximity of release to public areas.
❑	Consider availability of air monitoring equipment and personnel.
❑	Consider detectable concentrations of H_2S and/or flammable gases near the source of the release and within the EPZ.
❑	Consider weather conditions.
❑	Consider duration of the release and potential volume.
❑	Consider impacts to livestock.
❑	Consider impacts to other values at risk including property, timber, or infrastructure.
Level 1	
❑	Continue with previous actions.
❑	Establish communication with the On-Site Group Supervisor.
❑	Implement Incident Action Plan in coordination with the On-Site Group Supervisor.
❑	Review ignition procedures.
❑	Review ignition criteria.
❑	Review flare gun manufacturer's loading instructions and specifications.
❑	Prepare ignition equipment.
❑	Review training of ignition team members.
Level 2	
❑	Continue with previous actions.
❑	Assemble an adequate ignition team, ideally containing four members but never fewer than two members so that there is at least one person for rescue backup.
❑	Carry out pre-ignition planning.
❑	Monitor the area for combustible gas.
❑	Erect windsock and streamers, if time permits.
❑	If it is not an urgent situation and time permits, consultation with the On-Site Group Supervisor, Site Operations Section Chief, Incident Commander, CEOC Operations Chief, and Regulatory authorities should be made regarding ignition.
Level 3	
❑	Continue with previous actions.
❑	Assemble an adequate ignition team, ideally containing four members but never with fewer than two members so that there is one person for rescue backup.
❑	Carry out pre-ignition planning.
❑	Monitor the area for combustible gas.
❑	If time permits, consultation with the On-Site Group Supervisor, Site Operations Section Chief, Incident Commander, CEOC Operations Chief, and Regulatory authorities should be made regarding ignition.

IGNITION TEAM

IGNITION TEAM LEADER	
Deactivation	
❑	Ensure all work areas, safety equipment, machinery and tools are cleaned, repaired and returned to their proper location.
❑	Complete and submit all documents to the On-Site Group Supervisor.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in any Critical Stress Incident Debriefing, as required.

Forms	
❑	ICS 214 – Activity Log
❑	Stakeholder Contact Record
❑	Environmental Monitoring Record

3.7 Staging Area Manager

The Staging Area Manager oversees and controls the movement of equipment, services, and personnel at the staging area.

STAGING AREA MANAGER	
Location	
	Location not pre-determined.
Takes Direction From	
❑	Site Operations Section Chief.
Confers With	
❑	On-Site Team.
Gives Direction To	
❑	Contractors and suppliers.
Alert/Minor	
❑	No assigned duties during an alert/minor.
Level 1	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Proactively review area map to identify potential staging areas near the incident site and outside of the EPZ.
❑	Ensure potential staging area has an adequately sized site that is stable and level with suitable access roads.
❑	Ensure potential staging area has no entry problems such as narrow approach ways, gates, power lines, etc.
❑	Ensure potential staging area has adequate communication reception.
Level 2	
❑	Continue with previous actions.
❑	Ensure approval has been obtained from landowner.
❑	Establish a staging area.
❑	Erect staging area information and directional signs to the staging area, if required.
❑	Flag the perimeter of the staging area.
❑	Obtain an office trailer and emergency lighting, if required.
❑	Advise the Site Operations Section Chief about the location and directions to the staging area.
❑	Respond to Site Operations Section Chief's request for resources.
❑	Coordinate and maintain a log of personnel and services.
❑	Maintain a copy of the ICS 211 - Check-In List, provide a completed copy of all resources that are available, in use, and out of service to the Site Operations Section Chief and CEOC Finance Chief.
Level 3	
❑	Continue with previous actions.
❑	Continue coordinating staging area operations support requirements until incident is concluded.
Deactivation	
❑	Demobilize or move staging area in accordance with incident demobilization plan.
❑	Remove all equipment and supplies and coordinate clean-up of the staging area.
❑	Participate in post-incident debriefing held by the Incident Commander.
❑	Participate in any Critical Incident Stress Debriefing, as required.

Forms	
❑	ICS 211 – Check-In List
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix

3.8 Site Safety Officer

The role of the Site Safety Officer is to develop and recommend measures for assuring the safety of all personnel, as well as to assess and anticipate hazardous situations. The Site Safety Officer reviews the site Incident Action Plan for safety concerns and discontinues any operation which threatens the health and safety of responders.

SITE SAFETY OFFICER	
Location	
	Incident Command Post.
Takes Direction From	
❑	Incident Commander.
Confers With	
❑	Site Section Chiefs.
❑	Site Liaison Officers.
Gives Direction To	
❑	Site Operations Section Chief.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Continually evaluate risks and identify hazardous situations associated with the incident.
❑	Assertively make safety concerns known to the Incident Commander.
❑	Exercise emergency authority to stop and prevent unsafe acts.
❑	Prepare ICS 215A – Incident Action Plan Safety Analysis, collaborate with the Site Operations Section Chief in the development of the ICS 215A.
❑	Confirm all workers have required training before they are dispatched to the incident.
❑	Prepare ICS 206 – Medical Plan for the operational period. To be provided to all Command and General Staff as part of the Incident Action Plan (IAP).
❑	Prepare ICS 208 - Safety Message / Plan for the operational period - can be included as part of the IAP.
❑	Review the complete Incident Action Plan for safety implications.
❑	Complete safety message for operation period on the Incident Action Plan.
❑	Conduct responder safety orientations, if required.
❑	Ensure the proper use of personal protective equipment.
❑	Ensure that responder personnel are taking appropriate actions; safe work procedures, proper grounding, bonding procedures, working in teams, etc.
❑	Ensure workers who show signs of stress, fatigue or adverse symptoms are demobilized and sent for treatment, if necessary.
❑	Recommend alternatives for activities which are considered to be unsafe.
❑	Ensure incident casualties receive first aid and ongoing care.
❑	If any serious injuries occur, ensure the incident scene remains undisturbed, if possible, until there has been a thorough investigation.
❑	Investigate accidents that have occurred within the incident area.
❑	Document all injuries and on-site medical treatments.
❑	Review and approve the medical plan if implemented.
❑	Ensure safe and adequate lighting is in place as required.
❑	Ensure only intrinsically safe radios are used in the incident area.
❑	Ensure that nobody, including contract personnel, works alone.
❑	Participate in planning meetings.
❑	Continue to follow up and maintain safety responsibilities.
Deactivation	
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

SITE SAFETY OFFICER

Forms	
❑	ICS 206 – Medical Plan
❑	ICS 208 – Safety Message / Plan
❑	ICS 214 – Activity Log
❑	ICS 215A – Incident Action Plan Safety Analysis
❑	Environmental Monitoring Record

3.9 Site Liaison Officer

The Site Liaison Officer interfaces with field government agency representatives who arrive at the Incident Command Post. The objective of the Site Liaison Officer is to ensure there is collaborative communication with the field government agency representatives and to report communications to the Incident Commander.

SITE LIAISON OFFICER	
Location	
❑	Incident Command Post.
❑	Government Emergency Operations Centre (Level 2 and 3).
Takes Direction From	
❑	Incident Commander.
Confers With	
❑	Site Section Chiefs.
❑	Site Safety Officer.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Receive briefing from Incident Commander.
❑	Evaluate which government agencies have jurisdiction inside the planning zone.
❑	In coordination with the Incident Commander, ensure Regulatory Authority notification according to the applicable requirements.
❑	Refer to the Notification Requirements for Key Government Agencies and Resources in the Jurisdictional section of this document.
❑	Determine which government and regulatory notifications have been completed.
❑	Receive representatives from the Regulatory Authority, the local authority, and local regional health authority, at the Incident Command Post, if they arrive on-scene.
❑	Coordinate the flow of information to and from the government agencies who are present.
❑	Update the Incident Commander.
❑	Travel to the Government Emergency Operations Centre, if necessary.
Deactivation	
❑	Participate in post-incident debriefing held by Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix
❑	Status Board

3.10 Site Scribe

The Site Scribe provides documentation and administrative assistance to the Incident Command Post. This includes the recording of meeting minutes, information filing, and reproduction tasks. If required, a Scribe may be assigned to solely maintain a written record of the incident response.

SITE SCRIBE		
Location		
	Incident Command Post.	
Takes Direction From		
❑	Incident Commander.	
All Levels		
❑	Document all activities utilizing the ICS 214 – Activity Log.	
❑	Maintain a chronological summary of the incident response activities.	
❑	Record names of personnel in each assigned response position and their location utilizing ICS 211 – Check-In List and ICS 207 – Incident Organization Chart.	
❑	Record control and containment measures.	
❑	Record environmental monitoring information.	
❑	Record injuries, deaths, and missing persons.	
❑	Record phone calls.	
❑	Record decisions.	
❑	Record actions.	
❑	Record status of the public protection actions.	
❑	Collect documentation from response team members.	
❑	Maintain a consistent system for organizing the data.	
Deactivation		
❑	Participate in the post-incident debriefing held by the Incident Commander.	
❑	Participate in the Critical Incident Stress Debriefing as required.	

Forms	
❑	ICS 207 – Incident Organization Chart (may be completed by Site Planning Section Chief, if assigned)
❑	ICS 211 – Check-In List
❑	ICS 214 – Activity Log
❑	Environmental Monitoring Record
❑	ICS 234 – Work Analysis Matrix
❑	Status Board

3.11 Site Planning Section Chief

The Site Planning Section Chief is responsible for strategic planning, evaluating and processing information for use in the development of the Incident Action Plan. Disseminating information can be in the form of the Incident Action Plan, formal briefings, or status board displays.

SITE PLANNING SECTION CHIEF	
Location	
❑	Incident Command Post.
Takes Direction From	
❑	Incident Commander.
Confers With	
❑	Site Section Chiefs.
❑	Site Liaison.
❑	Site Safety Officer.
Gives Direction To	
❑	Site Section Chiefs.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Prepare the ICS 202 – Incident Objectives Form following each Command and General Staff Meeting. Obtain sign-off from Incident Commander prior to dissemination as part of the Incident Action Plan.
❑	Prepare for the Planning Meeting. Review ICS 215 – Operational Planning Worksheet developed in the Tactics Meeting. Review ICS 215A – Incident Action Plan Safety Analysis – prepared by the Site Safety Officer.
❑	Assess current operations effectiveness and resource efficiency, gather information to support incident management decisions.
❑	Facilitate Planning Meeting with Command and General Staff. Review. Validate the operational plan as proposed by the Site Operations Section Chief.
❑	Prepare the ICS 203 – Organization Assignment List with information on all positions currently activated, include the names of personnel staffing each position. ICS 203 serves as part of the Incident Action Plan.
❑	Compile the complete Incident Action Plan to include ICS 202 – Incident Objectives, ICS 203 Organization Assignment List, ICS 204 – Assignment List, ICS 206 Medical Plan and possibly ICS 208 Safety Message Plan.
❑	Distribute Incident Action Plan to the Incident Commander for approval prior to disseminating to Command and General Staff.
❑	Assess the current situation and prepare an incident response strategy considering "what if" scenarios.
❑	Assemble information and propose alternative strategies.
❑	Compile and display incident information on the Status Board.
❑	Using the information contained within the ICS 203 – Organization Assignment List, continuously monitor and update ICS 207 – Incident Organization Chart.
❑	In a prolonged incident, ensure site response strategies are considered. Develop the ICS 209 – Incident Status Summary, as required.
Deactivation	
❑	Develop plan for demobilization. Utilize ICS 221 – Demobilization Check-Out Form.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

SITE PLANNING SECTION CHIEF

Forms	
❑	ICS 202 – Incident Objectives
❑	ICS 203 – Organization Assignment List
❑	ICS 207 – Incident Organization Chart
❑	ICS 209 – Incident Status Summary (to be completed following a significant incident)
❑	ICS 214 – Activity Log
❑	ICS 221 – Demobilization Check-Out
❑	ICS 230 – Daily Meeting Schedule

3.12 Site Logistics Section Chief

The Logistics Section Chief assists the response effort by procuring equipment and support services.

SITE LOGISTICS SECTION CHIEF	
Location	
❑	Incident Command Post.
Takes Direction From	
❑	Incident Commander.
Confers With	
❑	Site Section Chiefs.
❑	Site Liaison.
❑	Site Safety Officer.
Gives Direction To	
❑	Site Section Chiefs.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Develop and implement Incident Action Plan in coordination with the Site Section Chiefs and Incident Commander.
❑	Procure supplies.
❑	Procure transportation services.
❑	Procure equipment.
❑	Procure manpower.
❑	Procure communications systems.
❑	Procure oil spill contractor/cooperative services.
❑	Procure catering services for the responders.
❑	In a prolonged incident, identify and obtain accommodations for responders.
Deactivation	
❑	Notify all services and suppliers of the stand-down of the incident.
❑	Forward all data related to the incident to the Incident Commander.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix

3.13 Site Finance Section Chief

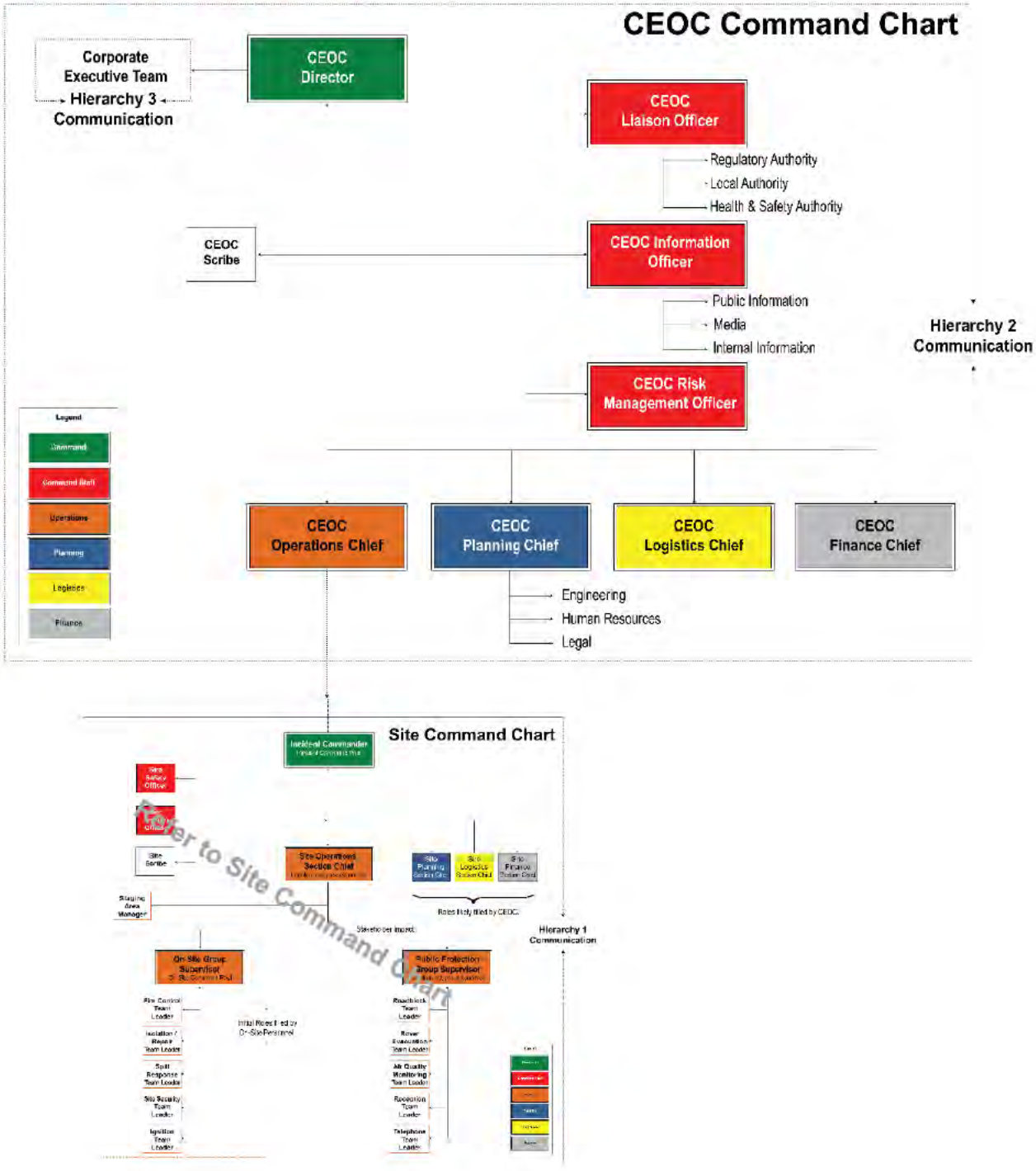
The Site Finance Section Chief is responsible for tracking cost, time compensation and claims. This role, when filled by field personnel, is to provide financial administrative support to the CEOC.

SITE FINANCE SECTION CHIEF	
Location	
	Incident Command Post.
Takes Direction From	
❑	Incident Commander.
Confers With	
❑	Site Section Chiefs.
❑	Site Liaison.
❑	Site Safety Officer.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Obtain briefings from the Incident Commander.
❑	Account for costs.
❑	Track time.
❑	Adhere to procurement procedures.
❑	Track compensation and claims.
❑	Attend planning meetings.
❑	Submit reports and expense claims to the CEOC Financial Department.
Deactivation	
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

Forms	
❑	ICS 214 – Activity Log
❑	Evacuee Expense Claim Form

4.0 CEOC INCIDENT COMMAND STRUCTURE - ROLES AND RESPONSIBILITIES

4.1 CEOC Command Chart



4.2 CEOC Director

The CEOC Director provides advice and support to the CEOC Chiefs. The CEOC Director provides overall policy direction and has the final decision authority.

CEOC DIRECTOR	
Location	
	Corporate Emergency Operations Centre.
Confers With	
❑	Corporate Executive Team.
Gives Direction To	
❑	CEOC Chiefs.
❑	CEOC Liaison Officer.
❑	CEOC Risk Management Officer.
❑	CEOC Information Officer.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Advise the Corporate Executive Team.
❑	In consultation with the CEOC Operations Chief, develop and implement a comprehensive response plan for the incident.
❑	Evaluate the CEOC Operations Chief's actions.
❑	Make CEOC Operations Chief aware of external expertise and services that can be provided.
❑	Ensure personnel and expertise from Engineering, Human Resources, and Legal are available as required to support the incident response activities.
❑	Confirm the status of the incident.
❑	Estimate the maximum impact and duration of the incident.
❑	Determine the impact on the public.
❑	Determine business continuity issues.
❑	Advise on corporate responsibilities.
❑	Advise on any internal company policies.
❑	Identify agencies (government and regulatory) with jurisdiction related to the incident.
❑	If incident escalates ensure that the CEOC Liaison Officer role is filled.
❑	Ensure that CEOC Liaison Officer is coordinating communication between government agencies and company personnel as required.
❑	Ensure ongoing internal communication, as appropriate.
❑	Approve major capital financial support as required.
❑	Advise and support the CEOC Information Officer regarding media and public statements.
Deactivation	
❑	Ensure the CEOC Liaison Officer, in coordination with the Regulatory Authority agree that there is consensus to downgrade emergency.
❑	Ensure the CEOC Liaison Officer has notified all previously contacted government agencies of the decision to downgrade the emergency.
❑	Ensure all records and reports are gathered in their original state, for accurate post-incident review.
❑	Ensure all CEOC Team Members are notified.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.
❑	Approve final release of incident reports in coordination with the legal department.

Forms	
❑	ICS 214 – Activity Log.

4.3 CEOC Operations Chief

The CEOC Operations Chief is the main link between Site Command, the Corporate Emergency Operations Centre and is the main informant for the CEOC Director. The CEOC Operations Chief speaks directly with the Incident Commander.

The CEOC Operations Chief provides operational, public safety, planning and logistics advice and support to assist the Incident Commander with developing an effective field Incident Action Plan (IAP).

CEOC OPERATIONS CHIEF	
Location	
	Corporate Emergency Operations Centre.
Takes Direction From	
❑	CEOC Director.
Confers With	
❑	CEOC Chiefs.
❑	CEOC Liaison Officer.
❑	CEOC Risk Management Officer.
❑	CEOC Information Officer.
Gives Direction To	
❑	Incident Commander.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Establish method of communications with the Incident Commander.
❑	Schedule regular briefings with the Incident Commander.
❑	Dedicate a phone line to the Incident Commander.
❑	Confer with the Incident Commander to ascertain the level of emergency.
❑	Activate the CEOC.
❑	Appoint CEOC team members.
❑	Complete the CEOC team and site command team assignment charts.
❑	Schedule regular briefings with the CEOC team members and clarify objectives as necessary.
❑	Ensure the Status Board and ICS 234 - Work Analysis Matrix are prominently displayed in the CEOC.
❑	Develop Incident Action Plan in coordination with the CEOC team members and Incident Commander.
❑	Ensure public protection and responder safety issues are being addressed.
❑	Discuss actions with the Incident Commander and provide support until situation is normalized.
❑	Verify the boundaries of the emergency response planning zones.
❑	Discuss shelter and/or evacuation plan, as required.
❑	Discuss transient surveys plan, as required.
❑	Discuss mobile air quality monitoring plan, as required.
❑	Discuss the area isolation and roadblock plan, as required.
❑	Verify that adequate containment and recovery measures are initiated.
❑	Evaluate which government agencies have jurisdiction inside the emergency response zones.
❑	In coordination with the Incident Commander, ensure Regulatory Authority notification according to the applicable requirements.
❑	Refer to the Notification Requirements for Key Government Agencies and Resources in the Jurisdictional section of this document.
❑	Designate CEOC Liaison Officer and direct him/her to communicate with Regulatory Authority, environmental agency, health authority, local authority, occupational health and safety authority, and pressure vessel authority.
❑	Ensure Regulatory Authority notification according to the applicable requirements.
❑	Ensure the applicable reporting form has been completed and submitted to the applicable Regulatory Authority.

CEOC OPERATIONS CHIEF

CEOC OPERATIONS CHIEF

CEOC OPERATIONS CHIEF	
❑	Ensure confirmation of the level of emergency with Regulatory Authority.
❑	Notify the applicable Regulatory Authority if the public or media has been contacted.
❑	Evaluate ignition criteria and communicate with the Incident Commander and applicable Regulatory Authority regarding ignition decision.
❑	Ensure other required government authorities have been notified (e.g. environmental agency, local health authority, local authority, occupational health and safety authority, and pressure vessel authority).
❑	Ensure monitoring data is being provided to the appropriate regulatory agencies via the CEOC Liaison Officer.
❑	Assess the potential for media interest and the need to notify the CEOC Information Officer.
❑	Direct media communication to CEOC Information Officer.
❑	Ensure communication with all previously contacted agencies is maintained throughout the incident duration at set frequencies, until the incident is downgraded.
❑	Assess corporate responsibility with regards to health, environment, community, and business impacts including joint venture partner notification.
❑	Keep the CEOC Director and Corporate Executive Team advised of ongoing events.
❑	Discuss business continuity concerns with CEOC Director.
❑	Assess the incident situation with regards to both short and long-term implications.
❑	For prolonged incidents, ensure provisions for relieving and rotating staff on a regular basis.
Deactivation	
❑	In consultation with the Incident Commander and the applicable Regulatory Authority, downgrade the emergency.
❑	Ensure all appropriate agencies previously notified of the emergency are notified of the stand-down of the emergency.
❑	Ensure all evacuees are notified of the stand-down of the emergency.
❑	In consultation with the CEOC Information Officer, ensure the media is notified of the stand-down of emergency.
❑	Confirm with the Incident Commander that all evacuees are being assisted in returning to their residences/businesses.
❑	Ensure follow-up meetings are held with affected residents/landowners.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Ensure Critical Incident Stress Debriefing for responders is coordinated by the Human Resources Department.
❑	Participate in any Critical Incident Stress Debriefing.

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix
❑	Notification Record
❑	Status Board

4.4 CEOC Liaison Officer

The CEOC Liaison Officer interfaces with government agencies to determine their response capabilities at the time of the incident and to provide incident status reports. The mandate of the CEOC Liaison Officer is to develop an integrated response to the incident with the Regulatory Authority and Government Agencies.

CEOC LIAISON OFFICER	
Location	
	Corporate Emergency Operations Centre.
	Government Emergency Operations Centre (Level 2 and 3).
Takes Direction From	
❑	CEOC Director.
Confers With	
❑	CEOC Chiefs.
❑	CEOC Information Officer.
❑	CEOC Risk Management Officer.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Receive briefing from CEOC Operations Chief.
❑	Evaluate which government agencies have jurisdiction inside the planning zone and response zones.
❑	In coordination with the CEOC Operations Chief, ensure Regulatory Authority notification according to the applicable requirements.
❑	Refer to the Notification Requirements for Key Government Agencies and Resources in the Jurisdictional section of this document.
❑	Determine which government and regulatory notifications have been completed.
❑	Develop a communication strategy with those government agencies who need to be contacted.
❑	Address inquiries from and obtain information required by the government agencies.
❑	Fill out and submit the forms as provided by the applicable government and/or Regulatory Authority.
❑	Coordinate the flow of communication to and from the government agencies.
❑	Coordinate the use of expertise and resources available through the government agencies.
❑	Travel to the Government Emergency Operations Centre, if necessary.
❑	Update all previous contacts of change in status.
Deactivation	
❑	In coordination with the Regulatory Authority ensure that there is consensus to downgrade the emergency.
❑	Notify all previously contacted government agencies of the decision to downgrade the emergency.
❑	Participate in post-incident debriefing held by Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

CEOC LIAISON OFFICER

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix
❑	Government/Regulatory Reporting Form
❑	Status Board

4.5 CEOC Information Officer

The CEOC Information Officer will develop a communication strategy to ensure information and releases are appropriate, consistent, accurate, and timely. He/she implements the communication plan, providing media information support and serving as the dissemination point for all media releases.

The CEOC Information Officer ensures the affected public receives ongoing information about emergency status, relief programs, and services.

CEOC INFORMATION OFFICER	
Location	
	Corporate Emergency Operations Centre.
Takes Direction From	
❑	CEOC Director.
Confers With	
❑	CEOC Chiefs.
❑	CEOC Liaison Officer.
❑	CEOC Risk Management Officer.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Prepare telephone response for Company receptionists.
❑	Contact the Emergency 24-hour number attendant, if applicable and/or the Company Field Office to ensure all media enquiries are directed to the CEOC Information Officer.
❑	Monitor communication issues and incorporate into communications plan.
❑	Ensure communication channels are established and maintained with appropriate stakeholders.
❑	Assess media impacts and ensure concerns are clearly identified.
❑	Prepare all media responses with the assistance of the CEOC Director.
❑	Establish media notification schedules.
❑	Ensure all media releases are approved by the applicable Regulatory Authority prior to release.
❑	Organize news conferences.
❑	Dispatch personnel to field locations, media information centres and/or Government Emergency Operations Centre, if applicable.
❑	Ensure all other external requests are redirected to the appropriate recipient.
Deactivation	
❑	If required, continue media and public interaction.
❑	Upon direction from the CEOC Liaison Officer in coordination with the Regulatory Authority, prepare a media statement regarding the downgrade of the emergency.
❑	Participate in post-incident debriefing held by Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

CEOC INFORMATION OFFICER

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix

Use this template following the onset of an incident.

EMERGENCY COMMUNICATION PLANNING TEMPLATE

EMERGENCY COMMUNICATION PLANNING TEMPLATE	
❑	Identify the Communication Team.
❑	Activate Communication Team.
❑	Communication Team meets to assess the situation and develop communication strategies
❑	CEOC Information Officer meets with CEOC Director to determine the response and message.
❑	Communication Team prepares initial internal and external communication statements.
❑	Ensure communication statements and strategy are reviewed and approved by CEOC Director.
❑	CEOC Information Officer delivers initial internal and external messages in coordination with the applicable Regulatory Authority.
❑	Communication Team updates company website information regarding the emergency.
❑	Communication Team coordinates meetings with media and delivers approved messages.
❑	Communication Team obtains regular status reports from CEOC Director.
❑	Communication Team prepares and distributes status reports regularly on the communication situation.
❑	Communication Team prepares and delivers regular updates to stakeholders, government agencies and other relevant entities.
❑	Communication Team prepares and delivers messages on resolution of the emergency.
❑	Communication Team provides ongoing updates to internal and external parties as the situation is resolved.
❑	Communication Team is advised by CEOC Director that the emergency is over.
❑	Communication Team stands down once the emergency has been resolved.
❑	Communication Team prepares, and issues post-incident reports as needed to internal and external parties.
❑	Communication Team conducts post-incident review of and revision to the Crisis Communication Plan.

4.6 CEOC Risk Management Officer

The CEOC Risk Management Officer takes into consideration events that have the potential to impact the Company's operations and business continuity. He/she identifies appropriate strategies to mitigate the risks.

CEOC RISK MANAGEMENT OFFICER	
Location	
	Corporate Emergency Operations Centre.
Takes Direction From	
❑	CEOC Director.
Confers With	
❑	CEOC Chiefs.
❑	CEOC Liaison Officer.
❑	CEOC Information Officer.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Review the Incident Action Plan for risk management implications.
❑	Determine the severity and impact of business interruption to the company; loss of service, supply chain interruptions, catastrophic loss of critical infrastructure, etc.
❑	Establish which critical services/functions may be required for the response to the emergency.
❑	Identify the critical functions that need to be reinstated within 24-hours or are time-dependent; IT recovery, supply chain, procurement, vendors, etc.
❑	Aim to maintain the Company's minimum level of service.
Deactivation	
❑	Implement business/disaster/IT recovery procedures.
❑	Acquire the additional resources necessary for restoring business operations.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing if required.

CEOC RISK MANAGEMENT OFFICER

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix

4.7 CEOC Planning Chief

The CEOC Planning Chief leads the incident action planning process, typically thinking 12 to 36 hours in advance. He/she advises and supports the CEOC Operations Chief regarding technical assistance required for the response. The CEOC Planning Chief anticipates what actions need to be taken and recommends priorities to allocate corporate resources.

Note: The Site Planning Section Chief responsibilities may be allocated to CEOC Planning Chief dependent on the emergency level. See Site Planning Section Chief role in the previous section.

CEOC PLANNING CHIEF	
Location	
	Corporate Emergency Operations Centre.
Takes Direction From	
❑	CEOC Director.
Confers With	
❑	CEOC Chiefs.
❑	CEOC Liaison Officer.
❑	CEOC Risk Management Officer.
❑	CEOC Information Officer.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Assess the current situation and prepare an incident response strategy considering 'what if' scenarios.
❑	Develop and implement Incident Action Plan.
❑	Gather specialists (Human Resources, Engineering, Environmental, or Legal) required for the response.
❑	Ensure incident information is documented, current, and disseminated to the CEOC.
❑	Utilize the Status Board, ICS 234 – Work Analysis Matrix and Response Organizational Chart.
❑	Review the degree of success of the previous actions.
❑	Post charts, plot plans, surveys, and maps as they are developed.
❑	In a prolonged incident, ensure corporate response strategies are considered.
❑	Notify and assemble replacement personnel if the incident lasts longer than 24-hours.
Deactivation	
❑	Compile the overall post-incident action plan.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

CEOC PLANNING CHIEF

Forms	
❑	ICS 202 – Incident Objectives
❑	ICS 203 – Organization Assignment List
❑	ICS 207 – Incident Organization Chart
❑	ICS 209 – Incident Status Summary (to be completed following a significant incident)
❑	ICS 214 – Activity Log
❑	ICS 221 – Demobilization Check-Out
❑	ICS 234 – Work Analysis Matrix
❑	ICS 230 – Daily Meeting Schedule

4.7.1 Engineering

The Engineering representative is responsible for all technical supporting data (well files, diagrams, schematics, process flow diagrams, etc.) along with any other engineering support requested by the CEOC Operations Chief.

ENGINEERING	
Location	
❑	Corporate Emergency Operations Centre.
Takes Direction From	
❑	CEOC Planning Chief.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Gather the necessary information needed to resolve the emergency situation (down-hole diagrams, facility schematics, etc.).
❑	Provide engineering analysis and recommend solutions.
❑	Assist with the development of control and containment procedures.
Deactivation	
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

ENGINEERING

Forms	
❑	ICS 214 – Activity Log

4.7.2 Human Resources

The Human Resources representative is responsible for addressing employee inquiries and assisting individual employees affected by the incident.

HUMAN RESOURCES	
Location	
❑	Corporate Emergency Operations Centre.
Takes Direction From	
❑	CEOC Planning Chief.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Mobilize additional Human Resource staff as required.
❑	Sort and compile information about insurance and benefits for affected employees.
❑	As required, mobilize counsellors to provide Critical Incident Stress Debriefing to employees and families.
❑	Clarify the nature and extent of injuries to any employees or contract personnel.
❑	Coordinate next of kin notification by the police in the event of death.
❑	Coordinate any follow up next of kin notification on behalf of the Company.
❑	Ensure compliance with all regulations for employment and human resource issues.
Deactivation	
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

HUMAN RESOURCES

Forms	
❑	ICS 214 – Activity Log

4.7.3 Legal

The Legal representative will provide legal advice on response activities, documentation, and communication.

LEGAL	
Location	
❑	Corporate Emergency Operations Centre.
Takes Direction From	
❑	CEOC Planning Chief.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Council on legal matters.
❑	Evaluate liability implications of the incident.
❑	Ensure that proper documentation is gathered and preserved.
❑	Assist with legal settlement activities.
❑	Review press releases.
Deactivation	
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

LEGAL

Forms	
❑	ICS 214 – Activity Log

4.8 CEOC Logistics Chief

The CEOC Logistics Chief provides response support to the various Command Centres. This includes ordering supplies, communications, equipment, and personnel to support the emergency response activities.

Note: The Site Logistics Section Chief role may be allocated to CEOC Logistics Chief dependent on the emergency level. See Site Logistics Section Chief role in the previous section.

CEOC LOGISTICS CHIEF	
Location	
	Corporate Emergency Operations Centre.
Takes Direction From	
❑	CEOC Director.
Confers With	
❑	CEOC Chiefs.
❑	CEOC Liaison Officer.
❑	CEOC Risk Management Officer.
❑	CEOC Information Officer.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Assemble assistants as required to contact and procure equipment and services for the Response Team.
❑	Develop and implement Incident Action Plan in coordination with the CEOC Chiefs.
❑	Procure materials.
❑	Procure equipment.
❑	Procure manpower.
❑	Procure transportation.
❑	Procure communications systems.
❑	Procure catering services for the responders.
❑	Procure spill services and contractors.
❑	Procure information technology services and support.
❑	Procure medical aid capabilities.
❑	Procure lighting units.
❑	Procure sleeping and sheltering areas.
❑	Procure sanitation and showers.
❑	Determine the maintenance workload requirements and timelines.
❑	Analyze equipment readiness status.
Deactivation	
❑	Notify all services and suppliers of the stand-down of the incident.
❑	Coordinate equipment recovery and demobilization operations.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

CEOC LOGISTICS CHIEF

Forms	
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix

4.9 CEOC Finance Chief

The CEOC Finance Chief is responsible for employee and contractor time tracking, procurement procedures, compensation claims and cost accounting.

Note: The Site Finance Section Chief role may be allocated to CEOC Finance Chief dependent on the emergency level. See Site Finance Section Chief role in the previous section.

CEOC FINANCE CHIEF	
Location	
	Corporate Emergency Operations Centre.
Takes Direction From	
❑	CEOC Director.
Confers With	
❑	CEOC Chiefs.
❑	CEOC Liaison Officer.
❑	CEOC Risk Management Officer.
❑	CEOC Information Officer.
All Levels	
❑	Document all activities utilizing the ICS 214 – Activity Log.
❑	Ensure that accounting standards for response efforts are established and communicated.
❑	Approve necessary banking and funding arrangements.
❑	Approve payment authorization limit for field response team personnel.
❑	Attend CEOC planning meetings.
❑	Track procurement costs.
❑	Track compensation claims.
❑	Compile employee and contractor time tracking.
❑	Determine the level and detail of documentation required for insurance requirements.
❑	Provide guidance on effective purchasing practices to achieve cost savings for products and services.
Deactivation	
❑	Evaluate public and other third-party claims.
❑	Compile loss estimates and summarize expected financial impact.
❑	Approve compensation payments.
❑	In conjunction with the insurance company, settle claim payment.
❑	Participate in the post-incident debriefing held by the Incident Commander.
❑	Participate in the Critical Incident Stress Debriefing as required.

CEOC FINANCE CHIEF

Forms	
❑	ICS 214 – Activity Log
❑	Evacuee Expense Claim Form

4.10 CEOC Administration/Scribe

The CEOC Administration/Scribe provides documentation and administrative assistance to the CEOC. This includes the recording of meeting minutes, information filing, and reproduction tasks. If required, a Scribe may be assigned to solely maintain a written record of the incident response.

CEOC SCRIBE		
Location		
	Corporate Emergency Operations Centre.	
Takes Direction From		
❑	CEOC Director.	
All Levels		
❑	Document all activities utilizing the ICS 214 – Activity Log.	
❑	Maintain a chronological summary of the incident response activities.	
❑	Record names of personnel in each assigned response position and their location utilizing ICS 211 – Check-In List and ICS 207 – Incident Organization Chart.	
❑	Record control and containment measures.	
❑	Record environmental monitoring information.	
❑	Record injuries, deaths, and missing persons.	
❑	Record phone calls.	
❑	Record decisions.	
❑	Record actions.	
❑	Record status of the public protection actions.	
❑	Collect documentation from response team members.	
❑	Maintain a consistent system for organizing the data.	
Deactivation		
❑	Participate in the post-incident debriefing held by the Incident Commander.	
❑	Participate in the Critical Incident Stress Debriefing as required.	

Forms	
❑	ICS 207 – Incident Organization Chart (may be completed by CEOC Planning Chief, if assigned)
❑	ICS 211 – Check-In List
❑	ICS 214 – Activity Log
❑	ICS 234 – Work Analysis Matrix
❑	Environmental Monitoring Record
❑	Status Board

5.0 COMMAND CENTRES AND RESPONSE LOCATIONS

To coordinate response efforts, the Company and Government will establish various Command Centres to facilitate required actions. These centres represent the location of specific members of the response team and may be set up temporarily (in a vehicle for example) or long-term (field or head office) depending on the nature of the emergency and the availability of a facility. The following Command Centres would be established as required depending upon the nature and seriousness of the incident.

5.1 On-Site Command Post (OSCP)

The On-Site Command Post is at 'ground zero' and will be located as close to the actual incident site as possible given safety concerns. This location is where the On-Site Group Supervisor would manage actions to control and mitigate the situation and coordinate subsequent remedial activities.

The On-Site Command Post is the focal point for control and containment activities as well as communications to the Incident Command Post. The Incident Command Post and On-Site Command Post can be located at the same place.

5.2 Incident Command Post (ICP)

The Incident Command Post is the location from which the Incident Commander oversees all incident operations. Key field response activities, including public safety actions, are coordinated from this centre. It must have the appropriate equipment and resources, including good communication equipment, to manage the emergency. The ICP will be established near the site of the emergency but outside of the hazard area. Often the Incident Command Post is located in the closest company office, a nearby facility or building. It may be combined with the Regional Emergency Operations Centre.

5.3 Staging Area

The decision to establish a staging area will be made by the Site Operations Section Chief as directed by the Incident Commander. The staging area is a control point for regulating the flow of equipment and services.

The Staging Area is used for the initial drop off of heavy equipment and large numbers of personnel used in an emergency response. This will greatly aid the efficiency and preparedness of all equipment movement into the EPZ when required. Resources in the Staging Area need to be ready for deployment within five minutes from the incident site, if at all possible. When establishing the Staging Area, ensure that it has adequate entrance and exit routes and is on a paved surface, if possible.

5.4 Reception Centre

Reception Centres are established in order to provide a safe place for people within an established EPZ, including employees, contractors, and site visitors, to evacuate to during an emergency. Local authorities may have predetermined reception centre locations identified within their State Emergency plan. Early contact with the local authority will ensure a coordinated response between the State and Company. A company representative will be assigned to travel to the Reception Centre and coordinate activities along with the Local Authority's representative.

Services provided include registration and inquiry, emergency food services, emergency clothing services, emergency lodging services, and personal services. Arrangements for accommodation, reimbursement of daily expenses and temporary care of evacuated property are managed through the centre.

A Reception Centre is usually required if five or more households are evacuated.

5.5 Helibase

A Helibase is a location where aircraft are maintained and fuelled. If helicopter evacuation is or may be a requirement, the helicopter services may be placed on standby at a Level 1 Emergency.

5.6 Helispot

The Helispot is the temporary location where the helicopter can land to load or unload evacuees, equipment, and supplies. Rover/Evacuation personnel will be located at each Helispot to assist evacuees including non-essential employees, contractors, and site visitors.

5.7 Corporate Emergency Operations Centre (CEOC)

Significant emergencies impact a business in many ways including reputation loss, regulatory non-compliance, the incurring of legal liabilities, financial loss, etc. During a Hierarchy 2 emergency the CEOC Team will assemble and provide support to the affected location.

The CEOC is the principal site of response coordination to support the Incident Commander. This is the centre where head office support activities are coordinated, it includes Company representatives with adequate authority, technical, and media relations skills. It is the location where personnel formulate strategies and action plans to manage regional emergency response issues.

The CEOC is equipped with the tools, accessibility and space to accommodate the CEOC Team and support personnel.

5.7.1 Suggested Equipment and Supplies for the CEOC

Office Equipment and Supplies	
❑ Pens/Pencils	❑ Appropriate batteries for all equipment
❑ Felt-tip markers	❑ Appropriate printer cartridges
❑ Dry erase markers	❑ Envelopes of various size
❑ Coloured grease pencils	❑ Light bulbs
❑ Pencil sharpeners	❑ Paper for flip charts
❑ Staples/staplers	❑ String
❑ Staple removers	❑ Photocopy/printer paper
❑ Scissors	❑ Identification tags/name plates
❑ Scotch tape/tape dispenser	❑ CEOC forms
❑ Notepads	❑ Laminated Status Board
❑ Calculator(s)	❑ Laminated ICS 234 – Work Analysis Matrix
❑ Elastic bands	❑ Clocks
❑ File folders	❑ Waste baskets/recyclable containers
❑ In/Out boxes	❑ Stamps (“For Action”, “Completed”, “Approved”)
❑ Map tacks/thumb tacks	❑ Flashlights
Communications Equipment	
❑ Telephones	❑ Telephone Conference Unit (Polycom)
❑ Phone/computer cables	❑ Computers/laptops with networking capability
❑ Power boards	❑ LCD projector/screen
❑ Extension cords	❑ Overhead projector
❑ Television/DVD player	❑ AM/FM radios
❑ Digital cameras/video camera	❑ Fax machine
❑ Memory card(s)/disc(s)/tape(s) for cameras	❑ Photocopier
Furnishings	
❑ Workstation desks/tables	❑ Filing cabinet(s)
❑ Conference table(s)	❑ Whiteboard(s)
❑ Map stand	❑ Cork boards
❑ Chairs	❑ Flip chart stands
❑ Bookshelf(ves)	❑ Coat rack/hangers
Reference Materials	
❑ Updated CEOC floor plan	❑ Contingency plans
❑ Checklists (operational guidelines)	❑ Local, area, and regional maps
❑ Updated contact/supplier/media lists	❑ Aerial photos
❑ Current phone/email lists	❑ Resource inventories
❑ Emergency Response Plans (with extras)	❑ DOT Federal Regulations
❑ OSHA Standards	
Store Supplies and Dispensary	
❑ Paper towels	❑ Facial tissue/Kleenex
❑ First aid kit	
Food Service Areas	
❑ Coffee/tea	❑ Pitchers
❑ Kettle/tea pot	❑ Glasses/paper cups
❑ Coffee maker filters/coffee pot	❑ Refrigerator/freezer
❑ Mugs	❑ Stove
❑ Food preparation/serving equipment	❑ Dishwashing supplies
❑ Eating utensils/dinner plates	❑ Storage cabinets
❑ Food supplies	❑ Garbage bags
❑ Water	

5.8 Government Command Posts

5.8.1 Regional Emergency Operations Centre (REOC)

If it is taking a considerable amount of time to bring an emergency under control or if the external support requirements are substantial, the appropriate government agency will establish a REOC in the area.

The REOC is a single operations centre that is established in a suitable location to manage the larger aspects of the emergency and it is managed jointly by government and industry staff. The Regulatory Authority encourages the combination of industry and State responses into a single REOC if possible.

This centre has two functions:

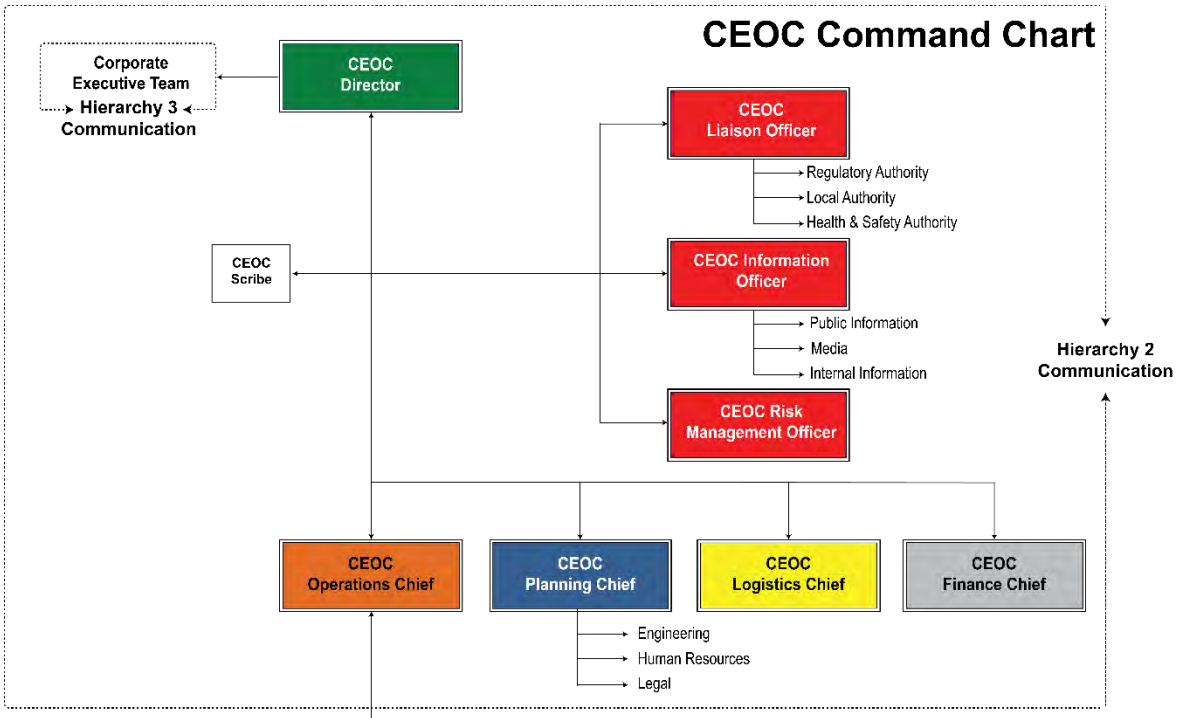
1. To provide a central location for addressing the demands and coordinating the services of various government agencies.
2. To provide a centre for public and media interaction.

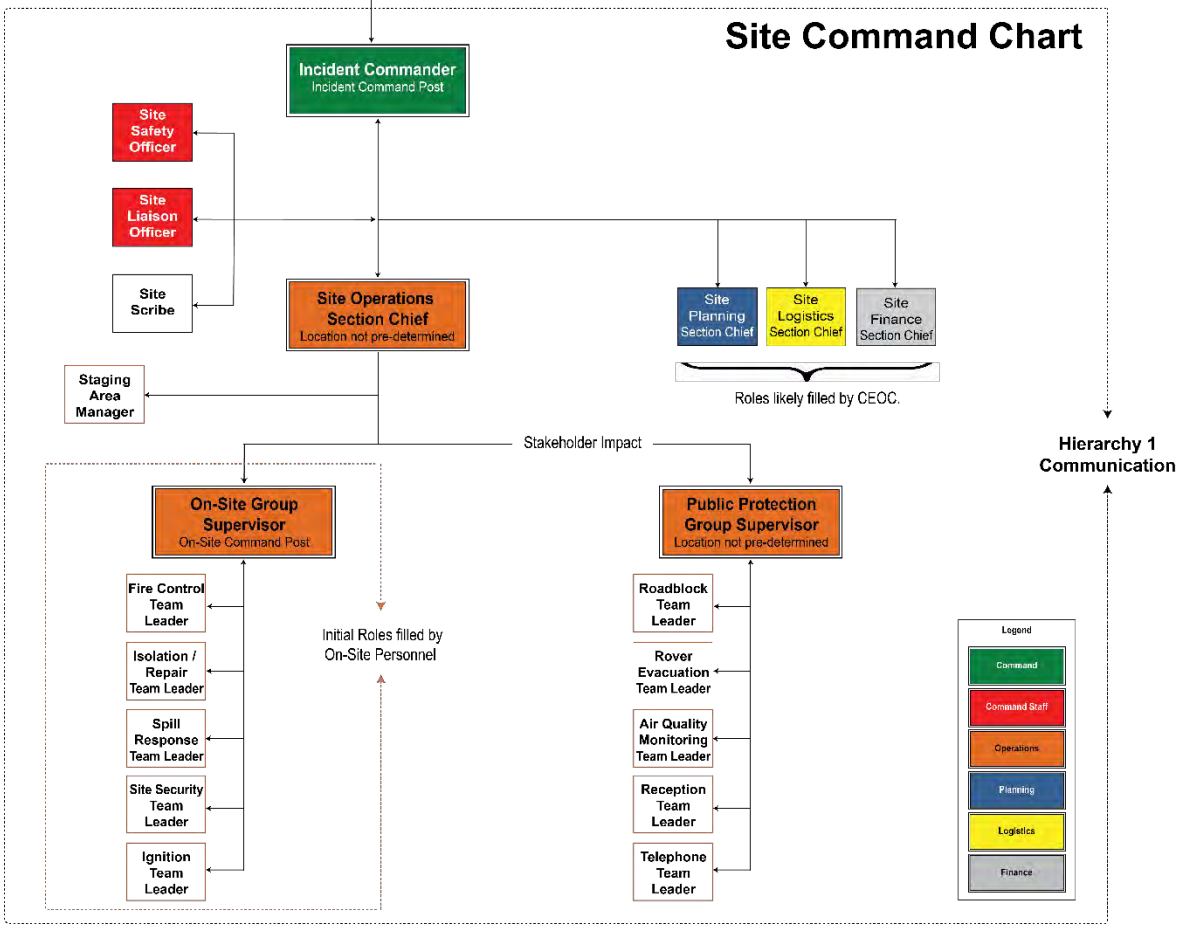
If a REOC is established, the Company will dispatch a Liaison to the centre to represent the company's view on management, technical, and public affairs issues. The REOC may be combined with a Company command post in order to centralize personnel.

5.8.2 Government Emergency Operations Centre (GEOC)

If the incident affects more than one local authority, state involvement may necessitate the need for activation of a GEOC.

6.0 CRISIS COMMUNICATION PLAN





6.1 Purpose of the Crisis Communication Plan

A crisis communication plan provides policies and procedures for the coordination of communication within the organization and between the organization and any applicable outside agencies (e.g. the media, regulatory agencies, customers, suppliers, stakeholders, and the public) in the event of an emergency or controversial issue.

6.2 Crisis Communication Policy

The Company will conduct all aspects of response to a crisis with transparency, timeliness, and honesty and will strive to implement effective communication channels between the Company and all stakeholders in the event of a critical incident.

All communication is designed from the following perspectives:

- Comply with all applicable laws and regulations; making use of industry standards and best practices where appropriate.
- Accept accountability of the operation, of its assets, and the conduct of its employees, contractors, and consultants.
- Communicate openly with all stakeholders.

6.3 Crisis Communication Plan Objectives

The Communication Plan Objectives are as follows:

- To factually assess the situation and determine whether a communication response is warranted.
- To assemble personnel who will make recommendations on appropriate responses.
- To implement immediate action to:
  - Identify those parties who should be informed about the situation.
  - Communicate facts about the crisis.
  - Minimize rumours.
  - Restore order and/or confidence.

6.4 Crisis Communication Audiences

Important audiences for the Company during an emergency event includes employees, contractors, residents, businesses, visitors, stakeholder organizations, all levels of government, media, and the general public who are considered to be at risk. Priority in messaging will be given to those considered at greatest risk.

6.5 Crisis Communication Process

To be effective, emergency response requires timely and efficient communication. The appropriate Company personnel and government/regulatory agencies must be informed of the potential for a serious incident (or the occurrence of a significant event requiring emergency support and response). Notification of a potential incident can occur in several ways: through external stakeholders, through detection by field personnel or through Company reception/ 24-hour emergency number.

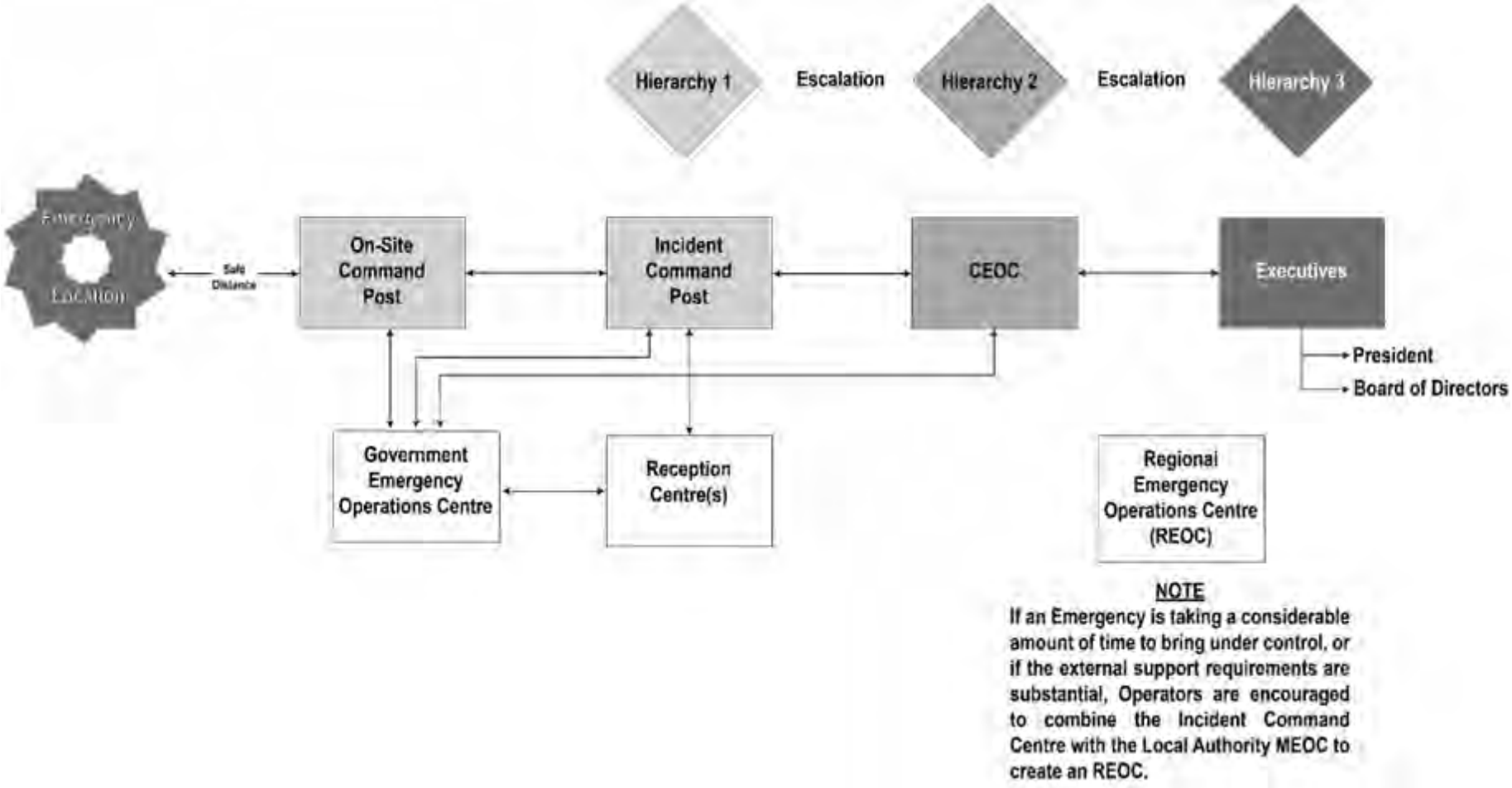
Regardless of whether all information is available at the time, the CEOC Information Officer should produce a media statement in a timely manner indicating that the situation is under investigation.

6.5.1 Public Inquiry

Calls to the Company main switchboard are first directed to the CEOC where support staff will screen and collect information from all inquiries. CEOC support staff will then pass all incoming information requests or issues to the CEOC Information Officer. The CEOC Information Officer, in conjunction with the CEOC Director, will evaluate all incoming requests for action and response and either handle the requests directly or forward the requests onto the Incident Commander or the Corporate Executive Team to handle.

The appropriate notifications must start immediately when declaring an emergency incident. See Communication Flow diagram for notification and reporting flow process.

6.5.2 Command Centre Communication Flow Diagram



6.6 Internal Communication and Command Centres

Effective command, control, and coordination of the incident is dependent on situational awareness gained from fully functioning communication processes and systems. This not only applies between the responders and the On-site Command Post, but also across the entire response effort. The Incident Command Post and the Corporate Emergency Operations Centre function as communication hubs and it is important that the relationship and function of each centre is understood.

Internal communications are those between the incident site, company response team members, and other contract emergency resources.

Equipment includes telephones, two-way radios, computer networks, as well as company and response plan contact lists. Outside resources should be procured to assist with the equipment needs. Any site-specific radio and communication infrastructure existing within an area owned either by the Company or through mutual aid should be integrated into the response communication plan. Specific telephone lines may be identified for incoming and outgoing purposes and specific locations may be set up as communication centres with designated media personnel. Roadblock, monitoring, and rover crews also utilize the communication equipment to report conditions and actions, on an ongoing basis, to the Incident Commander or a designate.

An organized, efficient and effective collection of these resources and procedures are considered an incident communication system. It is this system that captures and relays information and orders so that effective decision-making and action can occur throughout the emergency management structure.

The different types of response centres in the emergency communication system are described below.

6.6.1 Communication at On-site Command Post

The On-site Command Post is the primary emergency response location. It is located a safe distance away from the incident but close enough to facilitate site emergency response operations and communication. If necessary, this could be at a Company Facility or Mutual Aid Operator's Field Office.

6.6.2 Communication at Incident Command Post

The Incident Command Post is typically located at a nearby facility or field office and provides oversight, support, and coordination of regional (vs. site) response activities. Emergency Response activities at the Incident Command Post include the management of impacts to employees, stakeholders and operations.

The Incident Command Post will need to collect relevant tactical information to make a strategic picture of what is happening. Communication of this information from the On-site Command Post/ Incident Command Post is critical as it enables the Incident Commander to communicate a strategic picture to the Corporate Emergency Operation Centres.

This accurate strategic picture will assist the CEOC to maintain strategic situational awareness of the event allowing senior decision makers to identify and respond appropriately to issues occurring at regional, national, and international levels.

6.6.3 Communication at the Corporate Emergency Operations Centre (CEOC)

During an emergency which requires a Hierarchy 2 communication level, the Corporate Emergency Operations Centre will assemble and provide support to the affected location. This may include the aspect of various support sections (e.g. Legal, Information Officer, Finance, etc.) responding to the Incident Command Post.

6.6.4 Communication with the Executives: President and Board of Directors

During an emergency which requires a Hierarchy 3 communication level, the President and Board of Directors should be notified because significant incidents impact business in many ways including, reputation loss, regulatory compliance, the incurring of legal liabilities, financial loss, etc.

Concurrent with notification to the CEOC of the incident, the CEOC Director will confirm that the Corporate Executive Team will be the primary conduit for Board notification.

The Corporate Executive Team will notify the Board of the incident and commit to providing updates as the incident evolves.

6.7 External Communication

6.7.1 Communication with Government/Regulatory

A key component of the plan is to establish and maintain effective two-way communication with government departments and regulatory agencies that have legislated responsibilities for emergency management within their jurisdiction.

6.7.2 Communication with the Public

Public communication can be done in person or by phone. The Company must provide the public with timely emergency information that addresses what actions, if any, are to be taken by the public (for example - shelter in place or evacuate). For extended emergency situations, scheduled information sessions should be conducted to keep the public and affected community updated on the incident (including environmental, health, or safety information).

The following Information must be disseminated to the public at the onset of and during an incident:

To those evacuated or sheltered - at onset	To those evacuated or sheltered - during	To the general public - during
• Type and status of the incident. • Location and proximity of the incident to people in the vicinity. • Public protection measures to follow, evacuation instructions, and any other emergency response measures to consider. • Actions being taken to respond to the situation, including anticipated time period. • Contacts for additional information.	• Description of the products involved and their short-term and long-term effects. • Effects the incident may have on people in the vicinity. • Areas impacted by the incident. • Actions the affected public should take if they experience adverse effects.	• Type and status of the incident. • Location of the incident. • Areas impacted by the incident. • Description of the products involved. • Contacts for additional information. • Actions being taken to respond to the situation, including anticipated time period.

6.8 Media Communication

In times of crisis, the public forms their opinions from various media sources. It is critical the company uses all available platforms to relay information to the public.

6.8.1 Media Crisis Communication Policy

Media releases should be coordinated with the applicable Regulatory Authority prior to release to ensure consistency and accuracy of information. The CEOC Director will delegate the CEOC Information Officer role to interact with the Regulatory Authority and other applicable government agencies.

It is expected that the designated CEOC Information Officer will interact with the media in a timely, open and honest manner.

When dealing with members of the press, Company representatives must:

- Demonstrate professionalism at all times.
- Be available for comment and response.
- Be timely and respect the increasingly fast pace of the news cycle.
- Be completely transparent.
- Provide only truthful and accurate information being mindful of the Company's continuous disclosure obligations and restrictions.
- Provide available point of contact for follow-up inquiries.
- Never comment on issues outside of your area of expertise.

Generally, other Company personnel are not permitted to make any verbal or written public statements regarding Company operational matters or events (e.g. accidents, spills, injuries) unless approved by the CEOC Information Officer.

Company goals are to:

- Limit public statements to only those that are deemed necessary.
- Make public statements solely from the Company's Head office.
- Present a unified and accurate corporate image to the community.
- Provide correct information to the public.
- To be in compliance with applicable laws, rules and regulations.

If approached by the media for an interview:

- Politely check and record credentials of media, news photographers, and public officials.
- Remember you are always "on-the-record" with the media.
- Assure the media that a Company representative will address their questions at a later time.
- All media inquiries at the emergency site must be forwarded to the CEOC Information Officer who is authorized to supply the media with a brief initial statement.
- Use the following statement as a guideline, never lie or say "no-comment".

Hello, my name is _____ (state your name).

"We are currently dealing with the situation at hand to ensure the safety of persons, property and the environment. The matter is being investigated. A statement will be released by the Company once the facts have been determined. If you would like to leave your contact information with me, I will promptly pass it on to someone who will contact you and provide you with information as it becomes available."

Name of Media Individual:_____

Media Organization:_____

Telephone Number:_____

6.8.2 Media Access to Emergency Site

Company safety procedures apply to everyone on-site. Therefore, to ensure the safety the media will not be allowed on-site unless otherwise agreed to by Senior Management. No objection should be made of the media filming or photographing the event provided they do so in a safe place, off the property.

The following information provides some additional guidelines when dealing with the media and public reactions.

6.8.3 Preliminary Holding Statement

A preliminary holding statement is a brief description of a critical situation. The statement is intended to be the first information that contains the key messages from the Company to the public, prior to any media release. It includes a brief description of the situation, including who was involved, what occurred and any other critical information. It is not meant to replace a media release or a press conference. The preliminary holding statement will be regularly updated by the CEOC Information Officer with the most current key points or messages from the company.

The preliminary holding statement should be provided to all telephone operators in the case of a crisis. The statement should be faxed or emailed to the Incident Commander and On-Site Group Supervisor as soon as approved so that the field location can communicate the same messages as Head Office. By having one consistent statement for all callers, the amount of conjecture, personal opinion and speculation is removed from the media contact.

Where a Preliminary Holding Statement is required by the media, the Statement shall contain:

Nature of Emergency:	General description of what happened. Do not give an opinion of the cause. Do not speculate. Use non-technical language.
Where, When:	Location of the site from the nearest major centre and the time the incident began.
Injuries/Fatalities/ Damages:	No opinions shall be given as to the extent of damage or injuries. State the number of people receiving treatment. No names are to be released until after permission has been granted by the next-of-kin.
Status:	Indicate the nature of the situation: what is being done and by whom.
When to Expect More Information:	The CEOC Information Officer, or alternate, will issue further information to the media. Ongoing media attention focused at the emergency site shall be referred to the CEOC Information Officer.

Sample Preliminary Holding Statement

Name of Media Representative: _____ Organization they work for: _____ Date: _____ Time (0-2400 hrs): _____
At approximately _____ (Time, am/pm) today, PetroShale (US) Inc. experienced a _____ (Fire/Explosion/Gas Release) at its _____ facility located approximately _____ miles (east/west/north/south) of _____ (Nearest Town/City).
There are no injuries associated with this incident. or There are injuries associated with this incident. However, the numbers, names, and conditions of those injured have not yet been confirmed for release.
The cause of this incident is not yet known, and no estimate of damage is available. However, PetroShale (US) Inc. is directing emergency procedures at this time and steps are being taken by PetroShale (US) Inc. to control this incident.
For additional information about this incident, please call: _____. PetroShale (US) Inc. at _____.

6.8.4 General Guidelines

- Be proactive in advising media of the situation to ensure consistent and appropriate communication to the public.
- Establish an agreed upon schedule for updating the media on a timely basis.
- Coordinate media communication with the Government Emergency Operation Centres if established.
- Return media calls promptly and courteously.
- Restrict comments to indisputable facts and brief descriptions of what is being done.
- Keep messages consistent.
- Record names and numbers for media contacts (so you can provide subsequent contact and updates).

The questions that should be answered are:

- What, where and when did it happen?
- Who was involved? (not providing any names)
- Why did it happen? Do not respond until you have facts – otherwise we are investigating the cause.
- What is the status of the situation?
- When will more information be expected?
- Which Government agencies were notified/are on the scene?
- Plus, any other relevant facts that will dispel rumour, speculation and fear.

DO	DO NOT

• Ensure individuals present for any media communication are authorized to be there.
• Provide factual information quickly. A reporter will be on the next news broadcast regardless. It is in the Company's best interest that he/she has the facts and not just speculation and comments from others.
• Have one person locally and one at the head office as designated spokespersons (all others will defer questions to them).
• Keep your commitments. If you say you will check something, ensure you do.
• If there is an important development, provide an information update immediately.
• Show yourself as caring and concerned.
• Reinforce that the Company has active safety, prevention, and response programs.
• As soon as the Company can confirm, provide:
  ○ Estimate of when production or flow can be resumed.
  ○ Estimate of clean-up details (e.g. cost, time frame).
  ○ After notification of families, names of those injured.
• Keep your answers brief.
• Maintain strong eye contact with those asking questions. Wandering or averted eyes will make you seem dishonest.
• Immediately provide the CEOC Information Officer with details of what you have said.
• Keep a record of all media representatives' organizations and when you talk with them.
• Politely correct reporters who have carried inaccurate information.
	• Never use the term "no comment." Those two words arouse suspicion. If you don't have the answer, say for example "I don't have that information now, but it is currently being investigated".
	• Do not speculate or guess.
	• Do not place blame on anyone – or accept any blame. Do not prejudge the situation by agreeing with any statement (e.g. you heard the driver was speeding).
	• Do not accuse anyone of negligence.
	• Do not discuss anything "off the record".
	• Do not discuss liability.
	• Do not get flustered by hostile questions: control any anger you may want to return.
	• Do not play favourites with reporters. Be consistent with the information you provide.
	• Do not ask to see or hear a reporter's story to check it before it goes. Do, however, make yourself available to confirm facts.
	• Do not answer hypothetical questions. Comment that the question is hypothetical and that every effort is being made to contain the situation.
	• Do not fall victim to the either/or question. Repeat your facts.
	• Do not repeat the reporter's negative or colourful words (e.g. deadly) even to deny them and do not accept or make comparison to other publicized situations.
	
	Do not allow yourself to be positioned in front of a blowout for an interview or photograph but do try to find an interesting backdrop that you control.

Public reaction to a crisis moves through four stages:

1. Curiosity — This is the need (or want) to know stage.
2. Concern — People want to know how it affects them, their community or region.
3. Anxiety — If the Company does not seem to be informing a concerned public, anxiety sets in. People worry about their health and the environment.
4. Anger/Fear — Emotions focus on the perceived threat to people's self-interest. Anger is directed in many directions, especially towards the Company and Government.

6.8.5 Media Release

A media release is a communication directed at members of the news media for the purpose of announcing something ostensibly newsworthy. Typically, they are faxed or e-mailed to assignment editors and journalists at newspapers, magazines, radio stations, television stations or television networks.

The media release starts with the most important information first (who, what, where, when, why). This is followed by additional information that may be important with supporting details. It ends with contact information. The objective of each media release is to build or maintain the Company's reputation and public support. The release should emphasize company values, convey empathy to show the public that the Company is concerned and is taking responsibility for the situation. Include only facts that can be confirmed and emphasize resolve of the company to get answers or rectify the problem.

The Media Release contains three core messages that form the basis of all public incident communications.

The Company's primary concern is to ensure the safety of all those affected by the incident, to work closely and cooperatively with all agencies involved and to address any environmental impacts.	A core message of empathy
The Company is putting its full effort into bringing the impact of the incident under control. As more information becomes available it will keep all stakeholders informed.	A core message of commitment and candor
Incident prevention comprises an integral part of the Company's job in all its facilities. However, specific details of how the incident occurred will be subject to a full investigation and it is not appropriate for the Company's to either comment or speculate on this at this time.	A core message of competence

6.8.6 Crisis Media Interview

Crisis interviews are intended to communicate that the Company:

- Has control over the situation.
- Is familiar with the crisis situation and has the knowledge to handle and resolve problem.
- Takes accountability for the situation and attempts to instill trust with the public in handling the crisis.

During crisis media interviews, the messages should be simple, without jargon and conducted in a slow and clear manner with action points repeated. An interviewee should listen with empathy and invoke conviction and compassion through tone of voice.

Before conducting an interview always review, revise, and rehearse. Ensure information is confirmed and factual, that key messages are well prepared, that the interviewee is comfortable in the chosen location for the interview, and that all the background information supports key points.

When asked a question by a media interviewer, the interviewee should take time to assess whether he or she has the authority to answer the question or the expertise (adequate subject matter knowledge) to answer question. If so, then frame your response with these 3 key points in mind:

- What is the answer – avoid extended preamble and get to the point succinctly.
- How did you derive this answer – use 2-3 supporting points to substantiate your answer.
- Opportunity – select the best key message for the audience to build trust and confidence for company's actions.

Remember the keys to effective crisis media relations are:

- Accuracy of information.
- Speed of release of information.
- Empathy and openness builds trust with stakeholders.

6.8.7 News Conference Guidelines

When you notify the media of news conferences be sure to define what kind of event you are having. News conferences are held to announce something for the first time.

- Do not call unnecessary news conferences, if it's not worth their time, the media will only be angered. If holding a news conference, try to tell media in advance some details that you will be announcing.
- Gauge the size of your crowd carefully when reserving a room; it is better to have too much than too little space. Make sure microphones, chairs, lighting, and water are in place at least 30 minutes prior to the event.
- Decide format in advance – who will introduce speakers, who decides when questions/answer period ends, and other details.
- Decide in advance whether handouts are needed. If speaker is giving a talk for which there is a text, you may want to wait and hand out material after the talk, so media will stay and listen. However, it's advisable to tell the media you will provide a text of the speech, so they are not irritated by having to take unnecessary notes.
- Check to see what else is happening in your organization or the community before scheduling a press conference.
- Consider whether you need to let other organizations and agencies know you are having a news conference. You may wish to invite others to attend or participate in your event.
- Decide who will maintain control at the news conference, who will decide where cameras are set up, and who sits where.
- Try to plan the length of the news conference but be flexible.
- Consider the time of the news conference. If you want to make the noon, 6 PM or 11 PM news, you need to allow time for crews to travel and edit tape.
- If you are going to set restrictions on an event such as limited photo access, try to put the restrictions in writing and communicate to the media at least 24-hours in advance.

6.8.8 *Reporting*

Regular status updates or status reports provided during the emergency response will be the responsibility of the CEOC Information Officer in consultation with the CEOC Director. Reports should be provided to the agencies at defined intervals or as frequently as updates are required. Reporting intervals may be adjusted as the situation develops. Reporting will continue until the emergency has been declared over and the response effort has stood down.

Specifically, the Communication Plan establishes a guideline for the following core communication expectations:

Communication	Suggested Timeline
Notifications to internal staff and regulators	As per CEOC Director
Initial written public holding statement	Within 1 hour of CEOC team activation for a Level 2 or 3 crisis
Media release	Within 2 hours of CEOC team action for a Level 3 crisis
Media appearance (if required) and spokesperson preparation	Within 3 hours of communication team activation for a Level 3 crisis
News conference (if required)	Prior to 4 PM if possible
Formal updates – media release, continuous disclosure obligations	Every 4-6 hours or as situation warrants

6.9 Social Media

The use of social media, (Facebook, Twitter, Reddit, etc.) to communicate with the public can be a very efficient and effective form of communication during an incident. With the release of one small statement the Company can potentially notify a large segment of the population.

Social media provides a form of two-way communication with the public during an emergency situation. Social media provides the ability to directly see how a situation is affecting people and gives the opportunity to respond to them, keeping them informed, preventing panic, and keeping rumors at bay. By following keywords and hashtags, the Company is able to easily monitor what the community is saying about the incident and respond accordingly.

It should be noted that news organizations are increasingly monitoring social media as a way to find news stories; in some cases, finding out about events before a company.

During an emergency in the CEOC Information Officer should appoint an assistant to monitor social media. The designated person can employ a web program such as HootSuite to monitor several social media feeds at once.

6.10 Mutual Aid Agreements

A wide range of emergencies may occur that have an impact on neighbouring stakeholders. In this event, multiple parties may want to provide assistance during the emergency.

It must be agreed upon prior to any type of third party response that PetroShale will remain the primary emergency responder, and that any assistance provided by third parties must be under the supervision of a PetroShale representative. Furthermore, the party providing mutual aid must comply with all applicable PetroShale policies and applicable government regulations.

If another Area Pumper provides assistance, the principal behind this assistance should remain as follows:

- Companies or individuals providing assistance are to provide the support outside the lease boundary. The focus will be to provide the manpower and support

required for roadblock crews, rovers, resident contact, and evacuation co-ordination as required by PetroShale requesting the assistance.
- Third party responders will report to the Incident Commander or other coordinating position in the area.
- Individuals providing assistance retain the right to withdraw the assistance should his/her personal safety be jeopardized.

6.11 Emergency Answering Procedures

When answering telephone calls listen to the person on the other end of the line carefully. You need to determine whether this is an emergency situation or not. Try to get the following information, repeat it back for clarification.

- Record the time of day.
- Make sure you ask and log the following information:
  - The person's name.
  - The person's phone number.
  - The exact location of the person calling.
  - Directions to the caller's home/incident site.
  - The exact location of the potential emergency.
  - The extent of injuries or damage.
  - Wind direction.
  - Nature of emergency.
- Please tell the caller to call _____ (collect) if their situation changes or gets worse.
- Call the Company representative for that area and relay all the information. Fax, or scan and email, a copy of the recorded information to the responder.

Please remember how important this information is as you will have to relay it to a Company representative.

If the person calling is agitated, try to keep them on the line long enough to get this information. Let them know a Company representative will be dispatched to check out the incident and will contact them with further information.

6.11.1 General Evacuation Script

Ensure you are speaking with the correct person. Record answers to your questions on a separate sheet of paper. Speak slowly, calmly and clearly.
Mr./Mrs. _____, this is _____ of PetroShale (US) Inc. calling. I am phoning you because we are experiencing some _____ problems at the nearby _____ property. This situation does not pose any immediate threat, but we want you to be aware of it in case the situation gets worse. If it does, we will call back and ask you to go to the _____ reception centre. Would you need any help in getting to the _____? I will be calling back, in any event, to give you an update. If you have any questions, please phone me, collect, at _____. If at all possible, please avoid the use of your telephone, so we can call you again quickly with further information. Thank you.

Immediately report, to the Telephone Team Leader, the names of all residents not contacted.

6.11.2 Shelter in Place Script

Telephone message for Residences/Businesses inside the EPZ where it is initially deemed unsafe to evacuate.

Ensure you are speaking with the correct person. Record answers to your questions on a separate sheet of paper. Speak slowly, calmly and clearly.
Mr./Ms. _____, this is _____ from PetroShale (US) Inc. calling. We are experiencing a gas leak, which has created a vapour cloud (plume) that may be toxic or cause a serious fire and explosion near your home. PetroShale (US) Inc. is currently responding to the emergency. For your safety it is essential that you and your family/associates, remain sheltered indoors, preferably at the upper levels in your house until we can evacuate you safely or until the situation is under control and this serious hazard no longer exists. Please take the following actions immediately: 1. Gather everyone in the house and close all windows and doors. 2. Extinguish all potential sources of ignition, including open flames. 3. Do not smoke. 4. Turn off the electrical power at your switch box. 5. If possible, plug any fresh air intakes or vents to your home, or furnace. 6. Move to the upper levels of your house. 7. Use a portable radio and stay tuned to a local station for public information. **Do not leave your house or attempt to start any vehicle until PetroShale (US) Inc. advises you that the area is safe.** Do you understand what I have just told you? A Company representative or the local police will come to your house as soon as the fire and explosion hazard no longer exists. If at all possible, please avoid the use of your telephone, so we can call you again quickly with further information. If you have urgent questions, please call PetroShale (US) Inc. at _____* **The Telephone Team Leader will designate the phone number at the time of the incident.** Thank You

6.11.3 Urgent Evacuation Script

Ensure you are speaking with the correct person.
Record answers to your questions on a separate sheet of paper.
Speak slowly, calmly and clearly.

Mr./Ms. _____, this is _____ of PetroShale (US) Inc. calling. I want to tell you about a/the serious _____ we are experiencing at our _____ location.

The wind is carrying the escaping gas to the north/south/east/west.

YOU ARE IN NO IMMEDIATE DANGER.

However, as a safety precaution, we want you to leave your premises and go right away to the reception centre located at _____.

How many people are currently at your home?

Are there any medical considerations or other special concerns that could affect your safe evacuation?

Do you have transportation? If not, please stay indoors and close all windows and doors. We will send one of our drivers and vehicles to get you right away.

If you have transportation, please take the north/south/east/west route, which will take you safely out of the endangered area. You can then travel by _____ to get to the reception centre.

Read the following paragraph only during school hours:

We have contacted the schools and have arranged to hold students at the school.

You may pick them up there or would you like to have us take them to the reception centre?

What are your children's names and which school are they at?

It is very important for us to know where you are and where you can be contacted both during and after the evacuation. Please report to the reception centre to confirm your accommodations and other support you may need.

Any concerns you have regarding livestock, pets, or property will be addressed by our representatives at the reception centre.

Please try not to use your telephone as it may tie up the lines and prevent us from calling other residents.

Immediately report, to the Telephone Team Leader, the names of all residents not contacted.

6.11.4 Notification Script

Ensure you are speaking with the correct person. Speak slowly, calmly and clearly.
Mr./Ms. _____, this is _____ of PetroShale (US) Inc. calling. I am calling with an important message. PetroShale (US) Inc. has an emergency near your location, which does not affect your safety; REPEAT, does not affect your safety. You are in no danger at this time; PetroShale (US) Inc. is notifying you for informational purposes only. **Repeat: <u>You are in no danger at this time; we are notifying you for informational purposes only.</u>** If you would like to voluntarily evacuate, please go to the Reception Centre located at the _____. For further information, please contact PetroShale (US) Inc.'s 24-hour emergency number at 1-701-774-7777.

7.0 RESPONSE ACTION PLANS

7.1 Purpose

The following examples of emergency response actions have been developed to provide a guide for response personnel. They should be reviewed and (if applicable) implemented as part of a specific emergency response.

The Site Command and Corporate Emergency Operations Command staff may follow these guidelines to protect worker and public safety.

7.2 Incident Site Worker Protection

To ensure that workers take the appropriate actions in the event of an emergency they should be properly trained and familiar with the Company emergency response strategy. This includes the following:

Actions:

- Ensure familiarity with egress routes and the muster point.
- Know where the safety equipment is located (fire extinguishers, first aid kits, gas monitoring equipment, and personal protective equipment).
- Understand how to initiate a site evacuation by sounding an alarm.
- If required, assist with a head count at the muster point and identify any missing personnel.
- Provide medical aid to an injured worker.
- Ensure that there is an accounting system in place for on-site personnel.

7.3 Personal Protective Equipment (PPE)

All responders should be properly equipped with PPE in their role as first responders at a Company site. In prolonged emergency response situations, a critical role of the Site Logistics Section Chief is to ensure that adequate quantities of all types of equipment and clothing are available for response personnel including essential spare parts (e.g. additional air bottles, bunker gear etc.). Local suppliers of safety equipment should be pre-identified.

Respiratory Protection

Supplied-Air Breathing Apparatus (SABA) supplies air from air carts rather than breathing ambient air. The most common type of supplied-air apparatus is the Self-Contained Breathing Apparatus (SCBA) for example, Scott Air Packs, which supplies air from tanks carried on the responder's back with a full face-piece. SABA and SCBA represent the highest level of respiratory protection available.

The following general guidelines can assist in the selection of proper respiratory protection for responders:

- SCBA should be used by initial responders (i.e. the first responders to enter the planning zone or immediate area of the spill), especially if the levels of concentration are unknown but suspected to be high, or if there is the possibility of oxygen deficiency (e.g., confined spaces). One of the key roles of the initial responders will be to take accurate vapour concentration measurements to determine the actual level of risk to follow-up responders.
- Air-purifying (e.g. organic cartridge) respirators can be used when the levels of vapour concentration are confirmed by gas testing to be safely below the level for

the chemical involved, and the situation has stabilized (e.g., vapours are starting to be dispersed by wind, or have been suppressed using foam).

Note: All responders should be trained in the proper use of respiratory protection equipment. Final selection of respirators should always be based on accurate, ongoing measurements of vapour concentration levels at and around the spill site (especially downwind).

Protective Clothing

Recommended protective clothing requirements are outlined in Safety Data Sheets (SDS) which are published for all products.

Chemicals can pass through protective clothing through three processes:

- **Penetration** occurs when the liquid or vapour passes through seams or small openings in the clothing.
- **Degradation** is the deterioration or breakdown of the clothing material caused by the action of the chemical.
- **Permeation** is the process by which molecules of liquid or gas move through clothing material. Permeation is regarded as the most useful measure of the level of protection afforded by different clothing materials.

7.4 Protection Levels

There are four general levels of responder protection, which are recognized in the U.S. These are outlined in the table below.

- For solvents and Styrene, initial responders will probably require Level B protection until vapour concentration levels have been confirmed. Follow-up responders should have Level C protection.
- For certain specialty chemicals like Phenol, Level A protection may be required depending on the nature and location of the incident.

7.4.1 Levels of Responder Protection for Spill Response

Protection Level	Situation	Protective Equipment
A	Entry into unknown or high levels of skin-permeating chemicals.	SCBA and totally-encapsulated or gas-tight suit.
B	High concentrations – no skin-permeating chemicals present.	SCBA and chemical resistant clothing and gloves, boots.
C	Known levels of non-permeating chemicals.	Air-purifying respirator, liquid-repellent clothing, gloves, boots, safety goggles/glasses, and hard hat.
D	Chemicals well below danger levels.	Coveralls, gloves, boots, safety goggles or glasses, hard hat.

7.5 Preparing a Health and Safety Plan

The Health and Safety Plan for a hazardous material spill highlights the critical information about the product, physical location of the spill and other incident-specific conditions required by responders to respond safely to the incident, as well as appropriate safety rules and precautions that will be enforced at the scene.

In most circumstances, the Health and Safety Plan for a specific incident should be prepared by a Site Safety Officer at the scene who is in a position to conduct a thorough, accurate hazard assessment.

The Health and Safety Plan should be concise, and written in clear, non-technical language to ensure understanding by responders.

The Health and Safety Plan outlines the key hazards associated with the incident, and the safety procedures and precautions that are to be enforced during the response. As the response progresses, the Health and Safety Plan should be updated on a regular basis to reflect changing conditions at or near the scene of the incident.

The Incident Commander is responsible for reviewing the Health and Safety Plan. The Site Operations Section Chief and On-Site Group Supervisor are responsible for implementing and enforcing the safety requirements of the plan throughout the response.

7.6 Health and Safety Plan

Product Specific Information

Product Hazards:

- Poisonous or toxic.
- Flammability.
- Corrosive.

Risk of Fire or Explosion:

- Flash Point.
- Lower Explosive Limit (LEL).
- Upper Explosive Limit (UEL).

Health Hazards and Risks:

- By ingestion.
- By direct contact, skin.
- By inhalation.

Exposure Limits (ACGIH – if other specify):

- TLV-TWA.
- TLV-STEL.
- TLV-C.

Critical Behaviours and Properties (as required by the situation):

- Vapours heavier or lighter than air?
- Sinks, floats, dissolves or evaporates in water?

Other:

Responder Safety and Protection

Responder Qualifications/Training Requirements:

Recommended Level of Personal Protective Equipment (PPE):

- Level A (specify equipment).
- Level B (specify equipment).
- Level C (specify equipment).

First Aid Measures:

Site-Specific Information

Drawing, map or sketch of the incident site showing:

- Key topographical features (e.g., buildings, natural features).
- Initial Isolation Zone.
- Protective Action Zone.
- Potential Downwind Evacuation Zone.
- Wind Direction.
- Real and potential vapour monitoring points.
- Security Access Points (if applicable).
- First Aid stations (if applicable).
- Command Centre and Staging Areas (if applicable).

Note key features of the location that might affect the safety of responders.

Describe proximity to:

- Populated areas (e.g. residential or commercial).
- Bodies of water (e.g. lakes, rivers, streams, ocean).
- Environmentally-sensitive areas.

7.7 Public Safety and Protection

In most foreseeable situations, the responsibility for public safety and protection following an emergency incident will be the responsibility of the local authorities including one or more of the following:

- Police.
- Fire Department.
- State Emergency Planners and Responders.
- Public Health officials.

Actions taken may range from nothing if no public risk is perceived, to notification or public warnings, public health alerts, and full or partial evacuation of certain areas around the incident site.

Company personnel will support this process by providing whatever information is required about Company emissions and their related properties and hazards to enable the authorities to reach the most appropriate decision given the circumstances at the time. Such information may include:

- Physical and chemical properties.
- Toxicological properties and risks.
- Critical physical parameters such as flash point, explosive limits, exposure limits, etc.
- Physical properties and behaviour following a spill on land, water, or in vapour form.

7.8 Air Quality Monitoring

At a Level 1 Emergency, Mobile Air Quality Monitoring equipment and qualified operating personnel will be dispatched to the Emergency Planning Zone and placed downwind to gather the ambient air quality data required to support public safety actions.

Air Quality Monitoring equipment will be used to:

- Track the plume.
- Determine if ignition criteria are met.
- Determine whether evacuation and/or sheltering criteria have been met, particularly beyond the EPZ.
- Assist in determining when the emergency can be downgraded.
- Determine roadblock locations.
- Determine concentrations in areas being evacuated to ensure that evacuation is safe.

Downwind Mobile Air Quality Monitoring Requirements		
Level 1 Emergency	**Level 2 Emergency**	**Level 3 Emergency**
Deploy unit(s) to area of release and commence mobile air quality monitoring.	Continue mobile air quality monitoring. Request additional air quality monitoring unit(s) if required.	Continue mobile air quality monitoring. Request additional air quality monitoring unit(s) if required.

7.9 Determining the Response Zone Using Monitoring Equipment

Response personnel required to determine the extent of the response zones with handheld monitoring equipment must take the following precautions to protect their safety:

- Use the buddy system.
- Equip each responder with reliable H_2S detection and respiratory protective equipment.
- Establish and maintain communication with the Incident Command Post.
- If walking a pipeline right-of-way, walk a safe distance apart staying within visual and audible contact. As the lead responder monitors for H_2S, the backup responder will maintain communication and be prepared to rescue.

Detection

- Portable 3 or 4-head gas monitor.
- Mobile Air Monitor Units.

Record all information

- Concentrations in ppm.
- Location and time of readings.
- Wind speed and direction.

Communication and Documentation

- Report all information to Public Protection Group Supervisor or Site Operations Section Chief.
- Notify Roadblock Personnel and Response Teams of changes.

7.9.1 Sour Gas Release from a Manned Operation

For critical sour wells, if the EPZ includes a portion of an urban density development or urban centre, there must be a minimum of two mobile air quality monitors: one to monitor the boundary of the urban density development or urban centre and the other to track the plume. The permit holder must also:

- Ensure that one unit is in the area during drilling and/or completions, testing, and workover operations in potentially critical sour zones.
- Ensure that the other unit is dispatched if it is evident that well control measures are deteriorating, and that sour gas release is likely to occur.
- Prior to conducting operations in the sour zone, determine where the monitoring equipment is located and what the estimated travel time is to the well site.

For critical sour wells whose EPZ does not include a portion of an urban density development or urban centre and for all noncritical sour wells, the permit holder must:

- Dispatch mobile air quality monitoring unit(s) when it is evident that well control measures are deteriorating and that a sour gas release is likely to occur.
- Prior to conducting operations in the sour zone, determine where the monitoring equipment should be located and what the estimated travel time is to the well site.

Air quality monitoring occurs downwind, with priority being directed to the nearest un-evacuated residence or area where people may be present.

The permit holder is expected to provide monitored H_2S and SO_2 information on a regular basis throughout a sour gas emergency to the environmental agency, the applicable Regulatory Authority, local heath authority, and other local authorities.

7.9.2 Sour Gas Release from an Unmanned Operation

If the permit holder is notified of a release by an alarm or by a reported odour, the source of the release must be investigated, and air quality monitoring units sent out upon confirmation of the release location.

7.10 Sour Gas Release

7.10.1 Sour Gas Release Site Safety

- Communicate with all workers the potential presence of H_2S, SO_2 and LEL levels.
- Immediately initiate atmospheric monitoring of H_2S, SO_2 and LEL levels.
- Designate a safe muster location based on the extent of the Sour Gas release.
- Initial immediate evacuation of all non-essential personnel.
- Identify areas of the site with confirmed or potential H_2S, SO_2 and LEL levels.
- Complete a site roll call to account for the safe location of all personnel that were on site prior to the event occurrence.
- Identify any unaccounted-for personnel.
- Attempt to remove or control all ignition sources, where ignition would threaten safety of workers.
- Perform search and rescue for site personnel unaccounted for or overcome by H_2S and SO_2.
- Continue to provide atmospheric monitoring of H_2S, SO_2 and LEL levels to ensure the safety of the Muster Location and emergency responder staging position.

7.10.2 Safety of Response Operations

- Ensure personnel that assist with release control operate only within their specific:
  - Levels of training.
  - Capability.
  - Experience.
- Personnel remaining in proximity to H_2S and SO_2 exposures shall be provided with and shall wear the appropriate PPE and SCBA appropriate to the exposure hazard.
- Ensure that any personnel utilizing SCBA have been properly trained and fitted.
- Monitor and provide control of the operating time of site personnel working in SCBA.
- Establish a decontamination station prior to assigning personnel to enter areas in proximity to H_2S and SO_2, for the safe and timely decontamination of any exposed personnel.

7.10.3 Action Plan Sour Gas Release

- Attempt to stop the release of Sour Gas, when safe to do so.
- Notify local emergency response agencies.
- Notify potentially exposed residential or public areas.
- Determine and implement public protection actions.
- Maintain air monitoring for H_2S and SO_2.
- Activate the Site Command and CEOC Command for support.
- Assist emergency response agencies in organizing area evacuations and access restrictions.

Request Emergency Response Agencies

- Call 911.
  - Request Fire Department, Emergency Medical Responders, and Police.
  - In the event of potential exposure to a sour gas release off-site
- Request that the local Emergency Management Representative and local police agency respond.
- Maintain air monitoring for levels of H_2S and SO_2.
- Designate a safe staging position for responding resources.

Brief Emergency Responders

- Provide emergency responders with an SDS for H_2S and SO_2.
- Brief emergency responders on:
  - Event timeline.
  - Nature of the release; dynamic - static.
  - Hazards of the release; flammable, corrosive, toxic, asphyxia.
  - Status of personnel accountability; search and rescue profile.
  - Other uncontrolled facility hazards.
  - Status of the release control operation.
  - Status of other operating personnel within the facility.
- Identify the number of injured/exposed people due to any inhalation hazard.
- Identify the uncontrolled sources of ignition.
- Identify any confined spaces.
- Identify any low-lying areas where H_2S and SO_2 may pool.

7.11 Sweet Gas (Hydrocarbon) Release

The effectiveness of the following guidelines depends on the judgment exercised by all personnel. To extinguish hydrocarbon fires and prevent further explosions, it is necessary to do at least one of the following:

1. **Remove fuel** by isolating the section of equipment on fire and pumping out or depressurizing the flammable material.
2. **Remove oxygen** by the use of steam, chemicals, foam, dry powder, or CO_2 extinguishers. If the fire is small, the flames can be smothered with a fire blanket, new tarpaulin, or sand.
3. **Cool fuel** so that it no longer produces vapors using water where possible (as a fog) to extinguish fires or as a coolant for equipment, tanks, support columns, etc. or use to provide a protective shield while the fire is being extinguished by foam, chemicals, or power extinguishers.

Response Actions:

- Understand the type of product and its immediate hazards.
- Establish an evacuation route and muster point for workers at the site.
- Shut in all known fuel sources. Do not extinguish a leaking gas flame unless the leak can be stopped.
- Shut off high voltage power supplies to equipment in fire-affected area.
- Shut off fuel to heaters near to or downwind of the fire.
- Observe surrounding area for other possible re-ignition sources and if safe to do so take appropriate steps to eliminate these hazards.
- Dissipate static electrical charges on bodies of all personnel in area. Grounding may be accomplished by holding onto a metal structure for ten seconds with bare hands.
- Approach the site from an upwind or crosswind direction.
- Ensure an appropriate on-site and off-site air monitoring strategy is employed.
- Monitor the area for LEL.
- Monitor local weather conditions. Weather conditions such as temperature inversions, fog and wind may affect plume dispersions.
- Do not use water jet. For a small fire, use dry chemical, CO_2, water spray, or foam. For a large fire, use water spray, fog, or foam. Beware of electrical hazards.
- Move containing vessels from the fire area if this can be done without risk.
- Cool containing vessels with flooding quantities of water until long after fire is out.
- Keep unauthorized personnel away.

7.11.1 Flammability Limits

Monitored Flammability Limits (% of LFL)	Comments and Typical Actions
10% of the LFL (LFL/10)	This concentration represents a level at which industry response personnel should leave the area or don fire protective clothing if continuing to work in this environment or if approaching the source of a release.
50% of the LFL (LFL/2)	A concentration level at which ignition and flame propagation through a dispersing plume may be possible due to the non-homogenous nature of dispersion in the atmosphere (i.e., concentration fluctuations). A meteorologically weighted distance to this criterion (as calculated using quantitative hazard analysis methods) is often used as the basis for establishing emergency planning zones for flammable substances. If measured by air monitoring, this concentration represents a level at which public protection measures such as removal of ignition sources, shelter-in-place or evacuation may be warranted.
100% of the LFL (LFL)	A concentration level at which (in the presence of an ignition source) ignition and flame propagation through the dispersing plume is highly probable. Extreme caution should be exercised, and emergency response personnel should withdraw from the area.

Adapted from Best Management Practices, Emergency Air Monitoring, Canadian Association of Petroleum Producers, March 2014

7.12 Hydrocarbon Exposure

Exposure to flame (delayed ignition of a hydrocarbon gas release). Direct exposure to flame occurs when ignition of a flammable gas cloud in the environment is delayed. If ignited, a flame front will move from the point of ignition, through the gas, to the source.

For planning purposes, the flammable region of the plume is assessed by estimating the concentration of fuel in air as the gas is transported and dispersed from the release site. The lower flammable limit (LFL) is the lowest concentration at which the fuel will support combustion in the presence of an ignition source. While hydrocarbon gases cannot burn below the LFL, the distance to one half of the LFL (LFL/2) is used as a conservative basis for establishing the boundaries of the flammable region. For emergency response purposes, responders will use monitors to determine where a flammable gas exists.

Direct exposure to flame can result in third degree burns or death. If you detect a hydrocarbon release, extinguish and reduce all ignition sources and, if possible, move away from the area on foot in a cross-wind direction away from the source. If you cannot leave the area on foot or are uncertain about the source of a release or the wind direction, please shelter indoors.

7.12.1 Exposure to Heat Radiation (ignited hydrocarbon release)

Exposure to thermal radiation can result from a:

- Pool fire or refers to the burning of liquid hydrocarbon at the surface of a liquid hydrocarbon pool (e.g. burning of an oil pool).
- Jet fire: refers to the burning of liquid or gas at the point of the release into the atmosphere (e.g. the flame on the tip of a butane torch).

A number of criteria are used to evaluate the effects to people of heat exposure. These include:

- Thermal Radiation: a measure of the instantaneous level of heat radiation received at a location near a release.
- Thermal Load: a measure of the cumulative heat received at a location near a release and is a better measure of the overall impact to people.

These effects of heat exposure are summarized for these criteria in the tables below.

Thermal Radiation

Radiation Intensity (kW/m^2)	Damage to Equipment	Exposure to People
4	Glass broken after long time radiation	Sufficient to cause pain to personnel if unable to reach cover within 20 seconds; blistering of the skin (second degree burns); 0% lethality.
12.5	Minimum energy required for piloted ignition of wood; melting of plastic tubing.	1% lethality in 1 minute. First-degree burns in 10 seconds.
25	Minimum energy required to ignite wood at indefinitely long exposures (non-piloted).	1% lethality in 30 seconds. Significant injury in 10 seconds.
37.5	Sufficient to cause damage to process equipment.	100% lethality in 1 minute. 1 % lethality in 10 seconds.

World Bank (1985) in Guidelines for Chemical Process Quantitative Risk Analysis, Center for Chemical Process Safety of the American Institute of Chemical Engineers, 1989.

Thermal Load

Harm Caused	Thermal Dose Units (TDU) $(kW/m^2)^{4/3}$ s
Pain	86 to 103
First Degree Burns	80 to 130
Second Degree Burns	240 to 350
Third Degree Burns	870 to 2600

Health & Safety Laboratory, 2004

For the purposes of establishing HPZs, the maximum distance to a thermal load of 342TDU $(kW/m^2)^{4/3}$ s is applied.

7.13 Entry Procedures into the EPZ

- Only authorized personnel may enter the response zones.
- Use the "Buddy System" when required.
- Keep in contact with the Incident Commander using two-way radio or mobile telephone.
- Schedule reports every 10 to 15 minutes while in the response zones.
- Wear personal protective equipment (PPE).
- Continuously monitor the concentration of combustible gas (LEL) in the area.

7.14 Roadblocks

7.14.1 Isolating the EPZ with Roadblocks

The response zones are to be isolated by roadblocks to prevent entry of non-essential personnel. Roadblocks are to be established and manned by the Company or contract personnel with possible assistance from the police and/or local disaster services.

An ongoing situation may require the activation of additional contract safety personnel to provide relief at the roadblocks.

When contacting additional roadblock personnel, the following information must be provided:

- The nature, location and extent of the response zones.
- Suggestions on where to establish roadblocks.
- The current weather conditions (such as wind speed and direction).

- The estimated number of people living in the response zones.
- The name, telephone number and location of the Incident Commander.

Each roadblock location should have access to the following equipment:

- Road barricades.
- Radio or mobile communication equipment.
- Personal protective equipment.
- Flares and/or strobe lights.
- Area map.
- Roadblock checklist.
- Air Monitoring detection equipment.

This equipment is available from local contract safety companies.

7.14.2 Suggested Roadblock Equipment

- H_2S, LEL, CO, O_2 detection equipment (handheld instruments).
- High-visibility reflective vests.
- Communication equipment.
- Poisonous gas signs.
- Road barriers.
- ERP maps.
- Reflective triangles or cones.
- Flashlights (with batteries).
- Appropriate forms, such as air monitoring record and roadblock log of people leaving and entering the PAZ.
- Handheld stop signs.
- Personal protective equipment.
- Flares and/or flashing lights.
- First aid equipment.
- SCBA.
- Pens.
- Portable rotating emergency lights.
- Waterproof bag.
- Caution tape.
- Rain suit.

The permit holder must ensure that company equipment is operational meets industry standards.

7.14.3 Setting up a Roadblock

- Park vehicle on an angle across the lane, activating four-way flashers and roof-mounted rotating beacon.
- Put on a reflective vest.
- Take a reading with your handheld monitor for H_2S and lower explosive limit (LEL), ensuring your roadblock is not too close to the edge of the EPZ. Record readings on the Air Quality Monitoring Log.
- Notify the Public Protection Group Supervisor once your roadblock is set up.
- Continue to monitor and record H_2S and LEL levels at scheduled intervals. Report to the Public Protection Group Supervisor at scheduled intervals.
- Maintain roadblock until the emergency is over and the stand down declaration is given or until relieved by other roadblock personnel.

To give motorists time to prepare to come to a stop, it is recommended that the roadblock personnel setup all available reflective triangles 330 feet apart, at a minimum distance of 650 feet before the roadblock.

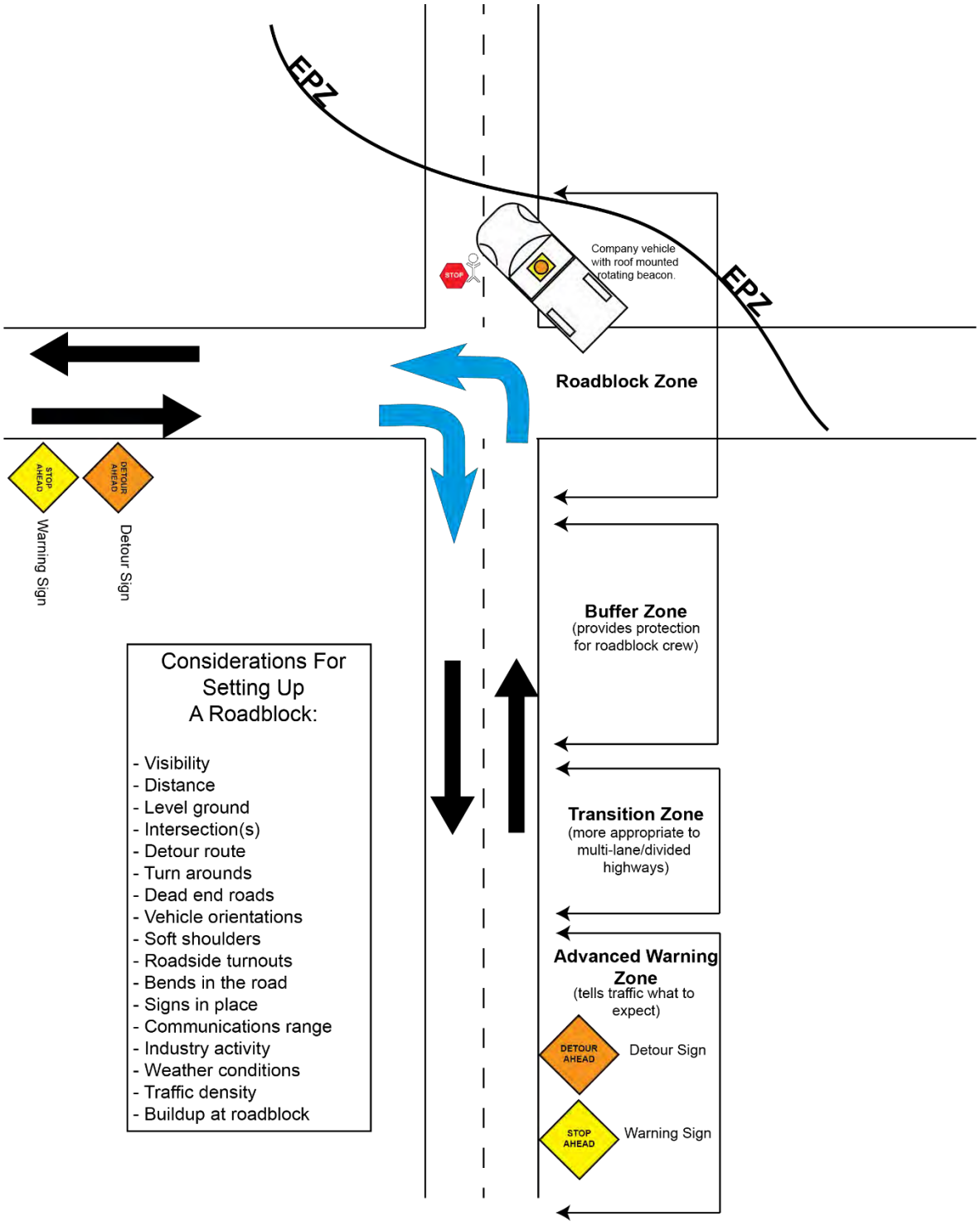
Roadblock Statement

Hello, my name is _____ (state your name).

I am representing PetroShale (US) Inc.. PetroShale is presently experiencing control problems ahead. This situation is serious enough to warrant restricted access beyond this point and therefore I am requesting you take an alternate route.

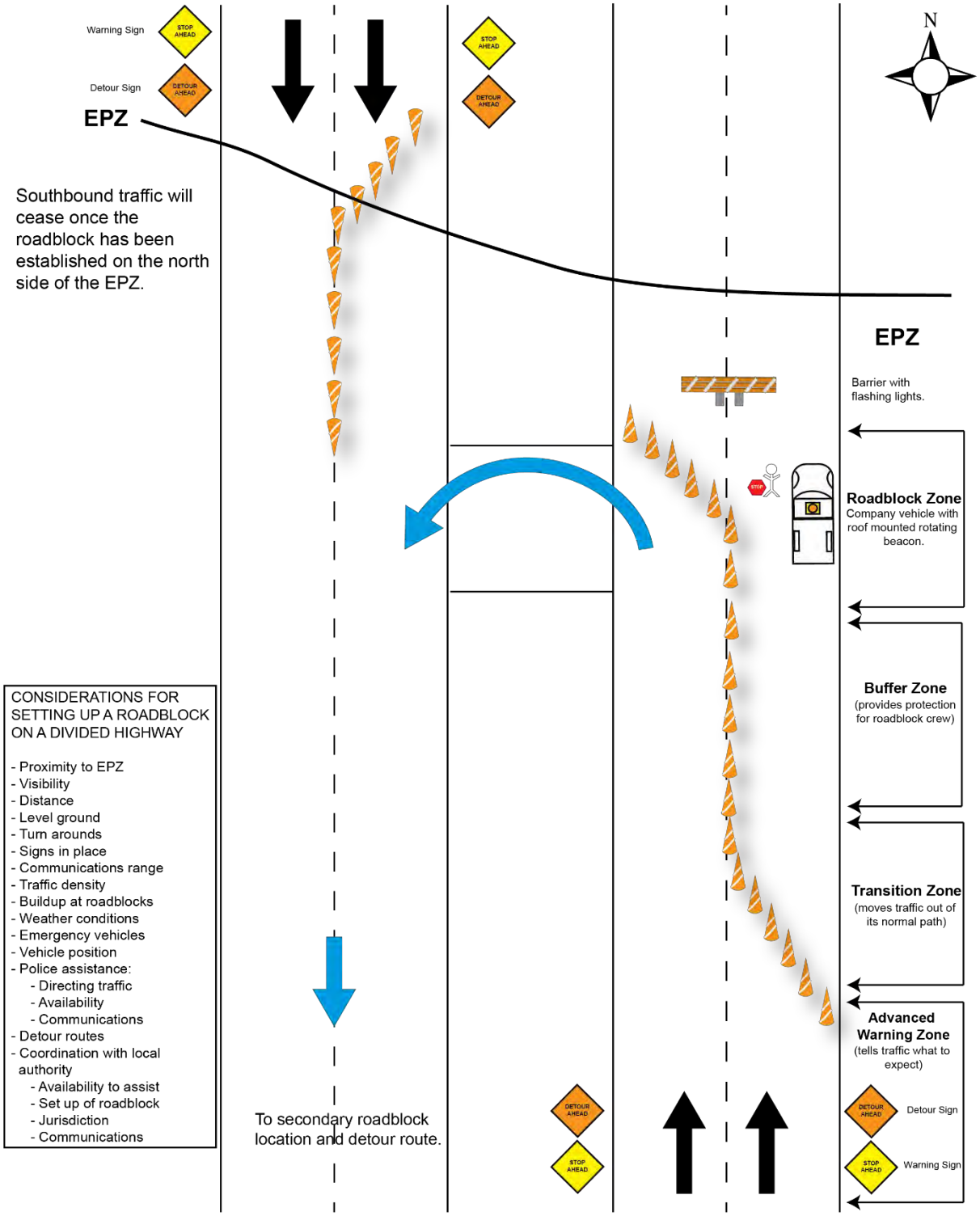
Note: Confirm evacuation route and evacuation orders with Public Protection Group Supervisor prior to directing traffic on an alternate route

Primary Roadblock – Single Lane Roads



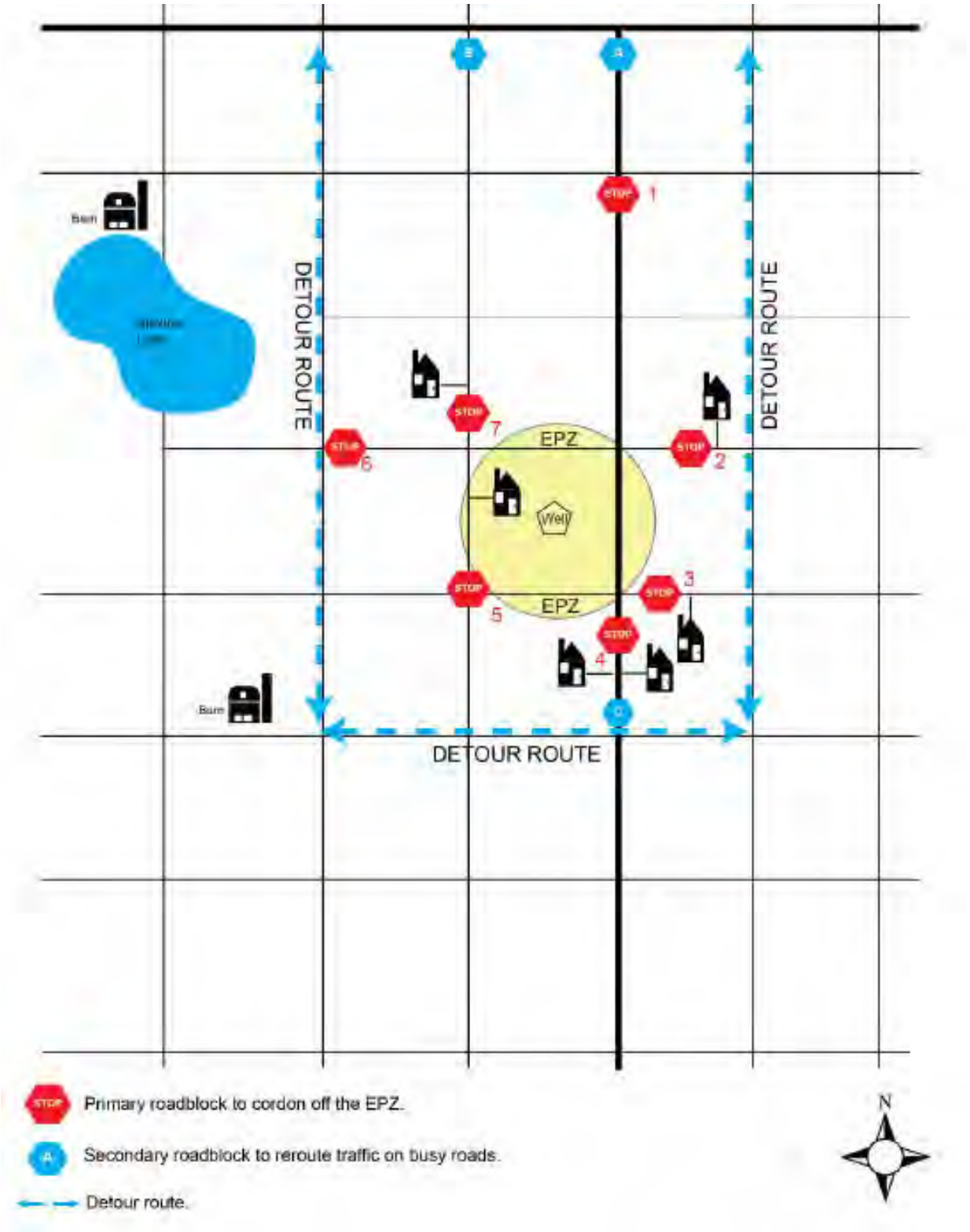
Secondary roadblock locations might be established to facilitate re-routing traffic around the hazard area. All diverted traffic would be re-routed to the secondary roadblock locations.

Primary Roadblock – Multi-Lane/Divided Highway



In this scenario, the roadblock will be set up prior to the arrival and assistance from either the State Authority for primary highways or the Police. Secondary roadblock locations must be established to facilitate re-routing around the EPZ area. All diverted traffic would be re-routed to the secondary roadblock locations.

Secondary Roadblock – Placement Schematic



7.15 Shelter in Place

Shelter in Place is an acceptable public safety action when there is no advanced warning to the incident, or the release is of a short duration (several minutes to half an hour).

Studies have predicted that the indoor concentration of toxic and flammable gases is significantly lower than the expected outdoor concentration levels.

Sheltering will be considered the primary protective measure in limited circumstances when:

- There is not enough time or warning to safely evacuate the public immediately.
- Stakeholders are waiting for evacuation assistance.
- There is a sour gas release of limited duration.
- The location of the release has not been identified.
- The public would be at a higher risk if they were evacuated.

7.15.1 General Shelter in Place Instructions

The following steps should be communicated to the public if individuals are asked to shelter in place:

- Immediately gather everyone indoors and stay inside.
- Close and lock all windows and outside doors.
  - If convenient, tape the gaps around the exterior door frames.
- Extinguish indoor wood burning fires.
  - If possible, close flue dampers.
- Turn off appliances or equipment that either:
  - Blows out or uses indoor air, such as:
    - Bathroom and kitchen exhaust fans.
    - Built-in vacuum systems.
    - Clothes dryers.
    - Gas fireplaces.
    - Gas stoves.
  - Sucks in outside air, such as:
    - Heating ventilation and air conditioning (HVAC) systems for apartments, commercial or public facilities.
    - Fans for heat recovery ventilators or energy recovery ventilators (HRV/ERV).
- Turn down furnace thermostats to the minimum setting and turn off air conditioners.
- Leave open all inside doors.
- Avoid using the telephone, except for emergencies, so that you can be contacted by emergency response personnel.
  - Call the Company emergency number that you have been provided:
    - If you are experiencing symptoms or smelling odours (so that we can address your concerns and adjust our response priorities).
    - If you have contacted fire, police or ambulance (so that we can coordinate our response).
- Stay tuned to local radio and television for possible information updates.
- Even if you see people outside, do not leave until instructed by response personnel.
- If you are unable to follow these instructions, please notify the Company's emergency response personnel.

7.15.2 Post Shelter in Place Instructions

Once the emergency situation has been corrected you will receive a communication from the emergency response personnel. Advise the residents/area users/stakeholders to:

- Ventilate the building.
- Open all windows and doors.
- Turn on indoor fans.
- Turn on the furnace.
- Avoid remaining inside during this time (if possible) as the outdoor air may be fresher.
- Once the building is ventilated, return all heating, ventilating and other equipment to normal.

7.16 Liquids Release – Site/Facility

7.16.1 Liquid Release Site Safety

- Activate the site evacuation alarm and establish safety zones to protect workers, residents and public. Reference EPZ map or utilize Emergency Response Guidebook for zoning guidance.
- Where the spill/release is flammable, eliminate any sources of ignition and monitor for Lower Explosive Limits.
- Reference SDS for released material's properties (located in the site office, drilling floor, etc.):
  - Exposures considerations.
  - Handling precautions.
  - Personal Protective Equipment.
  - Clean-up measures.
- Assess the specific hazards associated with exposure and response to the spill.
- Ensure that all site personnel are accounted for.
- Ensure all workers in proximity to the spill, are monitored to ensure their personal safety.
- Countermeasures must only be initiated where hazardous material exposure can be controlled within training levels of workers.

7.16.2 Action Plan for Liquids Release

- Where available consult the site-specific or field area section for an overview of spill potentials and environmental receptors including water bodies and streams.
- Contain release to the site recovering as much spilled material as possible.
- Protect surface waterbodies, groundwater and other sensitive environmental receptors in the area.
- Notify Company management and notify local emergency response agencies.
- Rapid mobilization of response contractors and any additional technical support.
- Consult the SPCC plan to ensure proper notification and involvement of regulatory agencies as needed
- Establish decontamination procedures prior to commencing recovery efforts.

Evacuate and Restrict Access

- Evacuate personnel from the facility when required by the scale of the spill.
- Request through 911 roadblocks and or evacuation of residents where indicated.
- Provide facility security at the access points to the facility to:
  - Restrict access to areas in proximity to the spill.
  - Maintain accountability of the personnel on site.
- Initiate the notification and access control to exposed or threatened public areas off-site.

- Coordinate roadblocks.

Identify the Released Material

- Identify the spilled product:
  - Chemical Name.
  - Common name.
  - Class.
  - Type.
  - UN/DOT Number.
- Reference the product's SDS identifying:
  - The flammability of the spilled product.
  - PPE requirements for proximal exposures and handling of the spilled product.
  - Released materials reaction with organic materials.
- Immediately report the release event to the line supervisor, providing all known information available.

Identify the Release Parameters

- Identify the source of the release.
- Identify and remove any known potential ignition sources for the spilled product within the Planning Zones.
- Initiate monitoring of any flammable or combustible material:
  - Identify and monitor elevated LEL areas.
- Identify:
  - The likely spill exposure area.
  - Velocity and volume of the release.
  - Potential to erode or overcome site containment features.
  - The potential worst-case scenarios.
- Consider discontinuing operations for larger dynamic release events.

Identify the Release Exposures

- Reference available site documents.
- Identify the release exposure to the Spill Retention Basins (SRBs).
- Identify the release exposure to Environmental receptors (e.g. water bodies, streams, ground areas with high permeability, marshes, etc.).
- Identify any public or resident exposures.

Identify the External Resources Required

- Responding agencies.
- Technical personnel.
- Manpower.
- Equipment.
- Specialized materials.

Report Incident Information to the Incident Command Post

- Event timeline.
- Material released.
- Hazards and exposures generated from the released material.
- Volume of release.
- Volume-rate of release.
- Likely total volume of release.
- Worst case release volume.
- Off-site areas of release sensitivity.
- Current release control actions.
- Planned release control actions.
- External resource support required.

Initial Countermeasures

- All response personnel shall wear appropriate PPE.
- Provide a decontamination station for responders and initial containment personnel.
- Stop the flow of product at the source if safe to do so:
  - Close Isolation Valves.
  - Shutdown Transfer Pumps.
  - Transfer materials from leaking tanks into available and compatible undamaged storage tanks, vacuum trucks or lined secondary containment areas.
- Attempt control of the release by:
  - Confining the released materials to on-site areas.
  - Utilize absorbent booms and pads to contain and clean-up smaller release events.
  - Directing the release away from and limiting the negative exposure or spill accumulation in or around critical site facilities and components.
- Utilize the Spill Retention Basins (SRBs) as release control points:
  - Immediately plug off/cap the discharge pipes.
  - Block off drainage ditches, culverts and discharge pipes with sandbags, earthen dikes, and other available materials.
- Where containment is not possible, attempt to divert the release in a direction that may:
  - Allow for containment.
  - Use natural containment (topography).
  - Provide an outfall away from waterways.
  - Limit exposure of sensitive areas.
  - Limit public exposure.
- Adequately monitor Facilities for:
  - Leaks, pressure build-up, and gas generation.
  - Valve, pipe and equipment ruptures.
- Where a material release has entered waterway and cannot be contained, attempt to create control points:
  - In the event that the released material is lighter than water, create a dam with an underflow water passage to allow clean water flow while retaining and controlling the released material at the dam location.
  - In the event that the released material is heavier than water, create a dam with overflow water passage past the dam to allow clean water flow while retaining and controlling the released material at the dam location.

Management of Recovery Operations

- Track and document the areas outside the fence line, with regard to:
  - Release volume.
  - Proximity/exposure monitoring.
  - Control actions – time-based record.
  - Clean-up actions – time-based record.
- Initiate soil sampling and regulatory communication about remediation as maybe required.
- Recover surface fluids and contaminated soil.
- Fence-off release areas to protect people and wildlife until reclamation is complete.

- Contaminated material must be placed in appropriate impermeable storage (steel tank, lined containment area, etc.), sampled and disposed of at an approved licensed disposal facility.
- Plan adequate storage and disposal of any recovered/ contaminated product.
- Follow approved Federal DOT regulations when shipping recovered /contaminated materials.

7.17 Spill Contingency Plan

The purpose of this Spill Contingency Plan (SPCC) is to define procedures for responding to discharges of petroleum or refined products that flow offsite and/or that impact surface water features such as drains, wetlands, ponds, or creeks.

The objective of the procedures described in this Spill Contingency Plan is to protect the public, Company personnel, and other responders during spills or releases and clean-up operations. In addition, the Spill Contingency Plan is intended to minimize damage to the environment, natural resources, and facility installations from a discharge.

This Spill Contingency Plan describes the responsibilities and procedures for notifying and responding to a petroleum or refined products discharge and performing clean-up operations.

7.17.1 Spill Preparedness Risk Analysis

The risk analysis is the identification of potential spill sources and product types from a company's operations, the potential hazards that could result from an uncontrolled release and the determination of the vulnerability of an area should a spill occur. The possibility that a spill could occur under all conditions in a given area must be anticipated. In terms of spills, higher risk operations are often linked with having facilities and/or transporting products in close proximity to the public and environmentally sensitive area including those areas that have surface water.

A typical risk analysis of a company's operations includes the following components:

- An evaluation of products handled in terms of their characteristics during an uncontrolled release as well as their impact on people, property and the environment.
- Familiarization with the environmental sensitivities around facilities and in areas where the products are handles and/or transported.
- Compliance with legal and company requirements (i.e. laws and regulations, industry standards, policies, procedures and guidelines).
- Review of construction and maintenance procedures.
- Evaluation of the spill prevention program.
- Review of the company emergency response plan and spill contingency plan.
- Evaluation of the overall company's response capability for each area of operation.

7.17.2 Seven Step Guideline for Spill Response

For specific spill volume thresholds and reporting requirements, see the applicable Jurisdictional Section in this ERP.

Step 1 – Collect and Document Spill Reporting Information

One of the first steps in a spill response will be to collect and document spill-reporting information. This emergency response plan has a spill report form that can be used to collect critical information. Ensure that staff are familiar with the spill report form and know who to pass information on to. Information documented on the spill report form will be used to notify initial spill responders, company contacts and where appropriate, government and land contacts. It is important to ensure that a contact number is recorded for the person that reports the spill and that there is follow-up contact with that person. Typical information on a spill report form includes:

- Person reporting and contact numbers.
- Operator, company and/or permit holder information.
- Date and time of incident.
- Type and volume of the spilled product (product identification number if available).
- Incident cause.
- Incident location and site description.
- Safety concerns.
- Environmental issues.
- Level of emergency.
- Public concerns issues.
- Spill response activities.
- Contact information.

Responder tools will depend on the types of spills. If an employee has been identified as having a spill response role, it is important that he/she has quick access to initial response tools including:

- An emergency response plan or key information (e.g. contact lists, resource lists, access and control point maps) extracted from the plan.
- Communications equipment.
- Appropriate personnel protective equipment including a personal and/or electronic monitor (gas detector).
- Recording equipment (e.g. notebook, pens, and camera).
- Portable barriers and/or hazard warning ribbon.
- A compass and measuring equipment (e.g. topofil, tape measurer).
- Personal items (e.g. water, extra clothing, snacks, etc.).
- Wind indicators (e.g. portable windsocks, Teflon tape).

In addition, it may be of value to have access to some basic spill containment and sampling equipment including:

- Shovel.
- Rubber mat and/or plastic to cover storm and/or sewer drains and plywood to block culverts.
- Sorbent booms.
- Basic patching equipment for container leaks.
- Sampling equipment and containers.
- Quantabs for assessing salinity at produced water spills.

Step 2 – Dispatch Initial Responders to the Incident Site

Following the notification of the incident dispatch initial responders to the spill site to:

- Verify that there is a spill.
- Gain site control.
- Assess the incident.
- Make appropriate contacts.
- Develop an incident action plan.
- Isolate the leak.
- Initiate containment and recovery if safe to do so.

On route to the site, responders should consider how they would safely approach the area to minimize exposure. In general, the site should be approached from upwind and from high ground if possible, with appropriate PPE and detection equipment.

Three important things for responders to remember during the initial response are:

1. To protect the lives and well-being of spill responders.
2. Initial responders must only attempt what they are capable of doing safely.
3. Sounding the alarm with a call for help should be anticipated.

HELP! Where from?

- Internal resources.
- Other companies.
- Government agencies.
- Fire departments.
- Police.
- Ambulance.
- Contractors.
- Spill specialists.

It will be important that the response team have pre-determined organizational structure with a spill response team leader and that each member clearly understands his/her role. The initial response team should be organized so that they work in pairs (buddy system) prior to taking any action on-site. Good, clear communications within the initial response team is critical. If additional help is required, the initial responders should identify a practical meeting location that can be used as a staging area for manpower and equipment.

Step 3 – Arriving at the Spill Site – Site Control

One of the most critical steps once the responders arrive on the incident scene is for them to take control of the site. It is essential to keep all personnel out of the hazardous area until the identification of the nature and degree of hazards is known, and the initial assessment completed. This includes not only hazards from the spilled material but other physical hazards such as power lines, etc. Although no two spills are the same and not all of the assessment information is immediately available, the following general sequence of site control techniques is common during a disciplined spill response:

- Verify who is in command.
- Identify the emergency planning zone which is the area of greatest concern related to the hazards associated with the event.
- Secure all non-essential personnel from the emergency planning zone and identify the emergency planning zone with ribbon and/or barricades if possible.
  - This step could include the evacuation of a large number of people and outside assistance will likely be required.

- Identify an entry and exit checkpoint at the periphery of the emergency planning zone to regulate the flow of personnel and equipment.
- Control all access to the emergency site by adding a contamination reduction zone which is a transitional or buffer area and a support zone which is a clean area for the On-Site Command Post (OSCP), equipment, staging, etc.
- Identify a safe area within the contamination reduction zone to remove contamination from response personnel, their clothing, and equipment.
- Eliminate all potential ignition sources if safe to do so.
- Identify an emergency signal, escape routes, and a meeting location for response personnel.
- Place wind indicators at appropriate locations.
- Ensure responders understand the issues related to site management and understand their role.

If there is an injury at the spill site when the responders arrive it may be necessary to provide primary care to the injured persons until medical professionals arrive. In remote areas, it may be advantageous to consult with a physician via radio or phone and provide care for the injured during the transferring of the injured to medical professionals. It is extremely important that responders do not take an unreasonable risk when attempting a rescue operation at the incident site.

Step 4 – Situation Analysis

Following their arrival on-site, the response team will conduct an assessment of the spill, sometimes referred to as a situation analysis. The analysis can be broken down into smaller components as follows:

- What is the problem?
- What variables can affect it?
- What are the potential losses and critical issues?
- What is needed to protect response personnel?

The Problem?

Analyzing the problem means looking at the quantity and nature of the material, type and behavior of the container and stage of incident.

- Identify the spilled substance.
- Identify of the hazards associated with the uncontrolled release.

Sources of Information Include:

Operator Knowledge: The owner of the spilled material is a good source of information related to product identification, characteristics of the material and typical hazards associated with an uncontrolled release. The owner also has access to Safety Data Sheets (SDS) and an emergency response plan.

Shipping Documents: If the spill is linked to a transport vehicle, shipping documents or a waste manifest will be in the road vehicle within reach of the driver (i.e. seat or door pocket). The shipping document will outline contact information, a description of good carried, quantity of goods and an emergency response telephone number.

Safety Marks/Labeling: Placards (10 in x 10 in) used to identify loads over 120 gallons, labels (4 in x 4 in) used to identify product in smaller containers and safety marks provide visual clues related to the identification and hazards associated with the spilled product. An international system of safety marks that responders should be familiar with includes:

- **Class Number:** Eight classes of dangerous goods are identified including; Class 1-Explosives, Class 2-Gases, Class 3-Flammable Liquids, Class 4-Flammable Substance, Class 5-Oxidizers/Organic Peroxides, Class 6-Toxic/Infectious Substances, Class 7-Radioactives, Class 8-Corrosives, Class 9-Miscellaneous
- **Colour:** The color of the safety mark will also provide clues as to the type and hazard associated with the material; for example, red indicates that the product is flammable.
- **Number:** A United Nations (UN) number, a four-digit number has been assigned to all dangerous goods; for example, gasoline is UN 1203, diesel fuel is UN 1202, and crude oil is UN 1267.
- **Container Identification:** The size and shape of the container involved in an uncontrolled release can also provide responders with a visual clue related to that container's contents.

Emergency Response Guidebooks: These guides help the responder identify the material by listing all of the United Nations (UN) numbers and linking the number with the name if the material and/or listing the materials in alphabetical order. The guidebook also provides a general guideline on potential hazards, public safety issues and emergency response considerations for each of the materials listed in the book. In addition, the guide includes initial isolation and protective action distances that can be used to zone a spill site (i.e. flammable liquids isolate spill for at least 80 to 165 feet in all directions).

Computer databases: Countries maintain emergency response telephone numbers where the responder can obtain specific information regarding the spilled substance.

In terms of quantity, responders should be concerned with both the amount of product spilled and the amount that could be spilled. The type, condition and behavior of the container will help responders estimate spill volumes and forecast potential problems.

Variables That Affect the Spill:
There are three primary variables that have an impact on a spill including the location of the spill, the time the spill occurs, and weather conditions. It is important to remember that no two spills are the same and that these variables can affect the spill in many different combinations.

Spill Location

The spill location will likely have the greatest impact on the number and complexity of issues that a response team is faced with. The following are typical examples of how location can affect the spill's impact:

- **Populated versus Unpopulated areas:** Spills in remote areas will likely have less impact on the general public, as opposed to the same incident occurring in a populated area. Remote areas usually have their own unique characteristics that can present challenges to the responsible party (i.e. communications problems, resource availability, equipment access, exposure to wild animals, etc.).
- **Spills in Surface Water versus Land Based Spills:** Spills that migrate into surface water are much more complex to deal with than land-based spills. The issues become more complex when there is a current carrying the product downstream, particularly when there are downstream water users and the stream or river is abundant in fish and wildlife.
- **Land Uses:** It is not uncommon for there to be several land uses associated with a spill incident. The more land uses affected by the spill, the more issues the response team is usually faced with.

- **Spill Site Characteristics:** The soil structure, vegetation types, presence of storm, and sewer drains, topography, and man-made structures at a spill site are just a few of the potential site characteristics that can have an impact on the incident.

Time

The time of day, day of the week and month of the year all have an impact on the issues related to the incident. For example, a spill that occurs in the middle of the night will probably have a delay in the overall response.

Weather Conditions

Weather conditions can help or hinder the conditions at a spill incident. Wind can have major effect on downwind exposures, it can change directions in a matter of seconds and move spill vapours into highly sensitive areas. In some cases, stronger winds can disperse vapours and reduce the flammable range and toxicity of a hydrocarbon plume migrating from the incident site. Strong winds also have the potential to blow debris around the site and cause dead standing timber to fall. In the absence of wind, vapours can pool in low areas in and around the spill site. Wind can also affect the movement of a spilled substance on surface water by increasing or decreasing the spreading rate and pushing the substance in a downwind direction.

Temperature may have an effect on the behavior of a spilled substance and can reduce or increase vaporization rates. In addition, temperature extremes can present health risks to responders such as heat stress, hypothermia and exposure to lightning strikes. Travel time for responders can also be influenced by weather conditions.

Winter conditions present their own unique problems such as product mixed with or under ice and snow, short days, cold temperatures, equipment limitations, etc.

Identification of Potential Losses and Critical Issues

Generally potential losses resulting from a spill include:

- Health and welfare of people linked with the incident including the spill response team.
- Health and welfare of domestic animals, fish and wildlife.
- Damage to property and equipment.
- Negative impact to the environment.
- Impact on a company’s image.
- Costs incurred from losses and response activities.

It is important to identify all land uses and stakeholders that are or could be affected by the spill. In some jurisdictions, a list of land uses can be obtained through an electronic data base. Other sources of information include contingency plans, local residents, regulatory personnel (e.g. lead agency for spills, police, fish, and wildlife and forestry), area pumpers, utility companies, State offices, and recreational users. Identifying the stakeholders will help responders to identify spill issues and formulate a response plan. Not all this information will be available during the first few critical hours of the incident; however, it will be necessary to obtain it for an effective response. Identifying the stakeholders affected by the spill will help define the critical issues related to the incident and to prioritize those issues based on the spill response priorities; protection of life, property and the environment.

At this stage of the analysis it is advantageous to characterize the spill as stable or unstable. Stabilized means that all fires have been extinguished, all ignition sources have been controlled and all spills have been contained. Unstable means that conditions at the site are changing and control of the incident is pending.

Step 5 – Documentation and Information Management

Documentation of the incident is extremely important and should be initiated early in the response and maintained throughout the event. Documentation requirements will depend on the nature if the incident and should include the following:

First Report: Date and time of release, location of the point of release, composition of the release, quantity of spilled substance, release cause, circumstances leading up to event, and initial response activities.

Spill Response Organizational Structure: Outline of the organizational structure with contact information.

Site Description: Spill sketch, photos, and map.

Event Records: Chronological record of events.

Safety: Findings of initial hazard assessment, safety controls, safety meetings, worker requirements, safety orientation, incident reporting, equipment, and resources.

Environmental Issues: Sensitivities, sampling information, waste management plan, etc.

Negotiations and Agreements: Internal company representatives, regulatory, and third-party contractual agreements. It is also important to maintain detailed records of site visitors, their contact information, reason for visit and specific details related to their involvement.

Incident Action Plan: An overview of the issues and plan to deal with those issues.

Regulatory Spill Reporting: Regulatory spill reporting requirements, located in this ERP, are dictated by the type of spill, the spill volume, and location of the spill. Non-compliance related to spill reporting usually leads to enforcement action and substantial fines.

Type of Spill: In most jurisdictions an upstream petroleum-based spill is reported to the lead Regulatory Authority. Refined product spills and chemical spills are reported to the environmental agency. There is normally a memorandum of understanding between the Regulatory Authority and Environmental Agency related to ensuring that they advise each other of appropriate incidents. If the spill is caused by a transportation incident and the spilled product is regulated under the Transportation of Dangerous Goods Act, it is a requirement to report the incident to police as well.

Spill Volume: State legislation identifies the minimum volume of spilled material that must be reported. In transportation-based spills where the product is DOT Federally regulated, the minimum spill volumes are outlined in the Code of Federal Regulations.

Location of Spill: If the spill is not reportable because the volume is less than the reportable volume, but the spill causes an adverse effect (negatively impacts people, property, and/or environment) it is considered a reportable spill.

Step 6 – Developing the Incident Action Plan

Once the spill responders have control of the site and have completed the assessment, they should develop and document an incident action plan. The plan will identify spill issues and outline tactical objectives for dealing with the issues. The following is an example of some of the issues that could be included in an incident action plan:

- Emergency conditions.
- Hazards, risks and assessment information.
- Issues identification.
- Safety controls.

- Response objectives, tactics and alternative options.
- Resources.
- Organizational structure.
- Names of individuals and agencies participating in discussions.
- Waste management.
- Sampling and analysis.

The incident action plan is subject to change. The response team evaluates the incident on a continuous basis and new spill issues are introduced as the incident progresses. It is important that responders review the plan on a frequent basis, make changes if appropriate and ensure that stakeholders are aware of those changes.

Step 7 – Implementation of Response Objectives

Once the incident action plan has been developed, the response team will implement response objectives. The incident will be handled offensively, defensively or by non-intervention.

- Offensive tactics require responders to control and/or mitigate the incident within the higher risk areas of the event. Safety controls must be in place to undertake offensive tactics.
- Defensive tactics allow responders to control/mitigate the emergency remote from the higher risk (i.e. installing barriers to prevent product from migrating into sensitive areas, deploying boom at downstream control points, etc.).
- Non-intervention refers to responders taking limited action at the emergency site, normally additional resources arrive.

7.17.3 Company Spill Discovery and Response Actions

The Company has the primary responsibility for providing the initial response to spills and releases originating from one of their wells, facilities, or pipelines. To accomplish this, the Company has implemented the Incident Command System (ICS), developed response plans, and completed training to respond to a spill or release event. The Incident Commander plays a central coordinating role in any emergency situation.

The Incident Commander will direct notifications and initial response actions in accordance with the company Emergency Response Plan, training, and capabilities.

Discharge Discovery and Source Control

Upon discovery of a leak or spill the following actions should be taken:

- Immediately report the discharge to the Company Supervisor, providing the following information:
  - Exact location
  - Material involved
  - Quantity involved
  - Topographic and environmental conditions
  - Circumstances that may hinder response
  - Injuries, if any
- Turn off all sources of ignition.
- Locate the source of the discharge.
- Turn off all equipment related to the incident that could add to the impact of the release.
- If safe to do so, isolate the affected equipment by closing off the closest valves upstream and downstream from the discharge source.

Assessment and Notifications

Notifications to the appropriate Regulatory Authority must occur after the discovery of reportable discharges. The reporting clock starts when the first company or contract employee discovers the discharge.

- Investigate the discharge to assess the actual or potential threat to human health or the environment. Also consider:
  - Location of the discharge relative to receiving water bodies (drainages, creeks, or streams)
  - Quantity of spilled material
  - Ambient conditions (temperature, rain)
  - Other contributing factors such as fire or explosion hazards
  - Sensitive receptors downstream (wetlands, ponds, or reservoirs)
- Request outside assistance from local emergency responders, as needed.
- Evaluate the need to evacuate the facility and evacuate employees, as needed.
- Assess whether community evacuation is needed. Notify the local authority, fire/police for assistance, as needed.
- Contact Company Supervisor to determine if Regulatory Authority notifications are required.
- Communicate with property owners regarding the discharge and actions taken to mitigate the damage.
- If needed, bring in outside contractors and order recovery equipment such as vacuum trucks and backhoes to stop the flow. Mobilize equipment and resources to the spill site as soon as the need is identified.
- If spilled fluids reach (or threaten to reach) any nearby drainages or surface waters, you may need to notify the local authority, Regulatory Authority fire/police

to limit access to the water by local residents until the product has been contained and recovered. Additionally, notify downstream water users of the spill and of actions that will be taken to protect these downstream receptors.

Control and Recovery

The Incident Commander directs the initial control of the release and other contractor personnel. The actions taken will depend on whether the product has reached water or is confined to land. All effort will be made to prevent the release from reaching water.

If the product has not yet reached water:

- Deploy sandbags and absorbent socks down gradient from the product, or erect temporary barriers such as trenches or mounds to prevent the product from reaching water.
- Implement land-based response actions (countermeasure) such as digging temporary containment pits, ponds, or curbs to prevent the flow of product into any water.
- Deploy absorbent sock and absorbent material along the water line to prevent product from entering waters.
- Contact clean-up contractor(s).
- Deploy floating booms immediately downstream from the release point.
- Control product flow on the ground by placing absorbent socks and other absorbent material or physical barriers (e.g., kitty litter, sandbags, earthen berm, trenches) across the product flow path.
- Deploy additional floating booms across the whole width of the affected waters at the next access point downstream from the release point. Plan ahead and access the stream or waters from safe locations.
- Deploy protective booming measures for downstream receptors that may be impacted by the spill.

Spill Clean-up/Mitigation/Reclamation

Once the pipeline break or leak has been located and isolated and the area has been secured, the following procedure should be followed.

- Determine if there are any other pipelines or utilities within 100 feet of the break or leak site. If so, the permit holder of these lines must be contacted before any ground disturbance occurs.
- Uncover the affected section(s) of pipeline by the safest method. Hand excavation or hydrovac should be used whenever the break is within 15 feet of the pipeline in question or another pipeline until the break or leak is located.
- Expose the pipeline break or leak, ensuring that the proper trenching, back sloping and shoring techniques are used and that a safe route of access and egress is maintained at all times.
- Obtain a sufficient number of samples of effluent to quantitatively determine its physical and chemical properties.
- Drain effluent into a bell hole and remove the impacted soil and waste to an approved disposal site.
- Photographs are to be taken throughout the operation for documentation.
- Refer to the Environmental Regulatory Authority regarding land reclamation standards and requirements.

Decontamination Guidelines

These guidelines are for personnel directly exposed (or suspected of exposure) to oil or chemicals or their vapours, products of combustion, etc. The intention is to provide a general overview of those decontamination situations most likely to be faced by Company responders.

Decontamination areas:

- Will be set up as needed during response operations.
- These areas are to be used for decontamination at the work site.
- They are not to be used as a substitute for personal hygiene prior to arrival.
- Are designed to protect the health of response personnel and to prevent the spread of contamination into 'clean' areas.
- In the field, it will not be possible to remove all contaminated clothing before taking a break from work. It is essential, however, to clean hands and face to avoid inadvertently ingesting oil or spreading contamination to otherwise protected parts of the body.
- In the field, provisions will be made for:
  - Soap, water, paper towels, waterless hand cleaner, and/or other materials for washing hands and feet.
  - Refuse containers.
  - Eyewash station.
  - Safety equipment and clothing as needed.

Full decontamination will be required at the end of the daily shift. Typically, this involves reporting to an area designed for removing contaminated clothing. This must be done carefully to avoid allowing the contaminated clothing to come into contact with the skin or clean clothing. Cleaning stations are used to scrub the body thoroughly in order to remove all traces of chemical or other contaminants. Once fully decontaminated, clean clothing will be put on and contaminated clothing will be cleaned appropriately.

Communications and Control

A Command Post will be set up near the incident site in the event of a discharge. The Command Post will be equipped with a variety of fixed and mobile communication equipment (telephone, cell phones, computers, etc.) to ensure continuous communication with Company management, responders, authorities and other interested parties. Additional equipment will be obtained from the response contractor in the event that more communications equipment is necessary.

The Incident Commander is responsible for communicating the status of the response operations and for sharing relevant information with involved parties, including Company Management; local, state and federal authorities.

Disposal of Recovered Product and Contaminated Response Material

The Incident Commander ensures that all contaminated waste materials are disposed of in accordance with all applicable solid and hazardous waste regulations. Contact the Company Supervisor to get guidance on approved disposal locations. In some cases, on-site treatment (bioremediation) may be approved, minimizing costs.

- Place any recovered product that can be recycled into an on-site tank to be separated and recycled.
- Dispose of recovered product not suitable for on-site recycling with the rest of the waste collected at an approved and permitted location.
- Collect all debris in properly labeled waste containers (impervious bags, drums, or buckets or a roll off bin with a liner).
- Collect samples to characterize the waste for shipping and obtain approvals from licensed disposal facilities. Prepare shipping manifests and shipping documents as needed.
- Dispose of contaminated material in accordance with all applicable solid and hazardous waste regulations using a licensed waste hauler and disposal facility.

Termination

The Incident Commander ensures that clean-up has been completed and that the contaminated area has been treated or mitigated according to the applicable regulations and state/federal clean-up requirements. In some cases, the spill area soil must be sampled before backfilling can take place. The Incident Commander collaborates with the local, state or federal authorities regarding the assessment of damages, as needed.

- Ensure that all repairs to the equipment or pipelines have been completed.
- Review circumstances that led to the spill or release and take all necessary precautions to prevent a recurrence. Apply lessons learned to all operations.
- Evaluate the effectiveness of the response activities and make adjustments as necessary to response procedures and personnel training.
- Carry out personnel and contractor debriefings as necessary to emphasize prevention measures or to communicate changes in operations or response procedures.
- Restock spill response supplies.
- Submit any required follow-up reports to the authorities.

Training Exercises and Updating Procedures

The Company maintains an ongoing training program to ensure that personnel responding to discharges are properly trained and that all necessary equipment is available to them.

Following a response to a discharge, the Incident Commander and Company Management will evaluate the actions taken and identify procedural areas where improvements are needed. The Incident Commander will conduct a briefing with field personnel, contractors, and local emergency responders as needed to discuss lessons learned.

7.17.4 Spill Management Techniques

Spills on Land – Containment

General Containment Procedures

1. If the spill is not flowing or spreading, no containment is required.
2. Use the information gained from the assessment to plan the location of the initial containment measures and determine what type of measures will be required (e.g., booms, sorbents, etc.).
3. Organize and install the containment measures in order of priority to prevent the spill from getting larger and to protect sensitive areas. This will reduce the amount of clean-up work and result in lower clean-up costs and damage settlements.
4. Local topography, locations of nearby streams, water bodies, and sewer outfalls, etc., should be taken into account when planning the location of containment berms and dikes.
5. Containment berms and dikes should be deployed on land in a manner that will prevent any spilled material from entering a water source. Contingency back-up plans should be developed in case of a breach or failure of a containment structure.
6. If necessary, topsoil should be stripped from areas that will be affected by a fluid spill prior to the spill reaching that area.
7. If necessary, the area around the spill should be fenced off to prevent wildlife and livestock from entering the spill area.
8. If the material is producing flammable or noxious vapours, apply an appropriate foam suppressant to reduce and control the fire/vapour hazard to the surrounding area.
9. In the event of fluid spills breaching existing containment structures, contingency plans should be immediately implemented to prevent any materials from entering streams or water bodies.

Containment Techniques

Sorbing Boom and Blanket

Booms and sorbent blankets may readily contain small spills, especially those that have accumulated on the surface and not infiltrated the soil. Judge the amount of boom needed and assess migration potential based on weather conditions and the topography of the spill area.

Earth Berm

1. Where equipment is available for hand or machine digging, earth berms and containment dikes can be used to contain spills.
2. Suitable soil material (i.e., clay, silt) should be used in the construction of containment dikes and berms. Topsoil material should be stripped and preserved for reclamation procedures.
3. Where soils or surface materials are too permeable to provide adequate containment of spilled fluids, berms/dikes can be fortified with plastic sheeting or sorbent blankets to make the berm less permeable.

Subsurface Trenching

1. Trenches may be contoured to direct or funnel spilled fluids towards a bellhole or other collection/containment area. If required, trenches and berms may also be constructed upstream of the spill to direct water or run off away from the spill.
2. Where significant subsurface flow of contaminants is anticipated, subsurface trenching will be required to intercept and contain any subsurface flow and direct it towards a bellhole or other low permeability containment area.

3. The specific pattern of trenching depends on the topography and flow regime in the subsurface materials. Trenches are most effective if they can be dug to the depth of the impermeable cemented hard pan or bedrock.
4. The bellhole containment area must be lined or located in impermeable material.

Liquid Spills on Open Ground

1. Spills on open ground are common to the oil and gas industry. Pipeline ruptures during the course of day-to-day operations and overflows of production fluids during well development/ completion activity account for a large portion of these material spills. Once on the ground, the spread of fluids is influenced by local topography and permeability of the soil. These two (2) factors together can make containment and clean-up operations difficult. Spills in areas of high relief can spread considerable distances in a short period of time causing greater aerial impact.
2. Fluid spills in areas with soils having high permeability should be cleaned up quickly in order to reduce the amount of infiltration into soil layers.
3. Spills should be cleaned up from the perimeter towards the centre. Travel through the affected area by equipment or personnel should be avoided at all times.
4. Universal or specific use absorbents can be used to collect spilled material from the containment area.
5. Contaminated soil should be excavated and removed to an area where runoff or leaching of the contaminants into the soil can be prevented.

Liquid Spills on Paved Areas

1. In areas of high relief, fluids spilled on pavement may travel rapidly over considerable distances. The viscosity of the fluid, the local relief, and lack of obstructions on the smooth surface will all affect the rate at which the spill will spread. If not contained, spilled materials may enter sewer outfalls and be transported into the local sewage system or into nearby water sources, which would complicate containment and recovery of the spill. This could potentially result in contamination of water sources and wildlife habitat. In such cases it is imperative that spilled materials are contained immediately and diverted away from any sewer outfalls that are within reach of the spill.
2. Location of downstream sewer outfalls, drainage ditches, streams, or water bodies should be determined so that they can be plugged or bermed to prevent spilled material from entering.
3. Foam suppressants should be applied on the spill if dangerous vapours are present.
4. Once contained, clean-up should start immediately. Spilled materials should be moved to collection areas utilizing shovels, scoops, squeegees, brooms, etc., and then removed by vacuum trucks.
5. Appropriate absorbent materials can be utilized to accumulate spilled material that cannot be moved to collection areas.
6. Used absorbent materials should be stored in barrels or another appropriate container and disposed of appropriately.

Solid Materials Spills on Land

1. Solid material spills on the land can lead to extensive environmental impacts. Material spills of this nature spread through wind and surface runoff. If not properly contained and secured, this material can travel considerable distances or become incorporated in local water bodies, adversely affecting the water quality and associated habitat. Runoff from the spill area can also contaminate these water sources if not properly collected.
2. Appropriate PPE should be donned before attempting to contain and recover spilled materials. Depending on the material, this may require the use of respiratory protection, goggles or facemask, rubber gloves, boots, and/or disposable or other coveralls.
3. No clean-up actions are to take place until the spilled material is identified and the correct safe handling procedures are put in place.
4. Environmental Regulatory Authority, and/or the manufacturer can be contacted to determine the appropriate containment and removal methods to use for the type of chemical spilled.
5. Extensive dry chemical spills should be covered immediately with secured plastic sheets to reduce the potential for the material to become wind-borne or leach into the soil from rainfall.
6. Dry chemicals can be removed with a shovel or by mechanical means and disposed of in an appropriate manner.

Spills on Land – Recovery and Removal

Sorbents
Sorbents can be used for small spills of oils, fuels, and lubricating oils that have not infiltrated the ground surface, or any other location where free product is floating or ponded.

Shovel and Barrel
Small crude/lubricating oil spills that have soaked into the ground can be dug out with a shovel. If the spill occurs on lease, spread the oil-soaked soil on a designated treatment area and work it into the first 3 inches of clean soil along with some manure and straw or other fibrous material. This can be worked in with a shovel and rake if the amount is small.

Vacuum Truck and Pumps
Hydrocarbons and saltwater can be recovered from containment areas or from standing water using vacuum trucks. The material is then transferred to holding tanks, sumps, or other approved facilities. Alternatively, 400 bbl tanks can be hauled to the site and set near the collection bell holes. Recovered fluids can then be pumped directly from the bellholes.

Earth Moving Equipment
Large earth moving equipment such as graders, scrapers, hoes, and front-end loaders may be utilized to contain and move oil contaminated sediments to a pre-approved storage, treatment, or disposal area. If the amount of oily sediment is small, it can be spread on a designated treatment area with some manure and straw or other fibrous material to bio-degrade the contaminated material.

Recovery Wells

Where spilled hydrocarbon or saltwater has infiltrated subsurface permeable materials and removal of the contaminated material is not desirable, it may be necessary to drill recovery wells around the spill area to the necessary depth, so the fluid can be intercepted and pumped to the surface.

Spills on Water – Containment, Recovery, and Removal

In situations where a substance that may be deleterious to the health and/or safety of humans and/or livestock or irrigated crops has been spilled into a watercourse it is necessary to notify regulators immediately and warn downstream users to take appropriate actions.

General Containment Procedures

1. In stagnant water bodies, floating booms should be deployed in a manner that will utilize winds and currents to help reduce the spreading of the spill.
2. Shorelines should be protected with floating booms, sorbent booms, or sorbent mats before the spill is moved to shore for removal.
3. In slow flowing watercourses (less than 0.62 mi/h), floating booms should be placed downstream to accumulate spilled material. At higher rates of flow, booms should be angled in a manner that will divert floating material to an area of low flow velocity for removal.
4. Do not place booms in areas where the flow rate is greater than 4 mi/h as they will be ineffective in containing the spill. If the flow rate is too high, try to locate a more suitable containment location downstream. Flow rates can be determined by measuring the time it takes for an object to float a known distance downstream. The use of elongated objects (such as sticks) may produce erroneous results (on the low side), as they tend to align themselves in the direction of the current, which allows water to slip past them.

Floating Spills

1. Materials that float on water such as oil, diesel fuel, or gasoline, if left to spread, may have serious environmental implications. The rate and direction at which such a spill will spread is dependent on wind, currents, and rate of flow. Spills into stagnant water bodies are generally affected by wind currents and can spread to form complex configurations making containment more difficult. Spills into watercourses such as rivers or streams are often more difficult to handle. Materials may be transported considerable distances by the stream flow before they are contained. High rates of flow or large debris being transported by the stream (i.e., ice, logs, and branches) may damage floating booms or render boom deployment ineffective. It is essential that immediate containment and clean-up be initiated for floating spills in order to limit adverse environmental affects and to reduce clean-up costs.
2. Floating debris in the stream course should be removed or contained upstream. This will prevent floating booms that are located downstream from being damaged and reduce the potential for clogging or damage of skimming or vacuum equipment.
3. Accumulated spill material should be removed by vacuum truck, skimmers, trash pump, or suitable absorbents as quickly as possible.

Floating Spills Under Ice

1. Oil spilled under ice will collect in pockets. In stagnant water bodies, oil will concentrate near the spill area. Holes should be drilled into these pockets and the oil removed by suction equipment.
2. Oil spilled under ice that has formed over moving water is best recovered by constructing an ice slot or trench angled to the stream bank. Oil should be removed by suction equipment on a continual basis to prevent build-up and escape.
3. If ice is too thin to support men or equipment, holes can be formed by dropping large inanimate objects using a helicopter (which requires prior approval from Environmental Regulatory Authority).

Insoluble Liquids Denser than Water

1. Materials that are heavier than water and do not dissolve, such as oily sludges or heavy oils, present unique problems when spilled into water bodies, rivers, or streams. These materials tend to flow and accumulate in low spots due to their greater density. Because they do not dissolve, contaminants can mix with bottom sediments and damage these shallow nutrient rich zones. The spread of these types of spills is dependent on such factors as bottom relief, currents, and flow rate. Containment and clean-up of such spills can be difficult, depending on site-specific factors. Speed and effectiveness of containment and clean-up procedures are critical in reducing the negative impacts associated with these types of spills.
2. If the material has entered a water body or watercourse, natural low areas into which the material will flow and accumulate, should be identified.
3. Natural low areas should be pumped free of spilled material. Any contaminated bottom sediments should be transferred by vacuum lines to corresponding holding tanks. Sediments can then be removed to an appropriate disposal or reclamation facility.
4. Dredging low areas to accumulate spilled material in fast flowing watercourses should only be done when determined necessary, and upon proper authorization from Environmental Regulatory Authority.
5. Construction of a dam or dam system downstream, and diversion of upstream flow should be done only when determined necessary, and upon proper authorization from Environmental Regulatory Authority.

Soluble Chemical Spills into a Water Course

1. Chemicals that dissolve in water, such as “caustic” and other process chemicals, can result in serious environmental impacts when spilled into water bodies. Depending on the toxicity and concentration of the substance, local water quality could be severely affected, and downstream users placed at considerable risk. Once incorporated in the aqueous environment, tracing these contaminants can be difficult. Wind, currents, flow rate, and sometimes bottom relief influence the spread of contaminated water. It is imperative that all reasonable effort be made to prevent soluble chemicals from entering water sources, and land based clean-up operations be initiated immediately. If spilled chemicals do enter a watercourse, a quick and effective response will help to limit the environmental impact.
2. Immediate notification should be given to the appropriate Regulators, and the affected landowners to ensure public safety and an expeditious clean-up operation.
3. Clean-up of the spilled material should be initiated immediately in order to minimize the area affected and the degree of environmental impact.
4. If chemicals have entered the watercourse, a dam should be constructed downstream from the spill site. If possible, water upstream of the spill should be diverted upon proper authorization from Environmental Regulatory Authority.

5. If damming and diversion are not feasible, then an accepted method for in-situ treatment of the contaminated water should be considered (i.e., activated carbon absorption, precipitation, neutralization, etc.).

Procedures for Obtaining Initial Soil Samples After a Spill

Sample Labelling and Storage

1. Store samples below 39°F and send them to the laboratory within 48 hours of sampling.
2. Clearly label all samples with the:
    - company name
    - well name/location
    - dates
    - sample location
    - unique sample identifier number, and
    - the name of the person who obtained the sample.
3. Store samples for transport in a secure travel container (i.e., a cooler).
4. In summer months pack the cooler with some frozen ice packs or ice to keep the samples below 39°F.
5. Wrap samples kept in glass jars individually in “bubble wrap” prior to packing in the cooler.

Laboratory Details

1. A chain-of-custody (CoC) or laboratory supplied Analysis Request Form should be completed and sent with the samples.
2. Ensure that all of the samples being sent to the lab are documented on the form, and that the proper analyses are requested for each sample.
3. Ensure that the required turnaround time for results is indicated. Normally these forms are in triplicate.
4. Retain one (1) copy for filing and send the other two (2) copies along with the samples.
5. The laboratory should be instructed to sign the CoC form when the samples are received and send one (1) of the copies back to confirm that they received the samples.
6. Keep both copies of the CoC form on file.
7. The laboratory will supply the sample containers, labels, CoC/Analysis Request forms, and the shipping container.

7.18 Well Kick Incident

Possible warning signs of a well kick.

- Change in flow rate from well.
- Change in the rate of drilling.
- Change in pump pressure.
- Rapid change in mud properties.
- Fluctuations in weight indicator readings and/or erratic torque.

7.18.1 Well Kick Site Safety

- Well operations shall be monitored for the warning signs of a well kick.
- Never allow a crew member to look down the hole during a flow check.

Action Plan for Well Kick Incident

- Drill plan to include realistic kick tolerance(s); rig drills to ensure tolerances can be detected and shut-in.
- Once the well is shut-in the choke should remain closed.

- If the pressure exceeds maximum allowable, prepare for possible remedial actions.

Flow Check

- Call an alert.
- Pick up off bottom to clear the Kelly and ensure there are no tool joints across the rams.
- Stop the pump.
- Divert the flow line to the trip tank.
- Read and record the trip tank volume.
- Record the flow check and its results in the tour report.

Shut-In Procedures

- Call an alert.
- Pick up off bottom to clear the Kelly and ensure there are no tool joints across the rams.
- Stop the pump.
- Shut-in process is to open the hydraulic valve at the BOP/ HCR (hydraulically operated gate valve) and close a pipe ram.
- Let the pressure stabilize for 5 – 15 minutes.
- Read and record SIDPP.
- Read and record SICP.
- Read and record any gain in the trip tank.
- Prepare to kill the well.

Post-Incident Inspection/Function Testing

- Once a well kick has been detected and resolved a post kick inspection/integrity check of all operating equipment is to be completed.

7.19 Blow Out Incident

7.19.1 Blow Out Incident Safety

Immediate Site Safety Procedures:

- Initiate site alarm/evacuation alarm/control ignition sources.
- Complete a headcount of all personnel on location.
- Report any missing personnel to the On-Site Group Supervisor.
- Where possible, determine who is missing and the last known location or work area.
- Coordinate rescue and treatment of workers exposed as required.
- If gas release is sour (or other toxic contaminant), ensure Public Protection Group Supervisor role is activated including air monitoring and roadblocks.
- Develop and communicate planning zones based on release rate and escalation potentials. Consider:
  - Well – time duration of liquid returns (if any).
  - Pipeline – time duration of pipeline isolation and de-pressuring.
  - Environmental conditions – wind speed/direction, nearby structures, forested, etc.
- Develop and communicate PPE and personal gas detector requirements.
- Avoid personal exposure to pressurized gas jets and all flammable areas.
- Identify a new and safe post evacuation mustering location.

7.19.2 Action Plan for Blowout Incident

- Isolate the leak/release and reduce back flow potential.
- Isolate pipeline to reduce back flow potential.
- Initiate air monitoring, roadblocks, resident notifications and prepare for media/public concern.
- Coordinate spill response and clean-up plan.

Request Emergency Response Agencies

- Call 911.
  - Request fire department, emergency medical responders and police.
  - Designate a safe staging position for responding resources.
- In the event of potential exposure to the public request that the local Emergency Management Representative and local police agency respond.
- Maintain air monitoring for levels Natural Gas.

Brief Emergency Responders

- Provide external emergency responders with an SDS.
- Brief emergency responders on the:
  - Event timeline.
  - Status of personnel accountability; search and rescue profile.
  - Status of the release control operations.
  - Nature of the release: dynamic - static.
  - Other uncontrolled facility hazards.
  - Status of other operating personnel within the facility.
  - Hazards of the release: e.g. flammable, corrosive, toxic, asphyxia.
- Identify the number of injured/exposed people due to any inhalation hazard.
- Identify the uncontrolled sources of ignition.
- Identify any confined spaces where lighter than air gases and/or heavier than air gases from liquids could accumulate.

Implement Release Control Actions

- Identify the release point and point(s) of control.
- Identify any buildings, facilities or residences near the release point and point(s) of control.
  - Gas detected inside a building – evacuate all occupants to the muster point or reception centre. Shut off all ignition sources if safe to do so.
  - Gas detected near a building – determine if occupants should shelter in place or evacuate to the reception centre. Shut off all ignition sources if safe to do so.
  - If the gas test readings indicate rising LEL, evacuate all occupants to the reception centre.

Small scale hydrocarbon releases from the wellhead/pipeline/facility or equipment.

- Approach from upwind of release point.
- Isolate leak by closing isolation valve(s).
- Isolate leak by plugging/patching/stabbing valve or other approved method.

Large scale hydrocarbon releases that remain on-site (in addition to above items):

- Request external manpower and equipment.
- Initiate LEL monitoring.
- Shut-in to reduce formation pressure.
- Consider tying in tanks or flare line to control/direct the release.
- Develop waste clean-up and storage plan.

Large scale hydrocarbon releases from the well head that remains on the lease site.

- Request external manpower and equipment.
- Identify injection wells in same zone.
- Shut-in to reduce formation pressure.
- Consider tying in tanks or flare line to control/direct the release.
- Develop waste clean-up and storage plan.

Large scale hydrocarbon off site releases, or releases not controlled by site personnel or equipment (in addition to above items):

- Request external manpower and equipment.
- Initiate down-wind LEL/H_2S/SO_2 monitoring, roadblocks and resident notifications as required.
- Secure the facility area.
- Determine plume ignition plan if required.
- Develop contingency plan.
- Consider tying in tanks or flare line to control/direct the release.

Implement Fire Control Actions where ignition has occurred

- If the fire is located near or directly involving a pipeline facility isolate and de-pressure the line as needed.
- If the fire is located near pressurized vessels, evacuate and prepare for a potential BLEVE.
- Before extinguishing a pressurized gas fire, ensure readiness plan is in place to address the gas plume and potential migration.

Post-Incident Actions - Securement of affected equipment

- Consider keeping equipment pumpers and supervisors to assist as required.
- Contact Hierarchy 1 Incident Command Post and request post-incident instructions including:
  - Internal accident Investigation.
  - Equipment impoundment/security.
  - Critical Incident Stress Debriefing.
  - Government Investigations.
  - Site Security.

7.20 General Fire Response

Extinguish fires and protect property impacted from fire without putting responders at risk. Control or eliminate product release and extinguish ignition sources to prevent a fire or explosion.

- Shut-in source (if safe to do so).
- Ensure personal safety.
- Call emergency services as required - 911 - Police, Fire, or Ambulance or tribal fire support contacts as appropriate.
- Conduct a risk assessment.
- Determine the level of emergency.
- If practical, implement a fire attack strategy to extinguish fire or cool equipment/facilities from the fire.
- Order resources such as water tanker, local fire department equipment and/or fire response contractor to assist in the response.
- Implement off site monitoring for LEL, hazardous gas and/or smoke particulates.
- If the public is at risk from smoke or hazardous gas, implement a public communication and protection plan.
- Make the appropriate notifications.
- If safe to do so, remove ignitable products from the fire scene.
- Consider off-site fire hazard conditions (dry vegetation, etc.) and implement a response plan to prevent the spread of the fire.
- Maintain ICS 214 – Activity Log.
- Restrict access to site.
- Preserve the site so that a follow-up investigation can be conducted.
- Participate in debriefing and share learning.

7.20.1 Volunteer Fire Personnel

Company personnel can only expect the volunteer fire department to assist with public safety issues (road closures, grass fires, fire containment).

The Company can assist volunteer fire departments by providing a list of fire detection equipment on-site: high level shutdowns, call out alarms, personnel response times to alarms, and basic fire suppression on lease.

Pumpers should be trained to shut-in any sources of fuel and conduct reasonable and prudent fire suppression when it is safe.

Volunteer fire departments have a duty to provide an adequate level of public safety services such as rescue, fire suppression, and first aid. Keep in mind the level of training that the volunteers have and the type and condition of their equipment. Do not expect them to attempt fire suppression in unsafe conditions with inappropriate or inadequate equipment.

If you have any question of what types of services your volunteer fire department can supply, feel free to contact them and ask.

7.21 Facility Fires

7.21.1 Facility Fires Safety

- Ensure effective evacuation and identification of trapped and/or missing workers.
- Establish response zones and PPE requirements.

The conducting of rescue operations, product isolation or fire suppression operations during facility fire events are restricted to:

- Activities that are consistent with the experience and reasonable capability of the utilized personnel.
- Activities within the level of training and PPE utilized by the personnel involved.
- Activities that are deemed consistent and appropriate for the scale of the fire event and the conditions present.

All operations must be evaluated relative to their risk potential vs. the benefit to be gained:

- The gain that may be achieved.
- Versus the potential exposure to risk that may or will be present.

Pressurized fuel fires that contain heavier than air components (typically all liquids) pose a significant risk to personnel in the event that the fire is extinguished.

Lighter than air fuels (typically natural gas) pose a significant risk if extinguished inside a closed space e.g. compressor building.

In all cases, personnel shall not be committed to operations or locations that may expose them to any of the following hazardous conditions (this includes the direct positioning, the proximity positioning or the positioning of personnel in locations that may create an exposure to incident escalation, fire growth or event escalation):

- Direct fire contact.
- Heat exposure.
- Smoke and products of combustion.
- Areas of diminished oxygen content.
- Confining or restrictive spaces.
- Locations in proximity to buildings or structures that have been weakened by fire exposure, heat exposure or significant water application.

7.21.2 Action Plan for Facility Fires

- Conduct an assessment to identify all the hazards, conditions, and facets of the event.
- Call for additional internal and external resources as required.
- Develop the Incident Action Plan.
- Initiate remote isolation where facility/local isolation is not possible.
- Close Site Retention Basin outlet valve where applicable.
- Do not direct fire suppression operations where run-off may cause environmental damage.
- Initiate Unified Command with emergency responders; ensure safety guidance is reviewed and adhered to before commencing response operations.
- Execute Incident Action plan.

Conduct an Extensive Assessment

Gather event information to identify all the hazards, conditions and facets of the event, including but not limited to:

- Location of the fire and the areas involved in fire.
- Location and accountability of all personnel – rescue requirement.
- Type of fuel involved.
- Source of the fuel.
- Wind direction.
- Critical escalation potentials – BLEVE potential, chemical fire, catastrophic failure, high valve assets.
- Fire growth exposures.

Call for additional resources as required

Inventory personnel, fire suppressant resources (fire extinguishers, water supplies) and fire suppression appliances.

- Identify the resources required and not present on scene.
- Request the resources required.

Establish Response Zones

Establish Response Zones and the PPE requirements per zone.

- No Entry Zone - perimeter.
- Emergency Planning Zone - perimeter and PPE requirement.

Develop the Incident Action Plan

Develop the Incident Action Plan consistent with appropriate event management priorities:

- Rescue or protection of life.
- Protection of critical escalation potentials.
- Protection of uninvolved structures, machinery or assets.
- Confinement of fire to currently involved locations.
- Extinguishment of fire.

The Incident Action Plan once developed shall identify:

- Incident objectives.
- Strategies.
- Safety.
- Weather.
- Resource allocation.
- Critical support requirements.

Brief Personnel

Brief site personnel to identify the parameters of the incident and to set initial expectations with regard to safety and assignments. Identify:

- Assessment information.
- Response Zones and PPE requirements.
- Incident Action Plan.
- Provide personnel assignments.

Ensure Critical Command Issues are established

Ensure any fire event activities conducted must be done so with the following critical emergency event command issues fully established and in place prior to initiating any proximity operations:

- An organized ICS deployment structure.
- An effective communication system.
- An established personnel accountability system.
- A risk versus benefit-based Incident Action Plan.
- Identified strategies, tactics and operational applications to support the Incident Action Plan.
- The presence and full availability of all required resources.
- A comprehensive air management system to control SCBA operations.
- Resource allocation providing a 2-man team appropriately equipped and supported to protect, maintain and ensure the safe egress route of every 2-man proximity team.

Execute the Incident Action Plan

- Conduct, direct, monitor and adjust the application of the Incident Action Plan.
- Re-evaluate the appropriateness of the Incident Action Plan and its strategies, tactics and operational applications.
- Ensure adherence to appropriate event management priorities.
- Re-evaluate the resource requirements of the event.
- Ensure the completion and adherence to the critical command issues.

7.22 High Vapour Pressure (HVP) Release

7.22.1 HVP Product Release Monitoring

Monitoring may occur downwind or upwind depending on how the plume is tracking, with priority being directed to the nearest un-evacuated residence or areas where people may be present.

The permit holder is expected to provide monitored HVP product LEL information on a regular basis throughout the emergency to the environmental agency, the Regulatory Authority, local health authority, and other local authorities and on request to the public.

Air Quality Monitoring equipment will be used to:

- Track the plume.
- Determine if ignition concentration criteria are met.
- Determine whether evacuation and/or sheltering concentration criteria have been met, particularly beyond the EPZ.
- Assist in determining when the emergency status can be downgraded.
- Determine roadblock locations.
- Determine concentrations in areas being evacuated to ensure that evacuation is safe.

The type of air quality monitoring units and the number of monitors required are based on site specific information, including:

- Access and egress points.
- Population density and proximity to urban density developments.
- Local conditions.

PetroShale will dispatch mobile air quality monitoring equipment from contract service companies located in the area to monitor and record air quality.

Ambient air quality data from the monitoring unit(s) will be communicated by cell phone or mobile radio to the On-Site Command Post.

If a sour gas release has been ignited, the permit holder should continue to monitor response zones for H_2S from incomplete combustion as well as SO_2.

7.22.2 Ignition Considerations

Company and Contract Pumpers should be familiar with the guidelines for igniting a high vapour pressure release. ERP procedures should be reviewed as part of a pre-job safety meeting whenever work begins on or near HVP pipelines or wells.

The following items must be considered:

- **Immediate Ignition:** If Company personnel are on-site when a release occurs, and a qualified company representative is present they may ignite the release.
- **Delayed Ignition:** If Company personnel are not on-site when a product release occurs a vapour plume may form.

The following items should be considered before ignition:

- Has the perimeter of the EPZ been established?
- Have all persons been evacuated from the area?
- Will ignition worsen the situation by endangering the environment, public, private property, equipment or facilities?
- Has the wind direction been established and is it being continually monitored?

Following an initial assessment, the Incident Commander must decide if plume ignition is a viable option. Once ignited, the dangers inherent with the vapour cloud are eliminated. The Response

Team should prepare for potential problems as a result of ignition by placing fire fighters on standby.

If trees, buildings, or any obstructions are in the product plume, these items may ignite explosively. All people should be moved to a safe distance.

Controlled ignition eliminates the potential of vapours finding an unsuspected ignition source. Typical issues that may affect high vapour pressure releases include:

- Time of release (day, night, weekend).
- Injuries requiring medical attention.
- Identification of the release boundaries.
- Estimate product volume and plume size.
- Wind direction and speed.
- Topography.
- Vegetation.
- Road access.

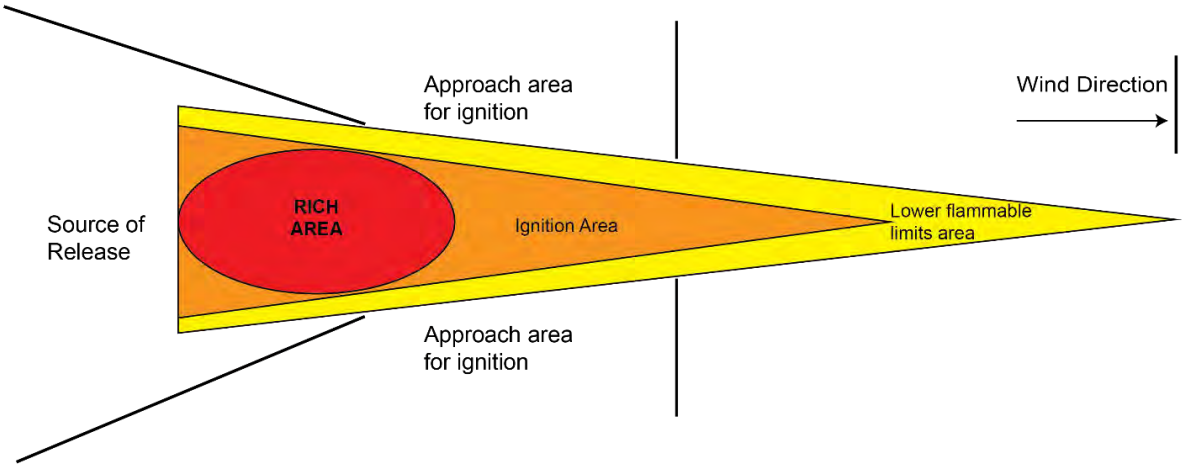
7.22.3 Guideline for Igniting HVP Plume

The following steps are a guideline to igniting a high vapour pressure plume:

1. Conduct a complete assessment that includes the identification of the plume perimeter.
2. Take steps to prevent injury including evacuation (if necessary) and the protection of the response team.
3. Approach wearing flame resistant clothing, eye protection, hard hat and a flammable gas detector.
4. Approach the plume from up-wind and slightly cross wind (as there is a greater area of the plume to hit with a flare).

Refer to figure below

- Stop 650 feet (minimum) from the suspected perimeter of the vapour plume.
- Remember that the flammable perimeter may extend beyond the visible portion of the plume.
- Remember that the heat affected zone extends beyond the flammable perimeter.
- Test for flammable vapour in the atmosphere using a flammable gas detector.
- Use the manufacturer's procedures for loading the flare shell and always point the pistol or launching device at the ground during loading (and until fired).
- Ensure that you begin outside the defined hazardous area.
- Attempt to hit the perimeter of the vapour cloud where the air to fuel mixture is correct for ignition (near outer edge and ground level).
- If no ignition takes place it can be assumed that the flare did not pass through the flammable vapour range of the plume.
- Make the appropriate trajectory adjustments and shoot again. Proceed in this manner until ignition is accomplished.
- Upon ignition, proceed with preventative steps to control unwanted fire.
- Do not extinguish the burning vapour plume.



7.23 Pressurized Fuel Fire

The Company strategy is to isolate the fuel, remotely if practical, while protecting exposures (compressor buildings, forests, etc.) and controlling any damage to the environment.

Where local/direct isolation is to be undertaken, the appropriate safety requirements are to be met e.g. responders trained in pressurized fuel firefighting tactics.

- Pressure fires must not be extinguished unless immediate isolation is assured (typically with a dry chemical extinguisher), as the resulting gas release will endanger personnel.
- Pressurized fuel fires with liquids may involve a ground fire, potentially with burning liquids raining down. Suppressing these fires with water streams could result in run-off that causes environmental damage.
- Where the fuel is sour, some portion of the SO_2 emitted from the fire can be knocked down by the use of water sprays. The benefit must be weighed against the potential environmental damage of entrained SO_2 in the run-off i.e. run-off may require collection and neutralization.
- Typically, pressure fires can be quenched with water streams without fear of extinguishment. As depressurization occurs, caution needs to be exercised that the fire is not extinguished, which would lead to flammable vapours being released into the incident area.

7.24 Transportation Incident

7.24.1 Transportation Incident Safety

- Intervene to initiate the development of a safe and static incident scene.
- Identify the current and immediate hazards within the incident scene.
- Identify any hazards outside of the incident scene created by the accident.
- In the event of incidents involving or damaging electric service poles or transformer vaults:
  - Remain back an absolute minimum distance of 30 feet in all directions.
  - Restrict access to the area, permitting no entrance regardless of the need.
- In the event of uncontrolled fuel releases:
  - Restrict access and evacuate personnel from areas where an ignition and/or fire exposure is possible.

7.24.2 Action Plan for Transportation Incident

- Call 911.
- Establish roadway notification of the emergency incident.
- Survey the accident site from a safe distance and attempt to identify hazards.
- Isolate any present controllable hazards within the incident scene.
- Secure the incident scene and vehicles depending upon severity of incident (e.g. fatality).
- Assess and treat the injured, within level of training.
- Notify TDG if accident involves Dangerous Goods.

Identify the Accident Site to Roadway Users

- Utilize vehicles and or barriers to identify the roadway hazard and create an exclusion zone to prevent further accident occurrence:
  - Position a vehicle far enough back from the incident site, in both directions, such that on coming roadway users have the opportunity to identify the hazard and slow down to a safe stop.
  - Engage hazard lights of positioned vehicles.
  - Place additional vehicles in closer proximity to protect the incident scene from additional vehicle contact.
- Position traffic cones or road markers, as are available, to identify the accident site.
- Utilize accident bystanders who are uninvolved and uninjured to take positions safely off the roadway in high visibility vests close to the perimeter vehicles to wave down oncoming traffic alerting them to an incident scene.

Perform an Outside Accident Site Survey

- Survey the accident site from a minimum 30 feet safe distance, identifying all hazards outside of the accident site including:
  - Damaged utility poles.
  - Ground level power transformer vaults.
  - Any additional vehicles involved and not initially identified.
  - Location of injured; involved and uninvolved persons.
  - Discharged vehicle or transported fluids or materials.
  - Identify the discharge of gasoline or diesel fuel.
  - Identify any waterways or sources of fluids that could enter sewers etc.
  - Suspended loads or vehicles precariously positioned.

Perform an Inside Accident Site Survey

- Survey the incident scene within the 30 feet perimeter identifying all hazards inside the incident scene while maintaining a safe distance from any identified hazards including:
  - Damaged utility poles.
  - Ground level power transformer vaults.
  - Any additional vehicles.
  - Location of the injured.
  - Discharged vehicle or transported fluids or materials.
  - Suspended loads or vehicles precariously positioned.

Any tampering and/or altering of a vehicle's original position and/or controls (e.g. putting in park or out of gear, moving debris, letting air out of tires, etc.) should be documented and provided to investigators in order that investigation findings are not compromised (preferably with before and after photographs).

Stabilize the Accident Site

- Identify and restrict access to areas of uncontrollable hazard.
- Attempt to access each vehicle individually, assessing to ensure vehicle(s):
  - Ignition system is disengaged.
  - Automatic transmissions are in the “park” position.
  - Manual transmissions are in neutral gear, once the ignition is disengaged.
  - Parking brakes are engaged.
- Where access to the vehicle is not possible to secure the vehicle in a disengaged position:
  - Place larger debris or available materials under the wheels to provide a makeshift wheel block.
  - If possible, mark the location of vehicle component debris prior to moving, as this will assist any required investigations.
- If materials are not present to provide wheel blocking, pull the valve stems of each tire to secure the vehicle and document for investigators.
- Control any hazardous condition as is possible:
- Dilute or suppress fuel leaks.
- Identify exclusion zones due to uncontrollable hazards.

Triage and Treat the Injured Personnel

- Provide medical treatment only within level of training.
- Identify the location and injuries sustained by each individual involved in the accident.
- Remove persons slightly injured, uninjured or uninvolved from the immediate accident site to a safe controlled holding location away from any hazards of the accident site and on-coming roadway traffic.
- Protect in place any injured persons found within the vehicles.
- Gather uninjured personnel from the scene to assist with medical treatment as is available.
- Assess the safety of field medical treatment in the position found:
  - Where the injured person’s safety is threatened, they may be moved to prevent further significant injury.
- Identify and prioritize the injury treatment based on criticality of need.
- Ensure qualified personnel provide medical treatment within prioritized medical aid protocols.
- Treat for shock.
- Closely monitor the injured until relieved by arriving emergency responders.

Meet and Brief Emergency Responders

- Position personnel to meet and direct emergency responders to the accident site.
- Provide a scene safety and hazard briefing.
- Identify the number of injured.
- Identify the location of the injured and from which vehicle they belong.
- Identify the initial position found and condition of each of the injured.
- Identify the injuries sustained by each victim.
- Identify the medical treatment provided.
- Provide personal information on each victim as is available.
- Monitor the safety of the scene.
- Assist emergency responders within ability and level of training.
- Gather information regarding the medical treatment provider, the transport provider and the destination of medical treatment center.

7.25 Product *Transportation* Incident

The first priority of a product transportation incident is to protect the driver and the public from risk as well as containing and preventing the product from impacting the environment.

If a transportation incident involves propane, see BLEVE requirements.

The party in charge or control of the product (carrier) is responsible to remedy the dangerous occurrence. However, the ultimate responsibility remains with the Company (shipper). Products that may be shipped include produced water or higher risk Liquefied Petroleum Gas (LPG).

Response actions include:

- On public roadways, the Company will not assume the on-site command but will act on behalf of local police to respond to the incident.
- Notify/activate police and report incident.
- Notify Transportation of Dangerous Goods Spill Department and provide the following information:
  - Location of incident and directions to site.
  - Name and contact number.
  - On-site response actions implemented.
  - Type of vehicle involved.
  - Type of container(s) involved and volumes.
  - Type of Dangerous Goods or environmentally sensitive products involved and volumes.
  - Copy of Safety Data Sheet (SDS).
- Secure the incident scene from on-coming traffic.
- Provide medical aid to the driver and passengers involved in the incident.
- If possible, interview the driver and review the manifest for products, volumes and carrier company name.
- Review SDS with the Emergency Response Guidebook for product hazards, PPE requirements, response action and public protection measures.
- Assess the container integrity and secure the leak (if safe to do so).
- Respond to public safety by reviewing the public protection plan.
- Contain and clean up spilled product.
- Keep a log of the time and sequence of events.
- Record information on a Company incident report form.
- Stay at site until relieved by additional Company personnel (if required).
- Restrict access to the site immediately and preserve site for follow-up investigations.
- Clean up and repair as directed by the Incident Commander.

7.26 Hazardous Materials Incident

7.26.1 Hazardous Material Safety

- Ensure the safety of site personnel and the public.
- Assess the potential exposure to human life.
- Assess the harm created by exposure to human life.
- Restrict the access to areas of potential exposure.
- Ensure the hazards associated with any product release are fully communicated.
- Activate emergency response agencies.
- Establish a safe incident scene.
- Decontaminate exposed personnel.

7.26.2 Action Plan for Hazardous Material Incident

- Identify the released material.
- Assess the hazard associated with the release.
- Identify any environmental impacts.

Initiating Incident Response

- Notify local emergency response agencies.
- Notify Company management.
- Establish a safe incident scene perimeter.
- Secure and restrict access to the area.
- Contain persons requiring decontamination.
- Evacuate persons from the area.
- Designate a holding area for evacuees.
- Identify safe access routes and communicate clearly and promptly to the responding agencies.
- Identify appropriate staging locations.
- Account for all personnel:
  - Number of persons involved.
  - Injured persons.
  - Injured employees.
  - Injured contractors.
  - Injured public.

Decontaminate Exposed Personnel

- Identify, contain and hold exposed personnel requiring decontamination in a safe location.
- Provide decontamination by removing clothing and thoroughly rinsing with large volumes of water.
- Control the runoff of the decontamination water.
- Remove person's clothing and shelter in a safe isolated location.
- Medically treat exposed personnel as is possible and only as trained.

Identify the Released Material

- Identify the material carrier.
- Identify vehicle number.
- Identify the trailer number(s).
- Identify the placard number.
- Acquire the shipping papers reference number.
- Identify the SDS reference number.

- Reference the AAR Guide, if applicable.

Assess the Hazards Associated with the Release

- Inhalation.
- Flammability.
- Toxicity.
- Water reactivity.
- Contact exposure hazard.
- Organic reactivity.

Evaluate the Release

- Identify the release type: static or dynamic.
- Maximum potential-volume of release.
- Current volume and rate of release.
- Outfall direction of the release.
- Identify the outfall exposure potentials.
  - Public exposures.
  - Natural waterways.
  - High impact environmental outfalls.
  - Low impact environmental outfalls.
  - Natural containment characteristics.

Identify Environmental Impacts

- Identify the current weather and potential impacts:
  - Temperature.
  - Chance of precipitation.
  - Wind conditions: strength and direction.
  - General grade of topography.
- Brief emergency responders on their arrival.
- Identify the medical treatment provider.
- Identify the receiving medical treatment center.

Meet and Brief Arriving Emergency Responders

- Position personnel to meet and direct emergency responders to the incident site.
- Provide a scene safety and hazard briefing.
- Identify the event timeline.
- Identify the released material(s) involved.
- Identify the hazards associated with the released material(s).
- Identify the personnel accountability.
- Identify the injuries present.
- Identify the chemical exposures present.
- Identify the decontamination procedures undertaken.
- Identify the environmental exposure and impacts.
- Identify the containment actions undertaken.
- Identify the current operational status of the facility.

7.27 Injury/Fatality

All personnel must be prepared to provide timely and effective response to preserve the health and safety of personnel injured due to an emergency event. Always consider the consequences and risks prior to taking response actions to assist a victim and providing medical assistance. Ensure that the rescuer does not become a victim.

If an incident involving equipment results in the death of a worker, the person who is in charge of the equipment must ensure the site of incident is not disturbed, unless:

- Protecting the health and safety of other personnel.
- Aiding an injured person involved in an incident.
- Taking essential action to make the scene safe or to prevent a further occurrence of the incident.

The On-Site Group Supervisor has the obligation to preserve the site intact until:

- An OSHA inspector or police officer arrives at the site of incident.
- Or an OSHA inspector or police officer directs otherwise at the time of notification.

7.27.1 Serious Injury/Fatality Safety

- Assess the incident site for hazards, consider the following hazards before proceeding to the victim:
- Hazardous gases (H_2S, carbon monoxide, etc.).
- Electrical.
- Uncontrolled pressure.
- Unsecured mechanical.
- Liquid.
- Fire and explosion.
- Unsecured suspended loads.
- Other unsafe conditions.

If at any time the scene is deemed unsafe to enter:

- Do not enter or approach the victim.
- Responders are to immediately return to a confirmed safe area.
- Conduct any mitigating actions that are possible from a safe area.
- Wait for assistance if unsafe conditions remain.
- Identify the mechanism of injury and establish control mechanisms (water spray, electrical de-energizing, etc.).
- Identify the victims that will require decontamination prior to medical treatment.

7.27.2 Action Plan for a Serious Injury/Fatality

Identify the Emergency Event Occurrence

- Notify facility personnel of an emergency event occurrence.
- Sound a facility wide alert.
- Identify the location of the emergency event.
- Provide initial personnel actions to ensure their safety.

Direct Facility Personnel

- Communicate the presence of uncontrolled hazards to facility personnel.
- Provide direction to facility personnel for ensuring their safety.
- Specify and assign personnel to safe mustering positions.
- Identify the safe access routes from, or around, areas of hazard, to the safe mustering positions.
- Account for all facility personnel.

Initiate External Emergency Response

- Call 911 and any required emergency notification per regulations.
- Request medical aid and transport.
- Identify incident location.
- Provide a call back number.
- Provide basic injury information.
- Provide known event timeline.
- Identify hazards present.

Brief Personnel Tasked to Assist in Hazard Stabilization

- Current incident site conditions.
- Uncontrolled hazards.
- Hazard control priorities.
- Provide individual assignments.
- Identify personnel safety considerations during stabilization operations.
- Specify communication and coordination protocols for stabilization operations.
- Review critical considerations of individual tasks.
- Specify emergency evacuation plan.

Stabilize Hazards and the Incident Site

- Remove or control incident scene hazards.
- De-energize/safety equipment and power supplies.
- Isolate uncontrolled material releases.
- Remove sources of ignition.
- Lower elevated or suspended loads.
- Identify any areas of, or remaining scene hazards.
- Monitor, direct and coordinate stabilization operations.
- Monitor safety conditions in areas of stabilization operations.
- Monitor condition of and impact on the injured.
- Maintain effective communication with all intervening personnel.
- In the event that significant hazardous conditions remain uncontrolled, consider the activation and assignment of the Site Safety Officer.

Approach and Assess the Injured

- Approach the injured and check for signs of life.
- Confirm the total number of injured.
- Identify injuries present.
- Triage the injured: identify and prioritize the injury treatment based on criticality of need.
- Assess the safety of field treatment in the position found.
- Assess the ability or effectiveness of field medical treatment in the position found.
- Confirm the accountability of facility personnel versus known numbers on site:
  - Safe mustering position.
  - Tasked for stabilization.
  - Medical treatment.
  - Injured.

Assess the Need for Chemical Decontamination

- Identify the need to decontaminate injured prior to initiating field medical treatment.
- Identify the chemical exposure.
- Reference applicable SDS.
- Contact the chemical manufacturer to obtain additional decontamination/ neutralization information.
- Contact Company Corporate Health to advise.

Provide Field Medical Treatment

- Provide chemical decontamination/neutralization prior to initiating field medical treatment.
- Stabilize injured in position found if possible.
- In the event that the injured must be moved:
  - Mark the position found.
  - Create a sketch.
- Provide medical treatment only within level of training.
- Ensure qualified personnel provide field medical treatment within prioritized medical aid protocols.
- Closely monitor injured until relieved by arriving emergency responders.
- Maintain appropriate confidentiality of incident, medical and injured personal information.

Provide Company Management with Incident Notification

- Provide event timeline.
- Provide total number of injured.
- Provide names of injured.
- Provide specific injuries.
- Provide ages of injured.
- Provide employers of injured.
- Provide job description of injured.
- Provide contact information of injured.
- Provide current medical status.
- Identify field medical treatment provider.
- Identify medical transport provider.
- Identify receiving hospital – trauma center.
- Provide next of kin contact information.

Meet and Brief Emergency Responders

- Position personnel to meet and direct emergency responders to the incident site.
- Provide a scene safety and hazard briefing.
- Identify the mechanism(s) of injuries.
- Provide an event timeline.
- Identify the number of injured.
- Identify the initial position and condition of each victim.
- Identify the injuries sustained by each victim.
- Identify the medical treatment provided.
- In the event of a victim chemical exposure:
- Identify any decontamination provided.
- Provide an SDS.
- Provide personal information for each victim.
- Assist emergency responders within ability and level of training.
- Monitor the safety of the incident site.
- Gather information regarding the medical treatment provider, the transport provider and the destination medical center, hospital or trauma center.

Special Considerations for Fatality Events

- The deceased must not be moved unless:
  - Doubt of death exists, or
  - Authorized/requested to do so by the medical examiner or designate.
- If the victim's injuries are obviously fatal no additional risk shall be taken to recover the body.
- The recovery of suspected fatalities does not take priority over the rescue of the living and incident control activities.
- Scene preservation is critical – lawful movement of a fatality is only permitted to rescue a person in danger or to establish area safety.
- Once the emergency event has been controlled, the area of a suspected fatality is to be cleared of all personnel and cordoned off.
- Institute a tracking log to account for all persons with access to the cordoned off area.
- Non-authorized pictures are prohibited.
- Police and OHS will attend to conduct investigations.

Provide Field Management of the Incident

- Isolate and maintain the incident site undisturbed until custody is handed over to the investigating agency.
- Re-evaluate the overall safety of the facility.
- Assess, monitor, and manage the individual condition of the uninjured facility employees.
- Interview witnesses to the incident, providing a written statement, immediately if possible, or delayed if the witness is physically or emotionally unable.
- Receive approval from Company management prior to re-establishing site operations.

7.27.3 Next of Kin Notification

If any personnel are seriously injured, missing or killed, it is the responsibility of the Incident Commander to ensure that PetroShale provides prompt notification to a senior Company representative so that the immediate family can be notified as quickly as possible.

Next of Kin Notifications should be made in the following instances:

- A serious injury.
- A fatality.
- Instances where personnel may be involved in an emergency and are unharmed, but are not able to contact family members to advise of their status.

Death should never be declared by PetroShale no matter how obvious. Death notifications are not to occur until a medical doctor or medical examiner with the local authorities has pronounced the casualty legally dead.

If the incident involves the death or serious injury of a member of the public, local police will be contacted by the Incident Commander (or designate) and asked to identify and notify the next of kin.

Under no circumstances are the names of casualties or missing persons to be released to the public or media unless next of kin are notified and their consent is obtained.

Contractor Next of Kin Notification

If an employee of a contractor employed by PetroShale is injured, the Incident Commander and a senior Company representative will ensure that the contractor's head office is notified. The Contract Company is responsible for their own employees' notification of Next of Kin. In the case where a contractor is a small operation, or with no office, PetroShale will request that the local police identify and notify the next of kin.

Employee Next of Kin Notification

If an employee or contract employee employed by PetroShale is injured, a senior Company representative or the most senior company field representative known by the family will make Next of Kin notifications in conjunction with a Victims Services representative from the local police detachment.

7.28 Air Ambulance

7.28.1 Command and Control

Air Ambulances are dispatched based on flight conditions, aircraft availability/capability and criticality of the injured. Once you believe that an air ambulance is needed, call the appropriate number identified in the Telephone Directory in this binder and provide:

- Description of the patient's condition.
- Severity of injury.
- Type of injury.
- Level of consciousness.
- Exposure to hazardous materials.

If possible, establish contact with helicopter crew on a secure, dedicated radio frequency and remain in contact until touchdown. Identify the pre-designated Landing Zone if available.

All Landing Zone personnel must wear full PPE including, helmet, glasses, ear protection and a high-visibility vest.

7.28.2 Pre-Landing Checklist:

The flight crew will contact ground units via a prearranged radio frequency, ambulance radio frequency, or phone line for the following information.

TERRAIN	HAZARDS	LZ Markings
Level or sloping	Street signs	Four turbo flares
Type of surface	Vehicles	Four road flares
Dust or loose snow	Towers	Four reflective flares
Rocks, bushes, stumps, etc.	Poles	Four highway cones (days only)
	Wires	(Extra strobes/flares/cones on upwind side)

7.28.3 Landing Zone

When choosing a landing zone, look for the following:

- Flat or relatively level surface.
- Approximately 120 feet downwind from the scene to protect the incident from any downwash and exhaust.
- Ideally 100 feet square in size.

Sweep the site for all foreign unsecured and loose debris and wet the area down to reduce dust or lose debris from dislodging.

Communicate hazards (typically through the Air Ambulance dispatch) using the mnemonic **HOTSAW**:

- Hazards.
- Obstructions.
- Terrain.
- Surface.
- Animals.
- Wind/weather.

The landing zone should be marked on all four corners by either bright LED lights, or traffic cones.

7.28.4 Ground Operations

- Designate a Landing Zone Operator (LZO).
- When helicopter approaches the LZO will extend both arms straight above their head, giving the ‘all-clear’ signal.
- If there are any sudden changes or if any hazards arise the LZO simply waves off the landing, communicates the hazards to the crew and then the helicopter crew will assume a holding pattern until it is clear to land.
- The LZO remains in place, in a kneeling position, to act as a horizontal reference point for the pilot.
- For helicopter departure, the LZO again assumes a kneeling position at 12 o’clock giving the ‘all-clear’ signal for takeoff.

7.28.5 Loading and Unloading

- Do not approach the helicopter.
- The co-pilot will guide all crews nearing the helicopter for patient loading.
- For loading patients, crews must approach the helicopter in the 10 - 2 o’clock positions avoiding the tail rotor of the aircraft.

7.28.6 Hazards and Special Situations

- Landing zone operations and practices are the same for day and night operations.
- For night landings, all emergency personnel in the vicinity of the landing zone must don high visibility vests throughout operations.
- Nearby vehicles can focus lights on hazards in the immediate area but must not direct the lights at the helicopter as they could potentially obscure vision for the crew.
- If the incident is in a remote area turn nearby vehicles lights on to aluminate the landing zone, preferably vehicles should be located at the four corners of the landing zone.
- If the landing zone is covered in snow or partially obscured take up position in the centre of the landing zone and the pilot will land directly beside the LZO using them as a reference point.
- For road landings, all single lane highways or roads, traffic must be blocked in both directions throughout both the aircrafts' landing and take-off procedures work with the local police or highway authorities with jurisdiction.

7.28.7 Approach Routes

7.29 Missing Worker

If a member(s) of staff does not attend work during a scheduled shift and contact cannot be made, the On-Site Group Supervisor should assess the situation and decide whether to activate the Emergency Response Team.

Where it is determined that a worker is potentially missing the Emergency Response Team is to be activated to assist in determining their whereabouts and in mobilizing company personnel.

7.29.1 Response Plan for Missing Worker

- Attempt to establish contact with the missing person(s) by phone.
  - Leave a voicemail message with a provided call back number.
- Establish a history of the missing person(s) last known movements, by contacting colleagues, friends, family, contacts, and work associates.
- Identify the missing person(s) personal vehicle and attempt to locate vehicle on site or in proximity to his/her last known movements.
- Make enquiries with local/county/regional/state hospitals.
- Make enquiries with local/county/regional/state police.
- Continue to try to establish contact with the missing person using:
  - Mobile telephone number(s).
  - Home telephone number.
  - Text messages.
  - Email messages.
- If the missing person is a contractor:
  - The contracting company shall be contacted to determine if they know of the person's whereabouts or movements.
  - Continue to maintain regular contact with contracting company.

7.30 Severe Weather Incidents

Wildfires, thunderstorms, tornadoes, hail, blizzards, high winds, and heavy rain can develop quickly and hit hard posing a threat to life and property. State governments are responsible for informing the public and providing detailed information about the nature of the emergency.

7.30.1 Severe Weather Safety

Identify the immediate hazards associated with the impact of a severe weather incident to the facility or any facility egress routes. If at any time the facility is threatened by a severe weather incident, prioritize the preparations in accordance with:

- Safety of personnel.
- Environmental protection.
- Protection of facility assets.

Identify the safety risk associated with facility personnel weathering the severe weather within the protection of the facility vs. the risks of evacuation.

Effectively use of the lead time prior to the arrival of the severe weather to achieve either:

- Early evacuation to prevent exposure to unsafe conditions.
- Shelter in Place preparations including adequate food and water supplies.

Minimize personnel exposure to hazardous conditions by rescheduling services, deliveries and non-essential activities.

Account for secondary effects of severe weather e.g. icy roads, toppled trees, flooding etc. in risk assessments.

Response Plan for Severe Weather

- Prepare a virtual or mobile Command Post to sustain operations in the event of power loss or building damage including:
  - Pre-printed maps.
  - ICS wall charts.
  - Communication devices (satellite and cell phones, chargers etc.).
  - Portable generators and heaters.
- Sustain Command Post operations by hardening the building against storm damage.
- Identify the current status of any potential or impending severe weather.
- Identify the safety of the facility location with regard to severe weather impact.
- Assess the appropriateness of continuing current facility operations.
- Maintain personnel accountability throughout any facility evacuation process.
- Identify the facility's ability to provide protection for personnel during the severe weather.
- Brief facility personnel to provide incident information and current status.
- Identify incident contingency plan(s) for the timely and safe shutdown of facility operations and the protection of facility assets.

7.30.2 Wildfire

A wildfire is an uncontrolled fire in an area of combustible vegetation that occurs in the countryside or a wilderness area. A wildfire differs from other fires by its extensive size, the speed at which it can spread out from its original source, its potential to change direction unexpectedly, and its ability to jump gaps such as roads, rivers and fire breaks. Wildfires are characterized in terms of the cause of ignition, their physical properties such as speed of propagation, the combustible material present, and the effect of weather on the fire.

Action Plan for Wildfire Response

- Make contact with supervision to obtain current fire statuses and fire spread predictions:
  - Location.
  - Spread direction.
  - Rate of growth.
  - Evacuation areas, evacuation routes, and proximity of facility areas under mandatory evacuation orders.
  - Provide and obtain contact numbers for periodic information and status updates.
- Identify actions and time required to safely shutdown the facility operations:
  - The safe evacuation of the personnel remains paramount.
  - Protect company assets by shutting down early in a managed and organized fashion.
  - Consult Company management for guidance.
- Brief all personnel as to the current status of the wildfire and its:
  - Location.
  - Direction and rate of fire growth/spread.
  - Potential shutdown procedures.
  - Contingent evacuation procedures.
- Identify and specify the safe egress route including any new safe mustering location for all evacuating personnel.
- Maintain a common communication link with all evacuating personnel groups.
- Maintain a tracking and accountability system during the evacuation to:

  - Identify the current location of each evacuating individual.
  - Identify and confirm the safety of each evacuating individual.
- Contact the supervisor and provide the current status of the facility and evacuation status of the personnel.

7.30.3 Tornadoes

Tornadoes form suddenly, are often preceded by warm humid weather, and are always produced by thunderstorms, although not every thunderstorm produces a tornado. Choose an appropriate shelter.

Tornado warning signs:

- Severe thunderstorms with frequent thunder and lightning.
- An extremely dark sky sometimes highlighted by green or yellow clouds.
- A rumbling sound, such as a freight train might make or a whistling sound such as a jet aircraft might make.
- A funnel cloud at the rear base of a thunder cloud often behind a curtain of heavy rain or hail.

What to do in case of a tornado:

- Take cover immediately, if you are in a building seek shelter under a heavy table or desk, stay away from windows and outside walls and doors.
- Do not get into your car. Seek shelter in a building with a strong foundation. If no shelter is available, then lie down in a ditch away from automobiles or mobile homes.
- In all cases, get as close to the ground as possible, protect your head, and watch out for flying debris.

7.30.4 Lightning

Lightning is a powerful sudden flow of electricity (an electrostatic discharge) accompanied by thunder that occurs during an electric storm. To estimate how far away the lightning is count the seconds between the flash of lightning and the thunderclap. If you count fewer than five seconds, take shelter immediately, you do not want to be the tallest object in the area.

If caught outdoors:

- Avoid putting yourself above the surrounding landscape. Seek shelter in low-lying areas such as valleys, ditches, and depressions but be aware of flooding.
- Stay away from water. Get to land as quickly as possible if you are on the water. Lightning can strike the water and travel a substantial distance from its point of contact.
- Stay away from objects that conduct electricity, such as tractors and metal fences.
- Avoid being the highest point in an open area or holding an object that can make you the tallest object and a target for lightning.
- You are safe inside a car during lightning but be aware of downed power lines which may be touching your car. You are safe inside the car, but you may receive a shock if you step outside.
- In a forest, seek shelter in a low-lying area under a thick growth of small trees or bushes.
- Keep alert for flash floods, sometimes caused by heavy rainfall, if seeking shelter in a ditch or low-lying area.

7.30.5 Floods

A flood is an overflow of water that submerges land which is usually dry. Flooding may occur as an overflow of water from water bodies, such as a river or lake, in which the water overtops or breaks levees, resulting in some of that water escaping its usual boundaries, or it may occur due to an accumulation of rainwater on saturated ground.

What to do in case of flooding:

- For information listen to the radio, watch television, check Government Agency websites or follow Social Media.
- Be aware that flash flooding can occur. If there is any possibility of a flash flood, move immediately to higher ground. Do not wait for instructions to move.
- Be aware of stream, drainage channels, canyons and other areas known to flood suddenly. Flash floods can occur in these areas with or without typical warnings such as rain clouds or heavy rain.
- Do not walk through moving water. Six inches of moving water can make you fall. If you have to walk in water, walk where the water is not moving. Use a stick to check the firmness of the ground in front of you.
- Do not drive into flooded areas. If floodwaters rise around your car, abandon the car and move to higher ground when water is not moving or not more than a few inches deep. You and the vehicle can be swept away quickly. If your vehicle is trapped in rapidly moving water, stay in the vehicle. If the water is rising inside the vehicle, seek refuge on the roof.
- Do not park your vehicle along streams, rivers or creeks, particularly during threatening conditions.
- Sandbag and/or build a dike if possible.

7.30.6 Seismicity

Earthquakes are caused by subsurface breaking and/or shifting of rock, which will release small to extremely large forces of energy through the Earth's lithosphere creating seismic waves. These seismic waves can cause severe damage to drilling rigs, well-sites, pipelines, facility buildings etc. Gas, electricity and phone services are also in danger of being affected. Landslides, avalanches, and flash floods can also be triggered. Earthquakes can occur at any time of the year. After an earthquake there is the possible danger of an "After-shock" which can occur in the hours, days weeks or even months after the initial wave. Some earthquakes could actually be foreshocks and a larger earthquake could occur.

During an earthquake

Wherever you are when an earthquake starts, take cover immediately. Move to a nearby safe place if need be. Stay there until the shaking stops.

If you are indoors: "DROP, COVER, HOLD ON"

- Stay inside.
- **Drop** under heavy furniture such as a table, desk or any solid furniture.
- **Cover** your head and torso to prevent being hit by falling objects.
- **Hold** onto the object that you are under so that you remain covered.
- If you can't get under something strong, or if you are in a hallway, flatten yourself or crouch against an interior wall.
- Stay away from windows and shelves with heavy objects.

If you are outdoors

- Stay outside.
- Go to an open area away from buildings.

If you are in a vehicle

- Pull over to a safe place where you are not blocking the road. Keep roads clear for rescue and emergency vehicles.
- Avoid bridges, overpasses, underpasses, buildings or anything that could collapse.
- Stop the car and stay inside.
- Listen to your car radio for instructions from emergency officials.
- Do not attempt to get out of your car if downed power lines are across it. Wait to be rescued.
- Place a HELP sign in your window if you need assistance.

AVOID the following in an earthquake

- Doorways. Doors may slam shut and cause injuries.
- Windows, bookcases, tall furniture and light fixtures. You could be hurt by shattered glass or heavy objects.
- Downed power lines - stay at least 32 feet away to avoid injury.

After an earthquake

Stay calm. Help others if you are able.

- Be prepared for aftershocks.
- Listen to the radio or television for information from authorities. Follow their instructions. Place telephone receivers back in their cradles; only make calls if requiring emergency services.
- Put on sturdy shoes and protective clothing to help prevent injury from debris, especially broken glass.
- Check your building for structural damage and other hazards. If you suspect the building is unsafe, do not re-enter.
- If you have to leave the building, take your emergency kit and other essential items with you. Post a message in clear view, indicating where you can be found. Do not waste food or water as supplies may be interrupted.
- Do not light matches or turn on light switches until you are sure there are no gas leaks or flammable liquids spilled. Use a flashlight to check utilities and do not shut them off unless damaged. Leaking gas will smell.
- If tap water is still available immediately after the earthquake, fill a bathtub and other containers in case the supply gets cut off. If there is no running water, remember that you may have water available in a hot water tank (make sure water is not hot before touching it) and toilet reservoir (not the bowl).
- Carefully clean up any spilled hazardous materials. Wear proper hand and eye protection.
- Check on your co-workers. Organize rescue measures if people are trapped or call for emergency assistance if you cannot safely help them.
- Place a HELP sign in a window if you need assistance.
- Beware of secondary effects. Although ground shaking is the major source of earthquake damage, secondary effects can also be very destructive. These include landslides, saturated sandy soils becoming soft and unstable, and flooding of low-lying areas.

7.31 Wildlife

7.31.1 Wildlife Incidents and Mortalities

Wildlife observations should be tracked on a daily basis (nuisance or not) to determine which wildlife are in the area and whether activities are attracting wildlife. Mitigations may need to be incorporated to reduce the potential risk to workers and wildlife.

Wildlife mortalities should be reported to your supervisor and appropriate Company Representative immediately.

The following information should be recorded and reported:

- Nature of the incident (i.e., road collision).
- Type of species and number of individuals.
- Location of incident/collision.
- Time of incident/collision.
- Details of incident/collision (e.g., if animal was clipped or hit directly).

7.31.2 Wildlife Awareness

There are a number of different species of wildlife that can present hazards to workers.

Wildlife awareness is not limited only to working in remote areas but should be oriented to the habitat of the work area and included into local hazard assessments. Workers are required to follow the practices developed to manage local wildlife hazards.

7.31.3 Working in wildlife habitat

- Make enough noise to prevent surprising wildlife.
- Watch for tracks and signs.
- Young animals are usually well-hidden. However, if you do stumble upon babies, do not approach or attempt to pick them up. Leave the area immediately, as a female will defend her young.

If you meet wildlife:

- Never approach wildlife. Although animals will normally avoid a confrontation, animals are unpredictable. Animals feeding may be dangerous.
- Always give animals an avenue of escape.
- Stay calm. Talk in a confident voice.
- Do not run. Try to back away slowly.
- Do not turn your back on wildlife.
- Do all you can to enlarge your image. Don’t crouch down or try to hide. Pickup sticks or branches and wave them about.

7.32 Site Security

Site security describes security measures that are designed to deny unauthorized access to facilities, equipment and resources, and to protect personnel and property from damage or harm (such as espionage, theft, or terrorist attacks). Site security involves the use of multiple layers of interdependent systems which includes Closed-Circuit Television surveillance, security guards, protective barriers, locks, access control protocols, and many other techniques.

7.32.1 Safety

The safety of facility personnel is paramount during periods of elevated security risk. Facility personnel have the right to ensure the safety of their fellow employees, prevent damage to facility

property and prevent harm to trespassers but do not have the authority or permission to confine persons trying to leave the property.

7.32.2 Response Plan for Site Security

- Call 911.
- Assess the threat risk versus the ability to safely continue the facility operations.
- Conduct a team meeting to include all facility personnel apprising them of the threat potential, an assessment of its legitimacy and include precautionary and egress measures.
- Advise facility support companies and contractors of the threat potential and the precautionary measures.
- Remain and operate in pairs during periods of elevated security risk, each team should be provided with a reliable means of communication.
- The facility gates should be closed and remain closed.
- When risk assessment deems it appropriate, anyone entering or exiting must be identified and the date and time documented by security.
- During periods of elevated security risk and continued operation, facility management shall coordinate the travel plans of personnel to and from the facility.
- In the event that the threat is assessed to be credible and provides potential for injury to facility personnel, consider operational shutdown and the initiation of either a controlled proactive evacuation or shelter in place.
- Consider the initiation of two-person security patrols throughout the facility.
- Confer with Company management with regard to acquiring security support.
- Do not attempt to challenge unauthorized persons who appear to be armed or significantly distraught.
- Ensure that none of the security measures restricts safe and immediate egress from the facility in the event of an emergency evacuation.
- Consider the postponement of all non-essential facility activities until an appropriate reduction in the security risk has occurred.

In the event of civil disobedience or ideological protest, facility personnel are directed as follows:

- Do not attempt to engage the protestors in anyway.
- Do not enter into discussions or verbal conversation.
- The On-Site Group Supervisor is to identify and communicate alternate egress routes from the facility in the event of emergency.
- Facility personnel should be sheltered away from the protestors as is possible to limit exposure.

7.33 Bomb Threat

A bomb threat is generally defined as a threat, usually verbal or written, to detonate an explosive or incendiary device to cause property damage, death, or injuries, whether or not such a device actually exists.

7.33.1 Evaluating the Threat

The assessment of the threat is primarily made on the basis of the nature, tone, and specifics of the call or letter.

The following conditions increase the threat credibility:

- Details of type, size and location of device.
- Detonation timing provided.
- Ideological rhetoric, citing of political or social cause.
- Identified with known terrorist organization.
- Threat towards a company individual, specific position or job function or process.

The following conditions decrease the threat credibility:

- Vague threat to “bomb the whole facility”.
- Immature speech, voice or mannerisms.
- Background of laughter, trivial conversation, etc.
- Tendency to continue conversation, harangue, over-stress on obvious point.
- A non-specific threat (from a seemingly intoxicated individual, giggler, child or incoherent person).

7.33.2 Action Plan for Bomb Threat

- Employee will notify On-Site Group Supervisor.
- On-Site Group Supervisor will notify Incident Commander.
- Incident Commander will notify police.
- Incident Commander will review the information, assess the situation and make critical event management decisions including the activation of the Emergency Response Team, as appropriate.
- Incident Commander will evacuate non-essential personnel from the concerned area.
- Emergency Response Team will collect information and evaluate the threat and decide whether to shut in the facility.
- Emergency Response Team, in the event of an explosion, will support the activities of the On-Site Group Supervisor.

7.33.3 Critical Event Decisions

- Police notification is mandated due to the criminal aspect of a bomb threat.
- Identify if a full or partial evacuation (or none at all) is warranted.
- Identify if a search is warranted and can be done safely.
- Identify when it is safe to reoccupy the site.

7.33.4 Bomb Search Considerations

If a credible threat is received, use the available time to evacuate the immediate area.

If assisting the authorities in the search effort, it is imperative that personnel do not move, jar, or handle any suspicious object, or anything attached to the object.

7.33.5 Bomb Search Procedures

Emergency Response Team may work with the Police as a resource as the Police are not familiar with the facility.

The following points relate to teams and search methods:

- Work with a designated police officer.
- Once a room has been searched and nothing has been found, close and mark the door with a piece of tape in the shape of an X. This will indicate to other teams that the room has been search and it will eliminate repetition.
- Let the police assume responsibility.

7.33.6 Discovery of Suspect Device

- DO NOT TOUCH OR MOVE THE OBJECT!
- Evacuate all people from the bomb location.
- Notify the Incident Commander.
- Designate an assembly area far enough away from possible flying debris or other effects of a possible detonation.
- Instruct people on actions to be taken in view of the location of the bomb.
- Do everything possible to minimize any damage from an explosion:
  - Deploy firefighting equipment and personnel to a safe area.
  - Shutdown construction activities, lower suspended loads.

7.33.7 No Suspected Devices Found

After a thorough search of the site and no bomb is found, the police, Emergency Response Team and Incident Commander will decide if operational activities are to resume. A minimum of one hour should have elapsed from any stated detonation time prior to resuming normal operations. Review all details and actions with police prior to resuming normal operations.

7.33.8 Explosion Occurrence

- Have rescue personnel administer first aid and remove any injured personnel.
- Secure scene with the assistance of the police.
- Preserve any and all evidence; even the smallest pieces could be used for investigation and court proceedings.
- Only when authorised to do so, have maintenance personnel begin salvage and damage control operations.

8.0 POST EMERGENCY

8.1 Overview

The decision to stand-down the emergency, allow stakeholders to return to the incident area and resume normal operations is made by the Incident Commander and CEOC Director in conjunction with the Regulatory Authority.

The CEOC Director and Incident Commander ensure that the CEOC Command Team and Site Command Team carry out post-incident activities as required, including the following tasks:

- Emergency stand-down notification.
- Public assistance and support.
- Clean-up and repair.
- Ongoing media communication.
- Post-incident documentation.
- Post-incident Investigation.
- Critical Incident Stress Debriefing.
- Post-incident Report.

8.2 Responsibility

The Incident Commander and CEOC Director manage the following post-incident activities:

- Deactivate the emergency response operations.
- Establish post-incident goals.
- Delegate the responsibility for the completion of post-incident tasks.
- Ensure that all contacts are notified about the emergency stand-down.
- Ensure all post-incident activities are documented.
- Arrange for critical incident stress debriefing sessions as necessary.
- Conduct a debriefing meeting for all response team members.

8.3 Critical Incident Stress Debriefing (CISD)

Any individual directly involved in a critical incident and/or experiencing strong feelings relating to the event should be debriefed to encourage communication about their feelings and reactions without being judged or blamed.

Individuals include:

- Operating Personnel directly involved.
- Co-workers.
- Management.
- Contractors.
- Family Members.
- Community Members.

The Incident Commander and CEOC Director ensure the following actions are completed:

- When practical after a serious incident, mobilize professionals who are trained in CISD.
- Explain to the participants that the debriefing is confidential. CISD meetings do not judge or lay blame. Recording devices at these meetings is prohibited.
- Do not schedule more than 20 people to do a debriefing session. Advise the CISD professional about the size of the session and provide information about the attendees before the session starts.
- Debriefing should occur 24-72 hours post-incident.

Objectives of the debriefing are to:

- Minimize the severity and duration of the trauma.
- Normalize feelings and reactions.
- Acknowledge each individual's personal experience.
- Provide support.
- Provide information on crisis reactions and stress management.

8.3.1 Key Reactions to Stress

PHYSICAL	COGNITIVE (PERCEIVED)
Headaches	Poor Concentration
Dizziness	Slow Thinking
Disorientation	Memory Lapses
Fatigue	Loss of Objectivity
Digestive Problems	Flashbacks
Frozen Fright	Abnormal Pondering
Loss of Control over Body Functions	Difficulty Processing Information
Numbness	Distorted Thinking
Increased Heart Rate	
Heightened Sensory Perception	
Sleep Disruptions	

8.4 Public Assistance and Support

The Incident Commander oversees the following actions:

- Verifies that the incident area is safe to re-enter in consultation with applicable Regulatory Authorities, if required.
- This may involve ensuring all equipment and debris are removed from public roadways. Any remaining hazardous areas must be cordoned off.
- Ensures that all sheltered or evacuated residents are contacted and informed that the incident is over.
- Secures the evacuated area until the evacuees have returned to their homes and businesses.
- Confers with the CEOC Director about sending a company representative to visit all members of the public who were affected.
- Ensures that the residents are provided with post-incident contacts and telephone numbers.
- Confers with the CEOC Director to schedule a follow-up meeting(s) with the residents to clearly explain the incident and address their concerns.
- Ensures resident expense and damage claims are addressed.

8.5 Investigation

Site and evidence preservation is extremely important after an unplanned event. Senior Company Management must be contacted, and a decision will be made whether to send personnel or a third-party contractor to the site to conduct an investigation.

If an incident involving equipment at a site result in a death, the site must be secured. The Incident Commander must ensure that the location is not disturbed (unless protecting the health or safety of other workers or aiding an injured person) until the police have investigated the accident and an OSHA inspector directs otherwise.

Third party investigations by police, insurance companies, and others may be required. It is important to co-operate with all third-party investigators; therefore, the following guidelines will apply:

- Do not allow third party investigators on-site, unless authorized by the Incident Commander; this is to ensure everyone's safety. Obtain the name, title, address, and telephone number of all inspectors.
- If access is granted to the site, ensure that third party investigators are escorted while on company property and, for their safety, denied access to any hazardous areas. Inspectors must not be left unattended.
- Ensure inspectors receive only the information they request and limit tours to the specific area the investigator has asked to investigate.
- Always tell the truth. Do not speculate.
- Wait until legal counsel is present before answering questions if the inspector suggests that the statements may be used as evidence or indicates that you have the right to counsel.
- Copy all documents given to third parties, including investigators.

An internal investigation can be a valuable learning experience. The findings can be applied to other operations and improve the emergency response system. An investigation can also result in improved incident prevention methods and operating practices.

8.6 Clean Up and Repair

The Incident Commander oversees the following actions:

- Ensures that site clean-up is managed in a timely manner. The remediation phase of the site clean-up may be filled by an environmental specialist.
- Ensures that all hazardous waste is disposed appropriately according to applicable regulations.
- Ensures the priority is given to clearing debris and restoring the site to normal operating conditions after the government and company investigations are complete.
- Ensures that all equipment is demobilized, cleaned and inspected for contamination.
- Ensures all roadblocks, staging area and detour equipment is demobilized.
- Ensures that all clean-up and repair actions follow safety and environment policies and safe-work procedures.

8.7 Post-Incident Notifications

The objective in post-incident notifications is to ensure that the best possible communication with stakeholders are made; to sustain Company core value commitments and capture any outstanding or legacy issues.

All affected parties are to be advised of the post-incident status of the incident:

- Company employees and contractors.
- Joint Venture Owners.
- Mutual Aid partners.
- Evacuees.
- Members of the Public who were involved.
- Government Agencies.
- Non-Governmental Organizations (NGOs).

Typically, this should be done through personal calls (supported by media releases) by the CEOC Information Officer.

All communications are to be approved by the CEOC Director and Legal.

8.8 Incident Documentation/Company Records

The Incident Commander and the CEOC Director instruct their teams to complete the following duties:

- Collect and compile all forms and documentation for the incident, including all electronic records.
- Securely store all incident documentation. The protection of records is extremely important to ensure the evidence is complete and unchanged.
- Obtain all photographs and videos of the incident site and response. All photographs of the incident site which have been taken are considered Company material and are to be properly documented.
- Ensure that pages and checklists from all emergency response manuals are replaced.
- Prepare letters thanking support agencies, groups and individuals who provided assistance. Mention names of key individuals in correspondence.
- Company records must be reviewed by legal counsel before they are released.

8.9 Post-Incident Debriefing and Incident Assessment

The Incident Commander should follow the checklist below to ensure the following items and/or personnel are available at the debriefing session:

- A comfortable classroom/conference area large enough to conduct a post-incident debriefing.
- Refreshments.
- Map of Response Area.
- Copy of Incident Logs and all other Response Forms.
- Any Video Tape and/or Photos of the incident that may be helpful during the debriefing.
- If videotape is used, secure a video player and monitor.
- Flip chart or white board.
  - Masking tape to hang flip chart pages.
  - Drawing markers (various colors).
- Copy of Company's ERP.
- Note-taking materials for attendees (pads, writing instruments).
- Copies of any planning cycle plan(s).
- Copies of Daily Site-Specific Safety and Health Plans.

8.9.1 Session Guidelines

The debriefing should be facilitated by the Incident Commander. The following provides some session guides:

- Awareness on room safety e.g. emergency alarms, evacuation procedures for those participants not familiar with the facility.
- Objective and agenda of meeting.
- Need for openness and honesty.
- Emphasize that the debriefing is to provide learning and response improvement opportunities - not fault finding.

- Conduct session in a non-confrontational manner.
- Allow everyone involved in the response to have an opportunity for input.
- Have a Scribe available to document comments and action items.
- Do not solve the issues but record as action items to be reviewed and addressed later.
- Participants should not try to justify their actions but can provide clarification if requested by the facilitator(s).
- Introduce the participants and the organizations they represent e.g. location and role.
- Conclude the meeting by communicating future action plans e.g. "where do we go from here?"

8.9.2 Site Response Team Debriefing Questions

- Did pre-emergency planning efforts occur relating to this particular incident?
- Did pre-emergency training take place relating to this particular type of incident?
- Was the Incident Command System (ICS) promptly activated?
- Was ICS terminology implemented early on during the incident and utilized throughout the incident?
- Was the location of the Command Post established early on?
- Was a safe Staging Area established early on during the incident?
- Did responders receive thorough initial briefings before assignment?
- Was a Check-In/Check-Out area established early on (preferably at Staging)?
- Were all employees accounted for early on during the incident?
- Did responders preplan which escape or egress routes to utilize during emergency operations?
- Was there necessary command and control of resources to prevent freelancing?
- Were all hazardous substances and conditions identified before responders took direct action?
- Were the planning zones established by responders before action was taken?
- Did the On-Site Group Supervisor take action to ensure that all responders utilized the proper PPE?
- Were adequate resources ordered early on?
- Were planning cycle time guidelines utilized?
- Was employee evacuation undertaken?
- Were all required permits obtained prior to hazardous operations?
- Was site security and control provided?
- Were Incident goals and objectives established?
- Did emergency medical treatment occur in a timely fashion?
- Was PPE utilized in a safe and effective manner?
- Were direct mitigation efforts taken?
- Was action taken early enough to provide resources to perform monitoring?
- Was action taken early enough to provide resources to adequately complete source control efforts?
- Was a Site-Specific Health and Safety Plan completed?

8.9.3 CEOC Team Debriefing Questions

- Did someone establish a CEOC early on and implement the Incident Command System (ICS)?
- Were public notifications made in a timely manner?
- Were governmental notifications made in a timely manner?
- Was action taken early on to make required telephone notifications other than public and government?
- Was ICS terminology implemented early enough during the incident?
- Was action taken early enough to provide resources for Public Affairs and Community Relations Assistance?
- Was action taken to provide a 12-Hour Plan?

Response Actions Debriefing Questions

Detection

- Was the incident detected promptly?
- How was it detected?
- By whom?
- Could it have been detected earlier? How?
- Are there any instruments or procedures which might aid in detection?

Notification

- Was Management notified promptly?
- Was Management response appropriate?
- Was Head Office notified promptly?
  If so, why, how and who? If not, why not?

Evaluation

- Was the magnitude of the problem assessed correctly at the start?
- What means were used for this assessment?
- Are there any guides or aids to assist evaluation?
- What sources of information were available on public/structures in the area that could be at risk?
- What sources of information were available on winds and on water currents?
- Was information adequate?
- Was the information useful (and used) for trajectory forecasts?
- Were the forecasts realistic?
- Do we have adequate information on product properties?
- Do we need additional information on changes of product properties with respect to time (e.g. as a result of weathering) and other processes?

Mobilization

- What steps were taken to mobilize incident countermeasures?
- What resources were used?
- Was mobilization prompt?
- Could it have happened faster, or should it have been?
- What about mobilization of manpower resources - timely?
- Were the local response co-operatives or contractors used appropriately?
- How could this be improved?
- Was it appropriate to mobilize Head Office resources and was this effected promptly?

- What other corporate resources were available and were they identified and used adequately?

Response - Strategy

- Is the Company ERP an adequate response plan?
- Is it flexible enough to cope with unexpected events?
- Does the plan include clear understanding of local environmental sensitivities?
- What was the initial strategy for response to the incident?
- Is the strategy defined in the response plan?
- How did the strategy evolve during the incident and how were the changes implemented?
- What caused the changes?
- Are there any improvements needed? More training?

Response – Resources Used

- What resources were mobilized?
- How were they mobilized?
- How did utilization change with time? Why?
- Were the following resources used effectively:
  - Contractors?
  - Government agencies?
  - Company resources?
  - Co-operatives?
  - Mutual Aid?
  - Volunteers?
  - Consultants?
  - Others?
- What changes would have been useful?
- Is there adequate knowledge of resource availability?

Response – Effectiveness

- Was containment effective and prompt?
- How could it have been improved?
- Are additional resources required for containment?
- Was recovery effective and prompt?
- How could it have been improved?
- Are additional resources required for recovery?

Command Structure

- Who was initially in charge of the response?
- What sort of organization was initially set up?
- How did this change with time? Why?
- What changes would have been useful?
- Was there adequate surveillance?
- Were communications adequate?
- What improvements are needed? (Hardware, procedures, etc.)
- Was support from financial services adequate? Prompt?
- Should there be any changes?
- Is more planning needed?

Measurement

- Was there adequate measurement or estimation on the magnitude of the incident or volume of material released?
- Was there adequate measurement or estimation of the volume of product recovered?
- Should better measurement procedures be developed for either phase of operations?
- What would be appropriate and acceptable?

Government Relations

- What are the roles and effects of the various government agencies involved?
- Was there a single point of contact for the government agencies?
- Should there have been better communication with the agencies?
- Were the agencies adequately informed at all stages?
- Were too many agencies involved?
- Are any procedural changes needed to manage government relations?
- Was there agreement with the agencies on criteria for clean-up?
- How was this agreement developed?

Public Relations

- How were relations with the media handled?
- What problems were encountered?
- Are improvements needed?
- Was public outcry serious? How could it have been reduced?
- What communication systems were engaged by public and media (e.g. social media?)

8.10 Post-Incident Reports

The severity of an incident determines the report requirements.

Post-incident reports that are restricted to facts are limited to indisputable information such as the location of the incident, when the incident occurred, who responded, the number of injuries or casualties, and other information of this nature.

The report should include the following:

- A general description of the incident.
- Description of the response, containment, and recovery efforts.
- Area and site rehabilitation program.
- Recommendations for preventive measures in the future.
- Copy of personnel statements.
- Photographs illustrating the incident.
- Cost analysis for lost production, facility repairs, land reclamation, and community compensation.

A post-incident report contains analyses and evaluation of the incident. The report provides advice on how to prevent a recurrence and makes emergency preparedness recommendations. In addition, it may identify the immediate and basic causes.

Issues related to liability and responsibility may arise from the analysis of the report.

Reports that define responsibility, liability or corrective actions may have to be presented during legal proceedings. In such cases, however, the report may be protected from the disclosure by the legal doctrine of privilege. Any report that relates to the causation or liability of the company for an incident should be privileged and not given to a plaintiff in legal proceedings. A report that is not reviewed by a Company lawyer and that has been requested by a third-party legal counsel; should be addressed to Company legal counsel.

In addition to company reports, independent report(s) may be prepared by government agencies. Review the jurisdictional section for further requirements of reporting to various regulatory authorities.

8.11 Cause and Liability Report

Cause and Liability Reports are privileged and confidential. They are prepared at the request of legal counsel in contemplation of litigation.

Cause and liability reports should be clearly separated from the reports that document factual matters and set out the remedial actions.

Privileged reports may include the following information:

- A description of the sequence of events that led up to the incident, during the incident and following the incident.
- Details related to the potential severity and the potential for frequency of recurrence. This suggests the importance of investigation and priority for action.
- An analysis including a logical determination of the cause of the incident.
- Evaluation of the emergency response:
  - On-site remedial procedures.
  - Safety standards that were applied during the response.
  - Internal notification and communication systems.
  - Effectiveness of media, government liaison or community relations efforts.
  - Public safety actions.
  - Actions taken to temporarily reduce the risk.
- An assessment of any potential legal or environmental issues that may be raised because of the incident or because of the company's responses.
- A plan to reduce the risk of a similar incident, including recommendations for the following actions:
  - Future actions.
  - Design changes and operating procedure changes.
  - Improvements to the emergency preparedness program.

8.12 Incident Investigations

Incidents in the work environment must be thoroughly investigated and reported to ensure every effort is made to identify and correct underlying causes. In every emergency involving a fatality, serious injury and loss or significant damage to Company property, corporate officials will either provide assistance with or take the lead in an incident investigation.

Particular care must be exercised to ensure that all evidence is preserved in its original state.

Where loss or damage to Company property or loss of revenue has occurred, evidence will not be disturbed until permission has been received from the Insurance Company adjuster and/or any government agencies involved.

Work within the incident area is only permitted in order to make an incident scene safe or to preserve equipment against loss.

Examples: Lowering a suspended load or draining water from equipment to prevent freezing damage.

All such work must be done in a manner that preserves the incident scene as much as possible.

Where an injury or fatality has occurred, the incident scene may be disturbed to preserve life and/or prevent catastrophic loss but must be proportional to the disruption of evidence.

Example: Isolation of equipment to prevent a spill to water shed.

Every attempt should be made to obtain permission for re-entry to an incident scene from the Jurisdiction Having Authority.

8.12.1 Serious Injury/Fatality Investigations

Following an incident where a fatality or a serious injury has occurred, government agency representatives will likely decide to carry out an investigation into either the extent or cause of the injury/fatality.

After presenting their credentials, these representatives are to be afforded full co-operation in the performance of their duties. Work at the scene of the injury/fatality may not be resumed until permission has been obtained from the various agencies involved.

8.12.2 Insurance Investigations

Insurance companies may wish to conduct investigations of their own into an incident. Once they have shown their credentials, they must be accompanied by a senior Company employee.

Access to an incident scene is predicated on the scene being safe and the persons entering the scene following Company Health and Safety requirements (e.g. PPE, etc.).

9.0 JURISDICTIONAL REQUIREMENTS

Federal and state specific emergency response regulations and guidelines are identified in the following sections.

9.1 NORTH DAKOTA

9.1.1 Assessment Matrix for Classifying Incidents

PetroShale's ERP will be implemented as deemed necessary in response to either an alert or an emergency (Level 1, 2, 3).

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 site only.
2	**Moderate**	• First aid treatment required for on-site worker(s). • Local and possible regional media interest. • Liquid release not contained on site. • Gas release impact has potential to extend beyond site.
3	**Major**	• Worker(s) requires hospitalization. • Regional and national media interest. • Liquid release extends beyond site—not contained. • Gas release impact extends beyond site—public health/safety could be jeopardized.
4	**Catastrophic**	• Fatality. • National and international media interest. • Liquid release off site not contained—potential for, or is, impacting water or sensitive terrain. • Gas release impact extends beyond site—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 operator is probable. It is unlikely that the incident will further escalate.
3	**Likely**	Imminent and/or intermittent control of the incident is possible. The operator 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 operator will be able to bring the hazard under control in the near term. The operator 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?

Sum the rank from both of these columns to obtain the risk level and the incident classification

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

notifi

Incident Response

Table 4. Incident response

	Incident classification			
Responses	**Alert**	**Level-1 emergency**	**Level-2 emergency**	**Level-3 emergency**
Communications				
Internal	Discretionary, depending on operator policy.	Notification of off-site management.	Notification of off-site management.	Notification of off-site management.
External public	Courtesy, at operator 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 appropriate agencies per ERP Section 9. Call local authority and health authority if public or	Notify appropriate agencies per ERP Section 9, local authority, and health authority.	Notify appropriate agencies per ERP Section 9, local authority, and health authority.
Actions				
Internal	On site, as required by operator.	On site, as required by operator. Initial response undertaken in accordance with the site-specific or corporate-level ERP.	Predetermined public safety actions are under way. Corporate management team alerted and may be appropriately engaged to support on-scene responders.	Full implementation of incident management system.
External	On site, as required by operator.	On site, as required by operator.	Potential for multi-agency (operator, municipal, state, or federal) response.	Immediate multi-agency (operator, municipal, state, 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, as required.	Assistance from government agencies and external support services, as required.

9.1.2 Incident / Spill Reporting

Any spill or discharge of waste which may cause pollution of waters of the state must be reported immediately. The owner, pumper, or person responsible for a spill or discharge must notify the appropriate government agencies using the State Unified Hazmat Spill / Release Reporting process by calling **1-833-99SPILL** and visiting **www.spill.nd.gov** which will triage the incident and direct notifications to the appropriate agencies. Depending on the severity of the spill or accidental discharge, the department may require the owner or pumper to:

- Take immediate remedial measures;
- Determine the extent of pollution to waters of the state;
- Provide alternate water sources to water users impacted by the spill or accidental discharge; or
- Any other actions necessary to protect human health and the environment.

Notification Requirements

Reportable Quantities

Specific minimum quantities for mandatory reporting of spills have not been established. All spills which may potentially impact waters of the state, either surface water or ground water must be reported. This includes all substances, not just "hazardous materials." Recent examples that a person may not normally think of as having a potential impact to water, include "non-toxic" substances such as molasses or salt. These may not be immediately harmful to human health, but they may impact aquatic life or soil fertility.

Emergency Response

Some releases may require immediate response by trained emergency personnel. This will be coordinated through the Department of Health, Division of Emergency Management and any other state or local emergency response agencies that may be needed. **If there is any question as to proper response call the State Unified Hazmat Spill / Release Reporting line at 1-833-99SPILL and provide all relevant information about the incident.**

Oilfield Related Incident Report Form

https://www.dmr.nd.gov/dmr/oilgas/spills

This form is only for RCRA-exempt releases in the oilfield. This will generally include:

- Produced fluids such as crude oil, water, or oil/water emulsion before ownership transfer takes place, (i.e. a release from the producer's lease, flow lines, or tank battery before being trucked off-site or going into crude transportation pipeline.)
- Brine water from a commercial disposal facility.
- Condensate from gas lines or gas plant before leaving the gas plant in the transportation pipeline.

Once you have submitted the completed Oilfield Related Incident Report Form, an e-mail version of the completed form will be sent to North Dakota Department of Health, Environmental Health Section personnel, North Dakota Department of Emergency Services and to North Dakota Industrial Commission, Oil and Gas Division personnel.

General Environmental Incident Report Form (Includes Non-exempt Oilfield Related Incidents)

https://www.spill.nd.gov/

This form should be used for any environmental incident or release that is not exempt under the RCRA oilfield exemptions. This will generally include:

- Any spill which may potentially have adverse effects to human health or the environment.
- Any incident or spill which may potentially impact waters of the state, either surface water or ground water.
- All substances are included, not just "hazardous materials." Recent examples that a person may not normally think of as having a potential impact to the environment, include "non-toxic" substances such as molasses or salt. These may not be immediately harmful to human health, but they may impact aquatic life or soil fertility.

Please Note:

- Sometimes an environmental incident does not actually result in a release to the environment, but should still be reported. Examples might include the loss of a sealed radiation source or a traffic accident involving hazardous chemicals, even if the containers did not break open.
- Releases of crude oil or produced water from truck transport are not exempt and should use the General Environmental Incident Report Form.
- Releases of crude oil or other non-gaseous petroleum products from transportation pipelines are not exempt and should use the General Environmental Incident Report Form.
- Releases of non-oilfield-produced substances, even when released on an oil lease, are not exempt and should use the General Environmental Incident Report Form. This would include spills such as fuel for rig motors, acid for well stimulation, etc.

Once you have submitted the completed General Environmental Incident Report Form, an e-mail version of the completed form will be sent to North Dakota Department of Health, Environmental Health Section and North Dakota Department of Emergency Services personnel.

9.1.3 Cleanup Action Levels for Gasoline and Other Petroleum Hydrocarbons

This section provides cleanup "action level guidelines" for groundwater, surface water and soil contaminated by a release, spill, or overfill of gasoline or other petroleum hydrocarbons from an underground storage tank system. Petroleum underground storage tanks are regulated through the North Dakota Underground Storage Tank (UST) Rules, Chapter 33-24-08 of NDAC Article 33-24.

A petroleum UST system is defined as, " . . . an underground storage tank system that contains petroleum or a mixture of petroleum with de minimus quantities of other regulated substances. Such systems include those containing motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents and used oils." Under all circumstances, cleanup decisions are made on a site-by-site basis and take into consideration the nature of the release and the site, including the following factors:

- The location of the site in relation to the surrounding population;
- The presence of free product;

- The presence and proximity of State utilities;
- The potential for migration of vapors;
- The hydrogeology of the site and groundwater use;
- The use and location of wells potentially affected by the release; and
- The future site use.

Gasoline and Other Petroleum Hydrocarbon Contamination

Groundwater

Cleanup action levels for groundwater are determined on a site-by-site basis in accordance with criteria established by the Division of Water Quality. In general, however, the following limits can be applied:

Contaminant	Action Level
Benzene	5 ppb (parts per billion)
Total Petroleum Hydrocarbons (TPH)	500 ppb

Surface Water

Surface water limits for contamination by gasoline or other petroleum hydrocarbons are established by the Division of Water Quality.

Soil and Fill Material

All gasoline contaminated soil and fill material or soil and fill material contaminated by other petroleum hydrocarbons that exceeds a total of 100 parts per million (ppm) TPH as gasoline or fuel oil generally must be removed from the site or treated in-place until the TPH level is below 100 ppm. Treatment or disposal methods should be consistent with the Department's Guidelines for Proper Land Treatment of Petroleum Product Contaminated Soils" or may be handled in any of the methods listed below:

- Taken to a state-approved landfill for treatment (land farming). Permission from the owner/operator of the landfill facility is advised before any gasoline contaminated soil or fill is delivered for treatment;
- Taken to an asphalt plant for reuse in the manufacture of asphalt, contingent on approval by the Division of Air Quality;
- Spread on a relatively impermeable material and aerated until the TPH level is below 10 ppm with approval of the Division of Waste Management and local fire and health officials; or
- Treatment of the soil in-place (biodegradation, leaching, venting, etc.) until the TPH value is less than 100 ppm. If this method is chosen, soil and groundwater samples must be submitted on a regular schedule approved by the Department to monitor progress.

Under certain circumstances, the Division of Waste Management may accept a proposal from the responsible party to leave soil with TPH levels exceeding 100 ppm in-place. Any proposal must provide assurances that concentrations of TPH greater than 100 ppm in the soil will not substantially alter the quality of the environment and that TPH in the contaminated soil will not migrate and contaminate groundwater.

Policy Statement:

The purpose of this policy is to institute contamination cleanup action levels, for petroleum and other petroleum hydrocarbons, that will protect groundwater and the environment. The Division of Water Quality administers the water quality programs in the state of North Dakota. Cleanup requirements more stringent than those listed in this document may be required by the Division of Water Quality.

This policy sets contamination cleanup action levels that should protect North Dakota's groundwater resource for future use and prevent future groundwater problems through cleanup of contaminated soil. Cleanup of releases from underground storage systems is required by the North Dakota Underground Storage Tank Rules and subject to appropriate enforcement action(s), if deemed necessary.

Once pollution from an UST system has been documented, the Division of Waste Management will require the responsible party (usually the tank owner) to complete an investigation for soil and groundwater cleanup. The investigation must adequately determine the areal and vertical extent of contamination in the soil and groundwater through soil borings and/or installation of groundwater monitoring wells or other techniques approved by the Department. Once the extent of contamination has been determined by the responsible party, a proposal for corrective action may be required. A Corrective Action Plan (CAP) must be submitted for review and approval by the Division of Waste Management and the Division of Water Quality prior to implementation, except as approved by the Department in an emergency situation. All contamination levels must be established using laboratory analytical methods. A list of certified laboratories and recommended sampling and laboratory methods can be obtained from the Division of Waste Management.

9.1.4 Company Responsibilities

It is PetroShale's responsibility when reporting a release to the applicable local, state or federal authority to inform any private individuals whose lands may be affected by the release. PetroShale must notify the landowner of any release that occurs off site, or that occurs on an easement or right-of-way. Landowner cooperation is essential in being able to quickly respond to a release.

Adverse effect is defined as "impairment of or damage to the environment, human health or safety, or property". Where this has occurred, PetroShale is required to notify the appropriate state agency.

For the purposes of reporting, PetroShale should 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 site) 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 odor complaints, or
- Toxic or flammable release to air going offsite.
- Chemical and physical characteristics of the substance released.
- Receiving or potential to receive media attention.
- Location of the release.

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

9.1.5 Environmental Protection Agency Reporting Requirements – Oil Spills and Hazardous Substance Releases

PetroShale must report all spills or releases that are or may cause an adverse effect as defined in the listing of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances.

The top priority of EPA's Emergency Management program is to eliminate any danger to the public and the environment posed by hazardous substance releases and oil spills. Any person or organization responsible for a release or spill is required to notify the federal government when the amount reaches a federally determined limit. Separate reporting requirements exist for:

- Oil Spills.
- Hazardous Substance Releases

States also may have separate reporting requirements. However, anybody who discovers a hazardous substance release or oil spill is encouraged to contact the federal government, regardless of whether they are the responsible party. All it takes is a single telephone call to the National Response Center

Oil Spills

EPA has established requirements to report spills to navigable waters or adjoining shorelines. EPA has determined that discharges of oil in quantities that may be harmful to public health or the environment include those that:

- Violate applicable water quality standards;
- Cause a film or "sheen" upon, or discoloration of the surface of the water or adjoining shorelines; or
- Cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

Any person in charge of vessels or facilities that discharge oil in such quantities is required to report the spill to the federal government. EPA provides several exemptions from the oil spill reporting requirements.

The requirement for reporting oil spills stems from the Discharge of Oil Regulation, known as the "sheen rule." Under this regulation, oil spill reporting does not depend on the specific amount of oil spilled, but on the presence of a visible sheen created by the spilled oil. Reporting an oil discharge may also be required under the Spill Prevention, Control and Countermeasure (SPCC) Rule. For more information on reporting oil discharges, please see the National Response Center website: https://nrc.uscg.mil/Default.aspx

Hazardous Substances

For releases of hazardous substances, the federal government has established Superfund Reportable Quantities (RQs). If a hazardous substance is released to the environment in an amount that equals or exceeds its RQ, the release must be reported to federal authorities, unless certain reporting exemptions for hazardous substance releases also apply.

Under the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, the federal government has designated several hundred substances as "extremely hazardous substances" based on their acute lethal toxicity. Under the law, releases of these extremely hazardous substances trigger reporting requirements to state and local authorities, as well as the federal authorities. The owner or operator of a facility that releases an extremely hazardous substance in

an amount greater than its established RQ must follow requirements on how to report to the appropriate authorities (in many cases, the State Emergency Response Commission (SERC) and the Local Emergency Planning Committee (LEPC)) for the location where the incident occurs.

For More Information

For more information on reporting hazardous substance releases, please refer to the US Environmental Protection Agency Frequent Questions pages.

https://www.epa.gov/epcra

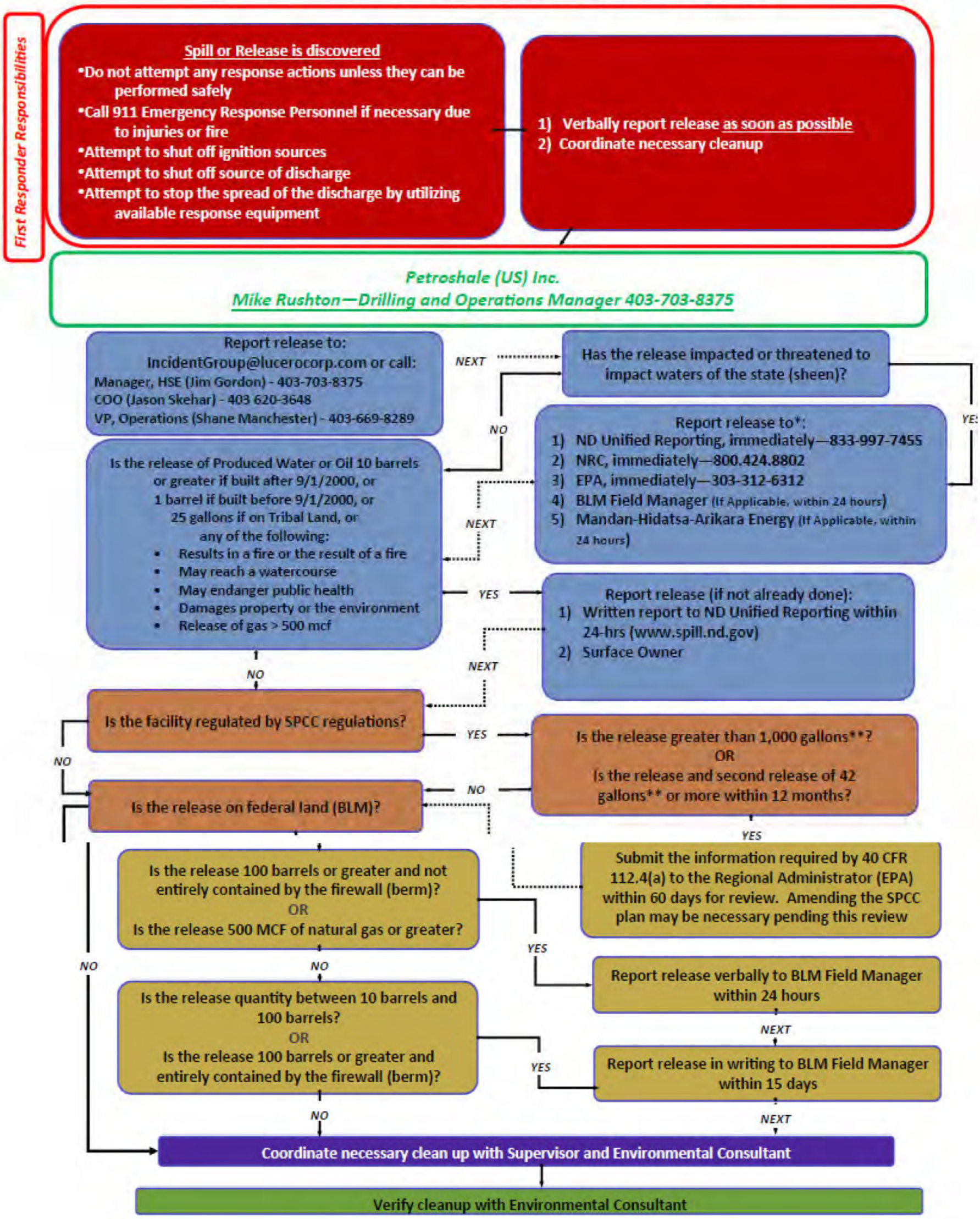
Additional information on EPA's Emergency Management Program for Hazardous Substances can also be found at the US EPA website: www.epa.gov/

9.1.6 Spill Prevention, Control and Countermeasure (SPCC) Plans

An SPCC plan must be prepared by all facilities subject to regulation, which can vary depending on the land on which the facility or asset is operating (state, federal or reserve land). The SPCC Plan will be activated as required, in addition to the Emergency Response Plan. Please refer to the associated SPCC plan for PetroShale for further guidance.

North Dakota Release Reporting Requirements

Petroshale (US) Inc.
North Dakota Release Notification Procedures



- NRC - National Response Center, 800-424-8802
- EPA - Environmental Protection Agency Region 8, 303-312-6312
- MHA Energy—701-627-5154
- SPCC - Spill Prevention Control and Countermeasures (SPCC Contact for EPA Region 8, Donna Inman, 303-312-6201)
- CFR - Code of Federal Regulations
- BLM - Bureau of Land Management
- MCF - 1,000 cubic feet
- PRSP—Person Responsible for Spill Prevention

* Written reports to ND Unified Reporting (within 24-hours) and BLM Field Manager (within 15 days) are required
** Applies to the total amount discharged that reaches navigable water, not the quantity of the discharge alone
** 1,000 Gallons = 24 BBLS, 42 Gallons = 1 BBL

9.1.7 Haz-Chem Preparedness and Response

Hazardous Materials Incident Reporting

In accordance with state and federal law, the intentional or unintentional release of hazardous materials beyond the reportable quantities must be reported. Notification is made to N.D. Department of Emergency Services

In addition, the initial notification will require follow-up reporting using a Hazardous Materials Spill Report form. As soon as safe conditions allow after a hazardous materials release, the owner or operator from the responsible party shall provide a written follow-up spill report(s) to NDDES. Information required in this report includes:

- Actions taken to respond to and contain the release.
- Any known or anticipated acute or chronic health risks associated with the release.
- Advice regarding medical attention necessary for exposed individuals, if needed.

https://www.nd.gov/des/planning/haz-chem/incident/

Agency Roles and Responsibilities for Hazardous Materials Incidents

Local Emergency Services Roles in Hazardous Materials Incident

Local fire, law enforcement, public health, environmental health professionals and other emergency response agencies incur initial responsibility for response to a hazardous materials incident. As first responders at the scene of a hazardous materials incident, local firefighters and/or law enforcement typically have lead responsibility for:

- Identifying the materials involved.
- Determining the risk or hazard posed by the spill.
- Calling for additional resources, if necessary, to monitor and contain the spill.
- Isolating the scene, restricting or rerouting traffic and conducting evacuation, if necessary.
- Providing first aid, as needed.
- Fighting the fire and protecting against explosions.
- Keeping the public informed of the hazard that exists, the actions being taken, precautionary measures to take and evacuation routes and destinations (if necessary).
- Taking overall scene management responsibilities.

While it is the responsibility of the designated local organization or agency to respond to hazardous materials incidents, it is not the normal responsibility of said organization or agency to conduct removal or remedial action. The responsibility lies with the legally responsible party; be it the land owner, owner, buyer, shipper, manufacturer, or insurance carrier. The person or entity owning or contributing to the release of a hazardous materials substance(s) is responsible for properly cleaning up and disposing of the released substance(s).

North Dakota Department of Transportation (NDDOT) Roles and Responsibilities

Department of Transportation personnel may perform traffic control, signing, flagging, road closures or provide equipment and material, in coordination with the Department of Emergency Services Incident Commander (IC) upon request. Depending on the size of the spill, if a hazardous materials spill occurs on the road surface or ditch of a state or federal highway, NDDOT, in consultation with and at the direction of the Incident Commander and local public health or

Department of Health, will take actions to attempt to mitigate further impacts (i.e. placement of material on the spill, construction of a temporary dike/berm).

Note: The Department of Transportation is not trained or equipped to perform contamination cleanup operations.

Mountrail County Local Emergency Manager

The Emergency Manager's role is not that of a first responder but that of a coordinator. The Emergency Manager will be responsible for coordinating response and recovery efforts on the local level and serves as a liaison to the NDDES State Emergency Operations Center (SEOC). The Emergency Manager coordinates resources in support of the local IC and ensures proper coordination is taking place between departments and logistical needs are being met. Depending on the size and complexity of the incident the Emergency Manager may coordinate from their office or from the local Emergency Operations Center (EOC). The Emergency Manager is the primary contact and coordinates with the NDDES to obtain state and/or federal assistance and provide situational awareness.

North Dakota Department of Emergency Services (NDDES)

The NDDES is the coordinating agency and provides 24/7 emergency communications and resource coordination with more than 50 state agencies in support of local governments during an emergency or disaster.

The NDDES:

- Maintains a 24-hour notification capability through the NDDES Duty Officer System
- Notifies appropriate state agencies and other agencies.
- Activates, as necessary and manages the State Emergency Operations Center (SEOC) to coordinate state response.
- Authorizes dispatch of the ND Regional Hazardous Materials Teams

State Role in Hazardous Materials Incidents

State involvement is at the request of a local jurisdiction when it has been determined that additional resources or expertise is necessary to effectively deal with the situation or involvement is statutorily mandated. It is important, therefore, to emphasize that the state's intent is to SUPPLEMENT local capabilities. Such action could involve a number of state agencies:

- The **ND Department of Emergency Services** coordinates state response and resources in support of local government. Manages that SEOC and maintains situational awareness for state agencies involved in preparedness, response and recovery efforts.
- The **ND Department of Health** provides technical assistance regarding protective actions, public health and environmental impacts and clean-up requirements. In addition, the NDDoH is responsible for ensuring proper clean-up actions have been taken.
- The **ND Highway Patrol** provides general control of the perimeter of the incident (i.e. regulating traffic) and will play other roles depending on state law and incident requirements. The NDHP may be the IC at a motor vehicle crash or participate as part of the Unified Command (UC) at a larger incident. Troopers may assist with traffic control depending on the need for clean-up operations.
- The **ND Department of Transportation** has jurisdiction on the state and federal highway systems and may perform traffic control, signing, flagging, road closures, or

provide equipment and material, in coordination with the IC upon request. In consultation with the IC and local public health and/or NDDoH, NDDOT may take actions to mitigate further impacts.

- The **ND Oil and Gas Division** provides technical assistance with clean-up and reclamation work of crude oil, natural gas and salt water spills.
- The **ND State Fire Marshal** provides technical assistance regarding hazardous materials.

9.1.8 Government Roles and Responsibilities

North Dakota Industrial Commission (NDIC)

The NDIC conducts and manages utilities, industries, enterprises and business projects within the State of North Dakota. The Oil and Gas Division ("The Division") regulates the drilling and production of oil and gas in North Dakota.

Department of Mineral Resources, Oil and Gas Division

The Oil and Gas Division regulates the drilling and production of oil and gas in North Dakota. Its mission is to encourage and promote the development, production and utilization of oil and gas in the state in such a manner as will prevent waste, maximize economic recovery and fully protect the correlative rights of all owners to the end that the landowners, the royalty owners, the producers and the general public realize the greatest possible good from these vital natural resources.

North Dakota Department of Transportation (NDDOT)

NDDOT's mission is to provide a transportation system that safely moves people and goods. It will do this through promoting safe ways of transportation, superior service and economic growth.

North Dakota Department of Environmental Quality (NDDEQ)

The North Dakota Department of Environmental Quality's Vision is for a sustainable, high quality environment for current and future generations. Our Mission is to conserve and protect the quality of North Dakota's air, land and water resources following science and the law.

In cooperation with the general public, industry and government at all levels, the department implements protective programs and standards to help maintain and improve environmental quality.

North Dakota Department of Emergency Services (NDDES)

The NDDES provides 24/7 emergency communications and resource coordination with more than 50 lead and support agencies, private enterprise and voluntary organizations to assist local jurisdictions in disaster and emergency response activities. NDDES administers federal disaster recovery programs and the Homeland Security Grant Program. NDDES also manages the Emergency Management Assistance Compact (EMAC) that serves as a national clearinghouse through which member states may request and provide mutual aid assistance. Local and tribal governments maintain direct responsibility for initial response to incidents, emergencies, disasters or catastrophes. Local emergency managers serve a key role in coordinating response and recovery efforts by providing situational awareness and accompanying resource requirements. NDDES supports response and recovery coordination with emergency managers in each county and tribal nation within the state as well as the cities of Bismarck and Fargo.

North Dakota Hazardous Chemicals Preparedness and Response Program

The Hazardous Chemicals Preparedness and Response Program requires yearly reporting to inventory hazardous and toxic chemicals stored across North Dakota.

Typical facilities reporting are:

- Bulk fuel plants.
- Anhydrous ammonia plants.
- Propane plants.
- Agricultural processing plants.
- Energy producing sites.
- Oil producing sites.

Storage fees collected are divided equally between NDDES to cover program expenses and the Local Emergency Planning Commissions (LEPCs) located in each county. The LEPCs may use the money to fund training, exercising, equipment, response and salaries.

Program Outlook

Revenues are anticipated to increase an average of around five percent per year. This growth is mostly due to continuing changes in North Dakota's agricultural, manufacturing and energy industries. Modern agriculture practices are utilizing additional chemicals in crop production. The advent of no-till farming and genetic engineered crops requires fertilizers along with new and additional chemicals for control of weeds and insects. Coal mining and its use by electrical generating plants and the manufacture of products such as synthetic natural gas are growing. Oil exploration and drilling have increased tremendously in the last few years and the risks to local communities are increasing. Also, new and larger pipelines that carry energy related products are being built and proposed across the state.

The result of this changing landscape is the increased amount of hazardous materials manufactured, stored, transported and used throughout the state.

North Dakota Unified Spill Reporting System

North Dakota uses a whole-of-government approach for developing long-term strategies for managing energy development in an environmentally responsible manner. The state's Unified Spill/Tier II reporting system is a tool for and effective state response and a mitigation strategy for unanticipated spill events.

This effort also provides transparency with stakeholders, including fellow North Dakotans, producers, transporters, developers and media members.

In accordance with state and federal law, the intentional or unintentional release of hazardous materials must be reported to the state within 24 hours of the incident. This can be accomplished by using this reporting system to meet the requirement of notifying all state agencies, both online and by calling 1-833-99SPILL (1-833-997-7455). This number provides a one-call routing menu with options for reporting based on the nature of the spill.

North Dakota Unified Spill Reporting System: https://www.spill.nd.gov/

State Emergency Response Commission (SERC)

The State Emergency Response Commission's responsibilities are to coordinate the development and maintenance of a state hazardous chemicals preparedness and response program. It shall ensure citizens are provided emergency and hazardous chemical inventory information upon request in accordance with the state and federal laws.

SERC Responsibilities:

- Review state hazardous materials response plans annually.
- Monitor the activities and membership of Local Emergency Planning Committees (LEPCs).
- Ensure LEPCs receive and record documented reports submitted under the Emergency Planning and Community Right-to-Know Act (EPCRA) and provide information required by law.
- Monitor resources and activities of state agencies related to respective roles and responsibilities as specified in the ND State Emergency Operations Plan (SEOP) and applicable Hazardous Materials Annex.

North Dakota Homeland Security Program

The Homeland Security Grants Section enhances security by managing and administering grant programs that increase the capability and capacity of local, tribal and state government, first responders and the citizens of North Dakota. The grant programs provide the necessary funding to local units of government and first responders to prevent, protect against, respond to and recover from catastrophic incidents. The Homeland Security Section issues sub grants providing funding for planning, training, exercising and equipment.

The State Homeland Security Program has entered into a cooperative agreement with Cass, Burleigh, Ward Counties and the City of Grand Forks to initiate a state-wide comprehensive regional response program. The program places personnel and resources into four geographic regions to provide the mechanism for a coordinated response to a chemical, biological radiological, nuclear or explosive incident.

Regional response is a method through which emergency response resources for a chemical/biological/radiological/nuclear/explosive (CBRNE) event will be identified and collectively used throughout a particular region. Regional efforts to quantify and coordinate these resources will greatly enhance our ability to respond to CBRNE events.

North Dakota Department of Health

The mission of the North Dakota Department of Health is to protect and enhance the health and safety of all North Dakotans and the environment in which we live.

To accomplish our mission, the North Dakota Department of Health is committed to improving the health status of the people of North Dakota, improving access to and delivery of quality health care, preserving and improving the quality of the environment, promoting a state of emergency readiness and response and achieving strategic outcomes within available resources.

Emergency Preparedness and Response Section

The goal of the Emergency Preparedness and Response Section is to enhance the preparedness and response capabilities of the state's public health and private medical providers.

The section utilizes federal grants provided to all states for this purpose: the U.S. Centers for Disease Control and Prevention grant funds efforts to build the state's public health infrastructure and the U.S. Health Resources Services Administration grant funds hospital preparedness.

The section works to create and promote a state of readiness and response to protect the health of North Dakotans during catastrophic events, large-scale disasters and emergencies.

Division of Emergency Medical Services and Trauma (DEMST)

The Division of Emergency Medical Services and Trauma (DEMST) is the lead agency for North Dakota's Emergency Medical Services (EMS) system. The EMS system consists of ambulance services that provide medical care and transportation, quick response units that provide treatment to patients until ambulances arrive, rescue services that extricate people who are entrapped and hospitals that provide emergency room and trauma services.

Division of Public Health Preparedness

The Division of Public Health Preparedness provides local and state public health guidance, planning, coordination, response and funding for large-scale emergencies. These activities include coordination and funding of incident command and control, coordination of the state medical supply cache, coordination of all-hazards preparedness planning with local and tribal public health and coordination for receipt of federal medical assets with the Strategic National Stockpile.

The Division of Public Health Preparedness integrates emergency preparedness with many other divisions and sections of the North Dakota Department of Health, including Disease Control, Laboratory Services, Public Information, Environmental Health and Education Technology.

Hospital Preparedness

The Division of Hospital Preparedness coordinates and supports emergency preparedness activities throughout the state’s health-care system. The division works with hospitals, long-term care facilities, emergency medical services and clinics in planning and implementing systems for providing care to those affected by emergencies and infectious disease outbreaks.

Environmental Health Section

The goal of the Environmental Health Section is to safeguard the quality of North Dakota's air, land and water resources. The section deals with issues that affect the comfort, health, safety and well-being of North Dakota citizens and their environment.

Primary functions and responsibilities include coordinating communications with the U.S. Environmental Protection Agency (EPA) regarding state programs and related environmental

issues, monitoring and enforcing compliance with state and federal environmental laws and carrying out environmental chemistry analyses.

The Environmental Health Section's priorities include:

- Implementing strategies to address environmental impacts and problems associated with new developments
- Administering a state hazardous waste management program
- Administering a water quality management program for cleaning up targeted lakes and rivers
- Protecting groundwater and drinking water aquifers
- Controlling air, radiation and solid waste pollution

The section consists of the following divisions:

- Water Quality
- Chemistry
- Waste Management
- Air Quality
- State Facilities

Waste Management

The Division of Waste Management administers several programs that safeguard the safety and environmental health of North Dakota's citizens. These programs are designed for generators of solid and hazardous waste and operators of underground storage tanks.

The division manages the following programs:

- **Hazardous Waste Program -** Regulates facilities that generate, store, treat, dispose of and transport hazardous waste. Works to ensure safe waste management so that hazardous waste in North Dakota doesn't adversely affect human health or the environment.
- **Polychlorinated Biphenyls (PCB) Inspection Program -** Conducts inspections at facilities known or suspected to have equipment containing PCBs.
- **Solid Waste Program -** Regulates the safe collection, transportation, storage and disposal of inert, industrial, special and state solid wastes. Promotes resource recovery and recycling systems.
- **Abandoned Motor Vehicle Program -** Provides for the collection of abandoned motor vehicles and other scrap metals to reduce health and safety hazards, improve the appearance of the landscape and recycle useful metals.
- **Underground Storage Tank Program -** Defines the types of tanks which may be installed, establishes technical standards for underground storage tanks, maintains a tank notification program, establishes financial responsibility requirements for tank owners and provides state inspection and enforcement.

North Dakota Game and Fish Department

The mission of the North Dakota Game and Fish Department is to protect, conserve and enhance fish and wildlife populations and their habitat for sustained public consumptive and non-consumptive use.

Occupational Safety and Health Administration – Region 8

The Occupational Safety and Health Administration (OSHA) mission is to assure safe and healthful workplaces by setting and enforcing standards and by providing training, outreach, education and assistance.

The Region 8 office is located in Denver, CO, while the state office is located in Bismarck, ND.

Local Authority – Mountrail County

Local Emergency Planning Committee

Each county in North Dakota has been designated as a planning district with a Local Emergency Planning Committee (LEPC) appointed for each district. The LEPC is required to develop and maintain hazardous chemicals *and* emergency response plans for the respective district using information from facilities required to report under the "Right-to-Know" section of the Emergency Planning and Community Right to Know Act (EPCRA). If a facility has a response plan of its own, appropriate information should be incorporated into the LEPC plan.

Each Local Emergency Manager is a member of their respective LEPC and will coordinate local emergency planning and operational response activities regarding all hazards (including hazardous materials). Neither the Emergency Manager nor LEPC direct the actual response. That is almost always a fire department or law enforcement responsibility.

LEPC Duties and Responsibilities:

- Maintain the LEPC and keep the public informed of activities and accomplishments.
- Develop an emergency notification system.
- Develop, maintain and exercise an emergency operations plan.
- Establish a system for data / information management.
- Manage training of LEPC members and manpower resources designated in the plan.

LOCAL AUTHORITY		
❑	Maintain a 24 hour emergency contact number where resources can be accessed for a response related to Emergency Response Plans.	LOCAL AUTHORITY
❑	Conduct a hazard assessment of facilities and operations within the county.	
❑	Work with the operator to effectively prepare for a petroleum industry incident. Provide input to the industrial operator's ERP to ensure it is compatible with the county emergency operations plan (EOP).	
❑	Train personnel to carry out function as assigned by the EOP or procedures.	
❑	Assess emergency incident and evaluate operator response with County Emergency Services.	
❑	Activate the emergency public warning system to alert people to life threatening hazards, as required.	
❑	Initiate public protection option, as required if resources are available.	
❑	Maintain communication with industrial operator during emergency.	
❑	Activate the EOP, in accordance with local authority policy.	
❑	Manage the local authority's emergency response.	
❑	Dispatch a representative to the incident command post, if resources are available.	
❑	Coordinate with the industrial operator, the establishment and the administration of reception centers for evacuees, as required.	
❑	Establish roadblocks and maintain them if resources are available.	
❑	Assist with fire protection.	
❑	Coordinate a public information service, including the use of the news media to inform and instruct the public of the emergency and of any protective actions to be taken.	
❑	Provide timely news releases.	
❑	Conduct a damage assessment to the extent of government infrastructure (roads/bridges).	
❑	Participate in multi-agency debriefings if resources are available.	

Emergency Services: Police, EMS and Fire Fighting

The County will dispatch Emergency Services to respond to any incident. This may consist of the County Fire Department, County EMS, County Sheriff, etc.

Police response consists of the County Sheriff's Department and the North Dakota State Highway Patrol. If numbered highways need to be closed, this will fall under the auspices of the State Highway Patrol

EMERGENCY SERVICES		
❑	Understand the hazards associated with the petroleum facilities and operations within the area.	EMERGENCY SERVICES
❑	Work with the operator to effectively prepare for a petroleum industry incident.	
❑	Understand the response role when there is a private and public-sector response.	
❑	Train personnel to carry out their functions when there is an incident.	
❑	Establish contact with the industrial operator.	
❑	Prior to dispatching staff to scene, determine the hazards associated with the incident.	
❑	Determine where roadblocks are established.	
❑	Where applicable, maintain roadblocks as necessary.	
❑	Determine the direction of approach to the incident.	
❑	Determine if there are any injuries.	
❑	Find out what response and public protection actions have been taken by the operator.	
❑	Initiate public protection option, when necessary.	
❑	Identify what resources are required and where they should be staged.	
❑	Determine the location of the On-Site Command Post.	
❑	Respond and assess emergency incident.	
❑	Communicate to REOC and provide situation reports as required.	
❑	Dispatch a representative to the REOC, when it is established to coordinate the response.	
❑	Assist with fire protection, where applicable.	
❑	Provide emergency medical assistance, as required.	
❑	Compile response logs.	
❑	Participate in State incident debriefing.	
❑	Participate in multi-agency debriefings.	

9.1.9 List of Abbreviations

Acronym	Name
BLM	Bureau of Land Management
EMA	Emergency Management Agency
EPA	Environmental Protection Agency
EPA RRT	EPA Regional Response Teams
FEMA	Federal Emergency Management Agency
LEPC	Local Emergency Planning Committee
NDDEQ	North Dakota Department of Environmental Quality
NDDES	North Dakota Department of Emergency Services
NDDH	North Dakota Department of Health
NDDHS	North Dakota Department of Homeland Security
NDDOT	North Dakota Department of Transportation
NDIC	North Dakota Industrial Commission
NRC	National Response Center
NTSB	National Transportation Safety Board
OSHA	Occupational Safety and Health Administration
SERC	State Emergency Response Commission
SPCC	Spill Prevention, Control and Countermeasures Plan

9.2 UNITED STATES FEDERAL GOVERNMENT

9.2.1 Environmental Protection Agency

The mission of the US Environmental Protection Agency (EPA) is to protect human health and the environment.

EPA's purpose is to ensure that:

- All Americans are protected from significant risks to human health and the environment where they live, learn and work;
- National efforts to reduce environmental risk are based on the best available scientific information;
- Federal laws protecting human health and the environment are enforced fairly and effectively;
- Environmental protection is an integral consideration in U.S. policies concerning natural resources, human health, economic growth, energy, transportation, agriculture, industry and international trade and these factors are similarly considered in establishing environmental policy;
- All parts of society -- communities, individuals, businesses and state, local and tribal governments -- have access to accurate information sufficient to effectively participate in managing human health and environmental risks;
- Environmental protection contributes to making our communities and ecosystems diverse, sustainable and economically productive; and
- The United States plays a leadership role in working with other nations to protect the global environment.

9.2.2 USA EPA Region 8

The EPA Region 8 head office is located in Denver, Colorado. Region 8 works to protect human health and the environment in Colorado, Montana, **North Dakota**, South Dakota, Utah and Wyoming and 27 sovereign Tribal Nations, in concert with state, local and tribal governments, businesses, non-governmental organizations, communities and individuals

9.2.3 Region 8 Superfund

The Superfund Emergency Response Program provides quick responses to immediate threats from hazardous substances. The Program's first priority is to eliminate dangers to the public -- to make sites safe for those who live or work nearby. Emergency response actions are quick, relatively low-cost activities that address substantial threats from hazardous substances. Typical situations requiring emergency response actions include chemical fires or explosions, threats to people from exposure to hazardous substances, or contamination of drinking water supplies. While threats confronted by the emergency response program vary greatly in size, nature and location, there is a common element

In Region 8, there are two programs that implement Superfund responses, the emergency response program and the remedial program.

The emergency response program responds to emergencies, such as fires, train derailments and floods, involving the release of hazardous substances. The emergency response program also undertakes removal actions, short-term cleanups of hazardous substances that pose an immediate health threat.

The remedial program oversees long-term cleanup of the most complex contaminated sites—generally sites listed on the National Priorities List (NPL).

The majority of the reported spills involve small quantities of material, which are effectively handled by local fire departments, emergency response personnel and by responsible parties. Small spills are quickly cleaned up and normally have little or no impact on the community or surrounding environment. State and federal responders become involved in response operations for spills or releases which present significant risks to human health or the environment. Federal responders, called On-Scene Coordinators (OSCs), become involved where major releases of hazardous materials occur. Such releases might include truck or train accidents with chemical spills; fires involving hazardous materials; leaking or abandoned drums, tanks or vats with toxic materials; tire fires; oil spills or oil discharges into rivers or lakes, etc. Typical response operations last from one to three days, with cleanup costs normally under $100,000.

9.2.4 Regional Response Teams

Acts of terrorism, natural disasters and large oil spills are emergencies that require quick and effective action. To prepare for these kinds of events, state and federal government employees, with expertise in emergency response, have formed Regional Response Teams (RRTs). RRTs are a part of the National Oil and Hazardous Substances Response System, which is the federal government's mechanism for emergency response to discharges of oil and releases of chemicals into the environment. The system provides a framework for coordination among federal, state and local responders.

The RRT provides the mechanism for regional development and coordination of preparedness activities before a response action is taken and for coordination of assistance and advice to the On-Scene Coordinators (OSCs) during such response actions. The RRT provides guidance to Area Committees, as appropriate, to ensure inter-area consistency and consistency of individual Contingency Plans. Every region in the United States has its own RRT charged with planning for and responding to emergency situations.

9.2.5 Department of Homeland Security

The Department of Homeland Security has a vital mission: to secure the nation from the many threats we face. This requires the dedication of more than 240,000 employees in jobs that range from aviation and border security to emergency response, from cybersecurity analyst to chemical facility inspector. Duties are wide-ranging and DHS' goal is clear - keeping America safe.

Critical Infrastructure Protection. The Critical Infrastructure Information Act of 2002 (CII Act) seeks to facilitate greater sharing of critical infrastructure information among the owners and operators of the critical infrastructures and government entities with infrastructure protection responsibilities, thereby reducing the nation's vulnerability to terrorism.

9.2.6 Department of Transportation (DOT)

The mission of the Department is to serve the United States by ensuring a fast, safe, efficient, accessible and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future.

The top priorities at DOT are to keep the traveling public safe and secure, increase their mobility and have the transportation system contribute to the nation's economic growth.

Pipeline and Hazardous Materials Safety Administration

The Pipeline and Hazardous Materials Safety Administration (PHMSA) oversees the safety of more than 800,000 daily shipments of hazardous materials in the United States and 64 percent of the nation's energy that is transported by pipelines. PHMSA is dedicated solely to safety by working toward the elimination of transportation-related deaths and injuries in hazardous

materials and pipeline transportation and by promoting transportation solutions that enhance communities and protect the natural environment.

9.2.7 Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) coordinates the federal government's role in preparing for, preventing, mitigating the effects of, responding to and recovering from all domestic disasters, whether natural or man-made, including acts of terror. FEMA has the responsibility for coordinating government-wide relief efforts following a declaration of an emergency or disaster.

FEMA is designed to bring an orderly and systemic means of federal natural disaster assistance for state and local governments in carrying out their responsibilities to aid citizens. FEMA leads and supports the nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery and mitigation.

Region VIII

FEMA Region VIII serves the states of Colorado, Montana, **North Dakota**, South Dakota, Utah and Wyoming. The regional office provides advice, training and funding to ensure sustainability and improve capabilities for disaster preparedness, protection, response, recovery and mitigation. Region VIII's most common challenges are flooding, severe storms, tornadoes and winter storms.

9.2.8 Department of Health and Human Services (HHS)

The US Department of Health and Human Services is tasked with the responsibility of enhancing and protecting the health and wellbeing of all Americans, through the provision of effective health and human services and fostering advances in medicine, public health and social services.

- To help more Americans achieve the security of quality, affordable health care for themselves and for their families;
- To keep food and medical products safe;
- To protect against chronic and infectious diseases;
- To help Americans find jobs;
- To help parents access affordable child care;
- To explore the frontiers of cutting-edge biomedical research; and
- To fulfill our obligations to tribal communities for health care and human services.

9.2.9 US Fish and Wildlife Service

As part of the Service's mission of "protecting fish and wildlife and their habitats for the continuing benefit of people" emergency management plays a vital role. Emergency management provides strategy and support in dealing with planning, preparedness and response to natural or man-made disasters.

- Provides support to National Response Framework activations.
- Provide supplementary transport assets such as light fixed wing aircraft, vessels, boats and other watercraft, all-terrain vehicles and snow machines, as well as support personnel, certified pilots and vessel operators.
- Maintain radio communications systems in support of fire fighters, law enforcement officers and incident response specialists.
- Responsible for fighting wildfires burning on lands within its jurisdiction and assist the Forest Service and other federal and state agencies as requested.
- Maintain a cadre of certified fire fighting personnel within the National Wildlife Refuge System.

- Ensure command and control of all wildfires burning on lands within its jurisdiction and assist other federal and state agencies as appropriate.
- Responsible for managing and coordinating emergency responses on lands within its jurisdiction and assist other federal and state agencies on adjacent lands as requested.
- Provide supporting material, property, facility and transportation during emergencies as requested.
- Provide scientific and technical advice, information and assistance to prevent or minimize injury to natural and cultural and historic properties.
- Respond to spills of hazardous materials to provide scientific and technical advice relative to impacts on fish and wildlife and the environment.

9.2.10 US Bureau of Indian Affairs

The United States has a unique legal and political relationship with Indian tribes and Alaska Native entities as provided by the Constitution of the United States, treaties, court decisions and Federal statutes. Within the government-to-government relationship, Indian Affairs provides services directly or through contracts, grants, or compacts to 567 Federally recognized tribes with a service population of about 1.9 million American Indian and Alaska Natives. While the role of Indian Affairs has changed significantly in the last three decades in response to a greater emphasis on Indian self-governance and self-determination, Tribes still look to Indian Affairs for a broad spectrum of services.

The Indian Affairs offers an extensive scope of programs that covers the entire range of Federal, State and local government services. Programs administered by either Tribes or Indian Affairs through the Bureau of Indian Education (BIE) include an education system consisting of 183 schools and dormitories educating approximately 42,000 elementary and secondary students and 28 tribal colleges, universities and post-secondary schools. Programs administered through the Bureau of Indian Affairs (BIA) include social services, natural resources management on trust lands representing 55 million surface acres and 57 million acres of subsurface minerals estates, economic development programs in some of the most isolated and economically depressed areas of the United States, law enforcement and detention services, administration of tribal courts, implementation of land and water claim settlements, housing improvement, disaster relief, replacement and repair of schools, repair and maintenance of roads and bridges and the repair of structural deficiencies on high hazard dams, the BIA operates a series irrigation systems and provides electricity to rural parts of Arizona.

Through Indian Affairs programs, Tribes improve their tribal government infrastructure, community infrastructure, education, job training and employment opportunities along with other components of long term sustainable development that work to improve the quality of life for their members.

9.2.11 US Bureau of Land Management

The Bureau of Land Management's mission is to sustain the health, diversity, and productivity of public lands for the use and enjoyment of present and future generations. The Federal Land Policy and Management Act of 1976, as amended, is the Bureau of Land Management’s “organic act” that establishes the agency’s multiple-use and sustained yield mandate to serve present and future generations.

The Bureau of Land Management Montana/Dakotas manages about 8.3 million acres of public lands for multiple use and about 47.1 million acres of federal mineral estate in Montana, North

Dakota and South Dakota. These public lands provide habitat for wildlife, forage for domestic livestock, forest products ranging from Christmas trees to commercial timber, and a wide range of recreational opportunities. The federal mineral estate, which includes oil, natural gas, and coal, is a critical source of energy as our nation works to develop domestic resources while supporting job growth.

The US Bureau of Land Management is a stakeholder requiring notification for incidents occurring on federal land including reservation land in North Dakota.

9.2.12 US Forest Service (USDA)

The United States Forest Service (USFS) is an agency of the U.S. Department of Agriculture that administers the nation's 154 national forests and 20 national grasslands. The Forest Service manages 193 million acres of land. Major divisions of the agency include the Chief's Office, National Forest System, State and Private Forestry, Business Operations, and Research and Development The agency manages about 25% of federal lands and is the only major national land management agency not part of the U.S. Department of the Interior, which manages the National Park Service, the U.S. Fish and Wildlife Service, and the Bureau of Land Management.

As the lead federal agency in natural resource conservation, the Forest Service provides leadership in the protection, management, and use of the nation's forest, rangeland, and aquatic ecosystems. The agency's ecosystem approach to management integrates ecological, economic, and social factors to maintain and enhance the quality of the environment to meet current and future needs. Through implementation of land and resource management plans, the agency ensures sustainable ecosystems by restoring and maintaining species diversity and ecological productivity that helps provide recreation, water, timber, minerals, fish, wildlife, wilderness, and aesthetic values for current and future generations of people.

The everyday work of the Forest Service balances resource extraction, resource protection, and providing recreation. The work includes managing 193 million acres of national forest and grasslands, including 59 million acres of roadless areas; 14,077 recreation sites; 143,346 miles of trails; 374,883 miles of roads; and the harvesting of 1.5 billion trees per year.

National Grasslands such as the Little Missouri Grassland in North Dakota fall under the protection of the USFS and as such any operations occurring in these areas are required to notify the district engineer on call in case of an incident.

9.2.13 Mandan, Hidatsa and Arikara Nation

The MHA Nation are three affiliated tribes located in North Dakota on the Fort Berthold Reservation. The Mandan, Hidatsa and Arikara Nation, also known as the Three Affiliated Tribes, is located on the Fort Berthold Indian Reservation in central North Dakota. The reservation is located on the Missouri River in McLean, Mountrail, Dunn, McKenzie, Mercer and Ward counties. The reservation consists of 988,000 acres, of which 457,837 acres are owned by Native Americans, either as individual allotments or communally by the tribe.

The Tribal headquarters is located 4 miles west of New Town, ND. Chairman Mark N. Fox and the MHA Nation Tribal Business Council invite you to visit the Fort Berthold Reservation and learn more about our government, culture and history. The tribes' mission is to provide to the tribe and people, maximum quality services, by being responsible, accountable, respectful, caring and will incorporate the traditional values or our elders and ancestors.

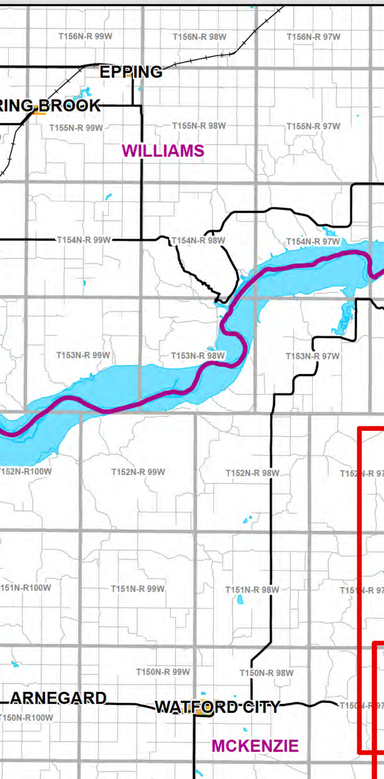
To manage and oversee oil and gas operations on reservation land, the department, MHA Energy was founded. MHA Energy Division will manage all Natural Resources through professional mentorship, responsible development, communication and education; while committing to environmental awareness and cultural values that ensure sovereignty for generations to come.

Any oil and gas operations falling on Fort Berthold reservation land is required to notify MHA Energy in case of a spill or incident.

10.0 OPERATIONS

Overview Map

Overview map of field areas on following pages:



Petroshale Wells
- Abandoned
- Gas
- Gas - Shut In
- Oil
- Oil - Shut In
- Oil - Approved Permit
- Oil - New Permit
- Water
- Bottom Hole
- Well EPZ

Petroshale Pipelines
- Abandoned/Discontinued
- Sour Gas
- Natural Gas
- Fuel Gas
- Oil
- Water
- HVP Products
- LVP Products
- Miscellaneous Gas
- Block Valves
- Pipeline EPZ

Petroshale Facilities
- Battery
- Compressor Station
- Gas Plant
- Gathering Point
- Injection Plant
- Meter Station
- Pump Station
- Satellite

Transportation
- Roads
- Low Grade / Seasonal
- Railways
- Dead Ends
- Road Blocks

Residents
- Abandoned
- Occupied
- Sensitive
- Business
- Sensitive Business
- Cabin
- Occupied Part-Time
- Vacant
- Campground
- Cemetery
- Church
- Community Hall
- Farm/Ranch
- Gravel Pit
- School
- Shop
- Tower

Other Symbols
- Urban Area
- Counties
- Reserves

Waterbody
- Intermittent
- Perennial

Other Operator Wells and Pipelines represented in BROWN.

PETROSHALE (US) INC.
A WHOLLY OWNED SUBSIDIARY OF
LUCERO ENERGY CORP.

North Dakota - Dunn / Mckenzie County

USA Corporate Map

Notes
- Location of residence in LSD is approximate
- Well and Pipeline Information is provided by IHS, and must be considered approximate.

Projection: UTM Zone 13
Datum: NAD 83
Mapscale: 1:250 000

N
W E
S

0 3 6 12
Miles

Created by: DM
March 21, 2022

Modified by: LN
May 29, 2023

Lucero ENERGY CORP.
PetroShale (US), Inc.

BLACK GOLD EMERGENCY PLANNERS INC. BGEPlan ERP COMPLIANCE

10.1 Dunn Field Area

10.1.1 Dunn Telephone Directory

PetroShale 24-Hour Emergency Number
1-701-774-7777

PetroShale Main Number
1-701-774-7777

Field Office			
Telephone Number			
Address		508, 13th Ave SW, Watford City, ND 58854	
Name	**Position**	**Cell**	**Email**
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

Government Agencies

Resource	Contact	Office	Cell/24 Hour
North Dakota Industrial Commission Oil and Gas Division	Bismarck	1-701-328-8020	Call 1-701-328-8020 during an emergency
	Dickinson	1-701-227-7436	
	Minot	1-701-857-7646	
	Williston	1-701-774-4380	
Dunn County	Sarah Duttenhefner Emergency Management	1-701-573-4612	--
	Gary Kuhn, Sheriff's Office	1-701-573-4449	
	David Lym, Road and Bridge Department	1-701-764-5546	
North Dakota Department of Emergency Services (NDDES) (Division of Homeland Security)	Bismarck	1-701-328-8100 1-800-733-3259	ND State Radio (Call to report emergency) 1-800-472-2121
North Dakota State Radio Ask for the NDDES Duty Officer	Bismarck	1-800-472-2121	1-800-472-2121
	Out of State	1-701-328-9921	
North Dakota State Fire Marshal's Office	Bismarck	1-701-328-5555	911
Tat Law Enforcement Services	Nelson Heart, Director	--	1-701-627-3610
North Dakota Department of Health	Main	1-701-328-2372	911
	Emergency Preparedness	1-701-328-2270	
North Dakota Department of Environmental Quality (NDDEQ)	Department of Environmental Quality	1-701-328-5150	
	Division of Water Quality	1-701-328-5210	
	Division of Air Quality	1-701-328-5188	

Resource	Contact	Office	Cell/24 Hour
Upper Missouri District Health Unit	Stanley	1-701-628-2951	911
North Dakota Highway Patrol	Statewide	1-844-474-NDHP (6347) or 1-701-328-2447	911
	State Radio Dispatch Non-emergency	1-701-328-9921 1-800-472-2121	
	Western Division (Bismarck and Williston)	1-701-328-2467	
North Dakota Department of Transportation (NDDOT)	General Information	1-701-328-2500 1-855-NDROADS (637-6237)	--
	Williston District	1-701-774-2700	
	Road Conditions	1-866-696-3511	511
Bureau of Land Management – Eastern Montana / Dakotas District	ND Field Office – Dickinson	1-701-227-7700	--
Environmental Protection Agency Region 8, Denver, CO	National Response Center	--	1-800-424-8802
	Environmental Emergencies	1-303-312-6312--	1-800-227-8917 1-303-312-6312
US Department of Transportation	Hazardous Materials Information Center	1-202-366-4488	1-800-467-4922
	Pipeline Safety Information Center	1-202-366-4595	--
	Pipeline and Hazardous Materials Safety Administration	1-202-366-4433	--
	Hazardous Materials Safety – Central Region	1-816-329-3800	--
	Pipeline Safety – Central Region		
	Hazardous Materials Safety – Western Region	1-909-937-3279	--
	Pipeline Safety – Western Region	1-720-963-3160	--
North Dakota One Call	State-wide	1-800-795-0555	811
National Poison Control Hotline	Nation-wide	--	1-800-222-1222
Occupational Safety & Health Administration	National Office	--	1-800-321-6742
	Region 8 Office, Denver Colorado	--	1-720-264-6550
	North Dakota Bismarck Area Office	--	1-701-250-4521
US Forest Service – Dakota Prairie Grasslands	Bismarck	1-701-989-7300	--
North Dakota Game and Fish Department	Bismarck	1-701-328-6300	--
Federal Railroad Administration Region 8 - Vancouver, Washington	Governs North Dakota	1-360-696-7536	1-800-724-5998
FEMA (Federal Emergency Management Agency (Disaster Assistance)	Nation-wide	1-303-235-4800	1-800-621-3362 1-303-235-4800

Resource	Contact	Office	Cell/24 Hour
Region VIII – CO, MT, ND, SD, UT, WY			

Spill Notifications

Resource	Contact	Office	Cell/24 Hour
National Response Center	--	--	1-800-424-8802
MHA Energy	--	1-701-627-5154	--
North Dakota Industrial Commission (NDIC)	Oil and Gas Division	1-701-328-8020	1-701-328-8020
	Todd Holweger, Permit Manager	tholweger@nd.gov	1-701-328-8020
	Nicole Ewoniuk, Dickinson District Supervisor	1-701-227-7436	
	Austin Karsky, Field Inspector	1-701-227-7436	
	Jason Roshau, Field Inspector	1-701-227-7436	
Bureau of Land Management (BLM)	BLM On-call	1-701-227-7700	1-701-290-8220
	Hattie Payne, BLM NRS	hapayne@blm.gov	1-701-227-7780
	Edward Kraft, BLM Assistant Field Manager	ekraft@ blm.gov	1-701-290-7717
	Andrew Hamilton, Petroleum Engineer	ahamilton@ blm.gov	1-701-260-5057
Bureau of Indian Affairs (BIA)	Sal Beston, Compliance Manager	1-701-627-6212	1-701-421-8762
	Renita Howlingwolf, Realty Officer	renita.howlingwolf @bia.gov	1-701-627-4707 ext. 6521
	Mark Haman, BIA Regional Environmental Engineer	Mark.haman@bia. gov	1-605-226-7656
	Rick Clifford, Acting Superintendent–New Town	Rick.clifford@ bia.gov	1-605-252-0585
USFS (US Forest Service) – McKenzie Ranger District	Heidi Kummer, Minerals Area Manager	hkummer@ fs.fed.us	1-701-842-8512 1-701-770-4809
Environmental & Cultural Contractors	Todd Hartleben	thartleben@ carlsonmccain.com	1-701-202-5147 1-701-595-7001
	Wade Burns, RPA	wburns@ bcarch.org	1-701-367-8993 1-701-663-5521

Emergency Services

Contact	Location	Telephone
Ambulance		
Dunn County EMS New Town Ambulance Service	Killdeer / Mandaree New Town	911 1-701-627-2992
Air Ambulance		
Air Ambulance Flight Coordination Center Executive Air Taxi Corporation	Nation-wide Bismarck	1-800-827-0745 1-800-932-8924

Contact	Location	Telephone
Hospitals		
CHI St. Alexius Health	Williston	1-701-774-7400
McKenzie County Healthcare	Watford City	1-701-842-3000
Trinity Hospital	Minot	1-701-418-8000
Fire Fighters		
New Town Volunteer Fire Dept.	New Town	1-701-627-3903
Three Tribes Fire Management	New Town	1-701-627-2897
MHA Emergency Response	New Town	1-701-627-7300
Mandaree Fire Department	Mandaree	911 or 1-701-421-1423
Dunn Center Fire Department	Dunn Center	911

Industry Support Services

Contact	Location	Telephone
Air Quality Monitoring Equipment		
TriHydro Corp.	Bismarck	1-701-204-0065
Total Safety	Dickinson	1-701-483-1527
Construction Companies		
Farden Construction Inc.	Maxbass	1-701-268-3127
Darby's Welding & Machine, Inc	Dickinson	1-701-483-5896
E & M Services LLC	Watford City	1-701-842-6309
Cranes		
Liberty Lift Solutions LLC	Williston	1-701-260-1244
Borsheim Crane Service	Williston	1-701-572-6301
Horizon Cable Service	Williston	1-701-774-1091
Hotels/Potential Reception Centres		
Four Points By Sheraton	Williston	1-701-609-5490
The Watford	Watford City	1-701-842-6000
MainStay Suites Event Center	Watford City	1-701-566-7664
Safety Equipment/Personnel		
Ko Safety Services	Watford City	1-701-444-2098
DXP Safety	Minot	1-701-420-9706
Total Safety Inc.	Williston	1-701-774-3014
Supply Stores		
Double EE Service LLC	Williston	1-701-572-2332
Distribution NOW	Watford City	1-701-842-4064
Vac and Steam Trucks		
Newkota Services & Rentals LLC	Minot	1-701-858-6000
Vac U Jet Septic & Water and Portables	Williston	1-701-572-0826
Safe Dig Services	State-wide	1-941-773-5634
Stallion Oilfield	Williston	1-701-774-3824
E & M Services LLC	Watford City	1-701-842-6309
Well Control Equipment		
Northern Valley Electrical Services, Inc	Williston	1-701-757-3865
Halliburton (Boots and Coots)	USA/Canada-wide	1-281-931-8884 1-800-256-9688

Note: The above listed corporate entities are subject to change without notice. Information regarding support services is accurate at time of printing.

10.1.2 Dunn Area Summary

PetroShale's Dunn field is an oil/gas producing property located in eastern North Dakota within Dunn County, approximately 8 miles from Watford City. Farming and oil/gas activity is prominent in the Dunn Field.

Highways / Area Roads / Railways

Highways 23 and 73 run east / west and Highway 22 runs north / south through the field area.

There are several petroleum development roads in the area. The roads are a combination of pavement and gravel and not all are all-weather roads. Access to the area is dependent on weather.

Creeks / Rivers / Lakes

Lake Sakakawea and Little Missouri River flow within the field area.

10.1.3 Hazard Summary

Dunn Field Area – Hazard Summary					
Hazardous Product	**General Description**	**Health Effects**	**Downwind Evacuation**	**Fire**	**HPZ Public Safety** (immediate precautionary measures)
Methane Natural gas, compressed	• Often referred to as "sweet gas". • Flammable. • Lighter than air. • At room temperature and standard pressure, methane is a colorless, odorless gas. • It is the simplest a kane and the main component of natural gas.	• Vapors may cause dizziness or asphyxiation without warning. • Some may be irritating if inhaled at high concentrations. • Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. • Fire may produce irritating and/or toxic gases.	**Large Spill** Consider initial downwind evacuation for at least 1/2 mile	If tank, rail car or tank truck is involved in a fire, isolate for 1 mile in all directions; also, consider initial evacuation for 1 mile in all directions.	330 ft
Petroleum Crude Oil	• Brown to black. • Viscous liquid. • May contain or release poisonous hydrogen sulfide gas. • Extremely flammable liquid and vapour	• Inhalation or contact with material may irritate or burn skin and eyes. • Fire may produce irritating, corrosive and/or toxic gases. • Vapors may cause dizziness or suffocation.	**Large Spill** Consider initial downwind evacuation for at least 1000 ft	If tank, rail car or tank truck is involved in a fire, isolate for 1/2 mile in all directions; also, consider initial evacuation for 1/2 mile in all directions.	150 ft

Facilities - Hazardous Products

Central Treatment Batteries							
Type	**Capacity**	**Substance**	**United Nations (UN) ID Number**	**ER Guide Number**	**Downwind Evacuation**	**Fire**	**HPZ Public Safety (immediate precautionary measures)**
Tank	400 BBL	Oil	1267	128 – Flammable Liquids (Water-Immiscible)	**Large Spill** - 1000 ft	1/2 mile	150 ft
Tank	400 BBL	Produced Water	N/A	N/A	N/A	N/A	N/A

Wells - Hazardous Products

Wellsite Hazard Summary							
Type	**Capacity**	**Substance**	**United Nations (UN) ID Number**	**ER Guide Number**	**Downwind Evacuation**	**Fire**	**HPZ Public Safety (immediate precautionary measures)**
Tank	400 BBL	Oil	1267	128 – Flammable Liquids (Water-Immiscible)	**Large Spill** - 1000 ft	1/2 mile	150 ft
Tank	400 BBL	Produced Water	N/A	N/A	N/A	N/A	N/A

10.1.4 Public Summary

Oil & Gas Operators

Name	Location	Telephone
Hess Corporation	Minot, ND / 24 Hour Number	1-701-420-6900
Anschutz Drilling Co.	Denver, CO / 24 Hour Number	1-303-298-1000
APA Corporation	Houston, TX 24 Hour Number	1-713-296-6000 1-800-272-2434
Ashland Oil Inc.	Ashland, KY 24 Hour Number	1-606-739-5596 1-800-274-5263
Bruin E&P Operating, LLC	Houston, TX / 24 Hour Number	1-713-456-3000
ConocoPhillips	Houston, TX / 24 Hour Number	1-281-293-1000
Continental Resources Inc.	Oklahoma City, OK 24 Hour Number	1-405-234-9000 1-844-883-5257
Denbury Inc.	Plano, TX 24 Hour Number	1-972-673-2000 1-877-894-5046
Enerplus Resources	Denver, CO 24 Hour Number	1-720-279-5500 1-877-576-5636
EOG Resources Inc.	Houston, TX 24 Hour Number	1-713-651-7000 1-877-363-3647
Gulf Oil Corp.	Wellesley Hills, MA / 24 Hour Number	1-339-933-7200
Oasis Petroleum North America LLC	Williston, ND 24 Hour Number	1-701-577-1600 1-281-404-9500
Ovintiv Inc.	Denver, CO 24 Hour Number	1-303-623-2300 1-877-386-2200
Petro-Hunt LLC	Killdeer, ND 24 Hour Number	1-701-863-6622 1-214-880-8400
QEP Resources Inc.	Denver, CO / 24 Hour Number	1-303-405-6665
RimRock Oil & Gas, LP	Killdeer, ND 24 Hour Number	1-701-764-4600 1-303-339-0885
Santa Fe Energy Co.	Houston, TX / 24 Hour Number	1-713-783-2401
SM Energy Co.	Denver, CO / 24 Hour Number	1-303-861-8140
Wesco Operating Inc.	Casper, WY / 24 Hour Number	1-307-472-4618
White Rock Oil & Gas	Plano, TX / 24 Hour Number	1-214-981-1400
XTO Energy Inc.	Spring, TX 24 Hour Number	1-817-870-2800 1-800-299-2800

Note: The above listed corporate entities are subject to change without notice owing to mergers, acquisitions, re-licensing, etc. Information regarding industrial operators is updated in conjunction with map updates.

10.1.5 Spill Support Services

The area is governed by the North Dakota Environmental Protection Agency, Region 8 as well as the US Environmental Protection Agency. In accordance with federal and state regulations, the facility is required to have a Spill Prevention, Control and Countermeasure Plan in place. EPA Region 8 is responsible for the administration and enforcement of the federal Spill Prevention, Control and Countermeasure Plan requirements for facilities in North Dakota.

Below are companies capable of responding to an environmental spill

Company	Contact	Office	Fax	Cell/24 Hour
Olsson Associates Inc.	Bismarck	1-402-474-6311	1-402-474-5160	1-877-831-6389
Clean Harbors Environmental	Sawyer Landfill Facility Sawyer, ND	1-701-624-5622	--	1-800-645-8265
Minnesota Limited, LLC	North Dakota Regional Office Berthold, ND	1-701-453-3700	1-701-453-3749	--
Tervita	Williston, ND	1-701-264-8145	--	1-800-327-7455

10.1.6 Asset Data: Wells, Pipelines & Facilities

Asset tables on following pages.

Wells

LICENSEE	UNIQUE WELL IDENTIFIER (UWI)	SURFACE LOCATION	STATUS	SUBSTANCE CODE	WELL NAME (UWI)	WELL LICENSE #	ASSIGNED WELL H_2S (%)	H_2S RELEASE RATE (m^3/s)	EPZ (KM)	IIZ (KM)	PAZ (KM)	LAND USE SETBACK LEVEL
SWEET ASSETS												
PETROSHALE (US) NC.	3302504097	NWNW 9-148-94	CONFIDENTIAL	CONFIDENTIAL	HELEN 2MBH	0037959	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302504098	NWNW 9-148-94	CONFIDENTIAL	CONFIDENTIAL	HELEN 1TFH	0037960	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302503927	NENE 11-149-93	CONFIDENTIAL	CONFIDENTIAL	HORSE CAMP 5-11H	0037021	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302503928	NENE 11-149-93	EXP	OG	HORSE CAMP 106-11H	0037022	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302501236	NWNW 11-149-93	ACT	OG	HORSE CAMP 101-11H	0020090	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302501237	NWNW 11-149-93	ACT	OG	HORSE CAMP 2-11H	0020091	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302501268	NWNE 16-149-93	ACT	OG	HORSE CAMP 102-16H	0020244	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302503328	NENE 11-149-93	ACT	OG	HORSE CAMP 4-11H	0033815	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302503329	NENE 11-149-93	ACT	OG	HORSE CAMP 104-11H	0033816	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302503507	NWNW 11-149-93	ACT	OG	HORSE CAMP WEST 2MBH	0034990	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302503508	NWNW 11-149-93	ACT	OG	HORSE CAMP WEST 2TFH	0034991	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302503613	SESE 18-148-93	ACT	OG	THUNDER CLOUD 1MBH	0035700	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302503614	SESE 18-148-93	ACT	OG	THUNDER CLOUD 1TFH	0035701	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302503615	SESE 18-148-93	ACT	OG	THUNDER CLOUD 2MBH	0035702	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302503616	SESE 18-148-93	ACT	OG	THUNDER CLOUD 2TFH	0035703	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302503624	NWNW 9-148-94	ACT	OG	HELEN 2TFH	0035758	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3302503650	NWNW 9-148-94	ACT	OG	HELEN 1MBH	0035919	0.00	0.000000	na	na	na	na

Notes

Well Substance Codes *: Acid GAS, GAS, Fuel GAS, OIL, WATER, CO2 - Carbon Dioxide, CBM - Coalbed Methane, OG - Oil or Gas*

Status Codes *: ABD - Abandoned, ABZ - Abandoned Zone, CMG - Comingled, DISP - Disposal, DR&C - Drilled & Cased, FLW - Flowing, INJ - Injection, OBS - Observation, POT - Potential, PMP - Pumping, STD - Standing, SUS - Suspended, TEST - Testing, ACT - Active, INACT - Inactive, EXP - Expired*

Facilities

LICENSEE	LICENSE OR FACILITY CODE	FACILITY TYPE	LOCATION	STATUS	NAME	EPZ (KM)	IIZ (KM)	PAZ (KM)	EPZ Based on Pipeline	Pipeline Licensed H2S % content
OPERATING ASSETS										
PETROSHALE (US) NC.	235758	CENTRAL TREATMENT BATTERY	NWNW 9-148-94	ACTIVE	HELEN - CENTRAL TREATMENT BATTERY	na	na	na	na	na
PETROSHALE (US) NC.	120243	CENTRAL TREATMENT BATTERY	NWNE 16-149-93	ACTIVE	HORSE CAMP 16 - CENTRAL TREATMENT BATTERY	na	na	na	na	na
PETROSHALE (US) NC.	133815	CENTRAL TREATMENT BATTERY	NENE 11-149-93	ACTIVE	HORSE CAMP EAST - CENTRAL TREATMENT BATTERY	na	na	na	na	na
PETROSHALE (US) NC.	234990	CENTRAL TREATMENT BATTERY	NWNW 11-149-93	ACTIVE	HORSE CAMP WEST - CENTRAL TREATMENT BATTERY	na	na	na	na	na
PETROSHALE (US) NC.	235700	CENTRAL TREATMENT BATTERY	SESE 18-148-93	ACTIVE	THUNDER CLOUD - CENTRAL TREATMENT BATTERY	na	na	na	na	na

Notes

The EPZ for a facility that handles or processes sour fluids is the largest EPZ of any pipeline entering or leaving the facility measured outward in all directions from the facility lease boundary.
If the facility has a sour gas well, sour water disposal well, or acid gas disposal well on site, the EPZ for the well may determine the size of the EPZ for the facility.

10.1.7 Driving Directions

Horse Camp Area (West Segment FBIR)

Horse Camp West Pad (Horse Camp Sec 11 NWNW)

Well Names:	Horse Camp 2-11H (NDIC File No: 20091) Horse Camp 101-11H (NDIC File No: 20090) Horse Camp West 2MBH (NDIC File No: 34990) Horse Camp West 2TFH (NDIC File No: 34991)
Field:	Mandaree
Location:	NWNW 11-149-93
Address:	9186 BIA Route 10, Mandaree, ND 58757
Directions:	• East from the junction of Hwy 22 and BIA 12 • follow BIA 12, 5.6 miles to BIA 10 (Skunk Bay Rd.) • Turn Left follow 3.5 miles • Turn Right on access Rd. go .2 miles • Turn Left into Location.
Total Distance:	9.8 miles
Approx. Geographical Location:	Latitude: 47.744995 Longitude: -102.554261

Horse Camp Sec 11 NENE

Well Names:	Horse Camp 4-11H (NDIC File No: 33815) Horse Camp 104-11H (NDIC File No: 33816)
Field:	Mandaree
Location:	NENE 11-149-93
Address:	9122 BIA Route 10, Mandaree, ND 58757
Directions:	• East from the junction of Hwy 22 and BIA 12 • follow BIA 12, 5.6 miles to BIA 10 (Skunk Bay Rd.) • Turn Left follow 3.2 miles • Turn Right on access Rd. go .1 mile • Turn Left into Location.
Total Distance:	8.9 miles
Approx. Geographical Location:	Latitude: 47.744616 Longitude: -102.539338

Horse Camp Sec 16 NWNE

Well Names:	Horse Camp 3-16H (NDIC File No: 20243) – (P&A) Horse Camp 102-16H (NDIC File No: 20244)
Field:	Mandaree
Location:	NENE 11-149-93
Address:	9348 BIA Route 10, Mandaree, ND 58757
Directions:	• East from the junction of Hwy 22 and BIA 12 • follow BIA 12, 5.6 miles to BIA 10 (Skunk Bay Rd.) • Turn Left follow 0.4 miles • Turn Right on access Rd. go .1 miles • Turn Right into Location.
Total Distance:	6.1 miles
Approx. Geographical Location:	Latitude: 47.730684 Longitude: -102.586314

Thunder Cloud Area

Thunder Cloud Well Pad

Well Names:	Thunder Cloud 1MBH (NDIC Well File No. 35700) Thunder Cloud 2MBH (NDIC Well File No. 35702) Thunder Cloud 1TFH (NDIC Well File No. 35701) Thunder Cloud 2TFH (NDIC Well File No. 35703)
Field:	McGregory Buttes
Location:	SESE 18-148-93
Address:	1480 BIA Route 17 W Mandaree, ND 58757
Directions:	• West from Hwy 22 and BIA 12 • Follow BIA 12, 1.5 Miles • Turn Left follow 7.4 Miles to BIA 14 • Turn Left follow 4.7 to BIA 17 • Turn Right follow 1.2 Miles • Turn Left follow 2.8 Miles to Access Road • Follow Road flags to Proposed Location.
Total Distance:	17.7 miles
Approx. Geographical Location:	Latitude: 47.633434 Longitude: -102.568488

Helen Area

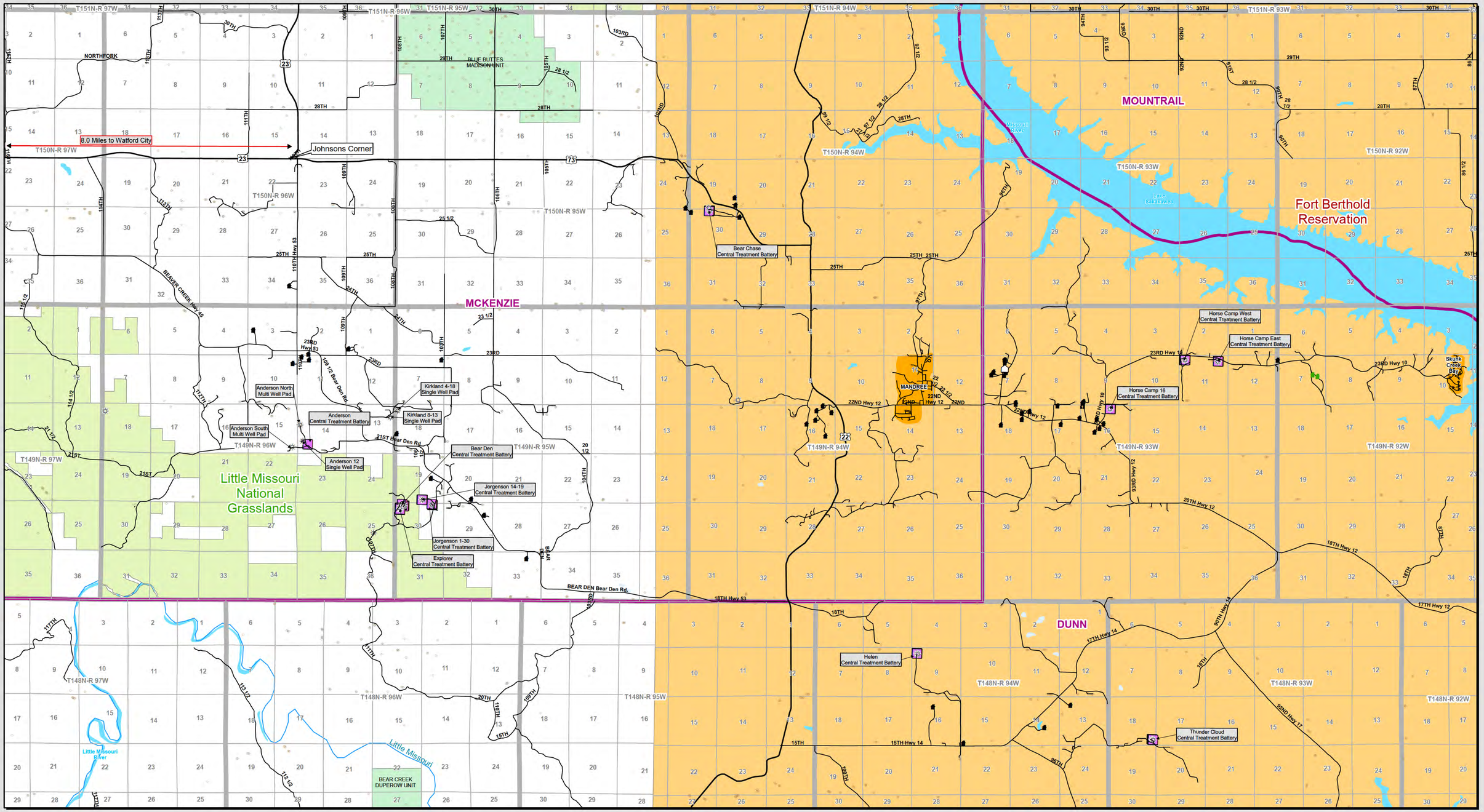
Helen Well Pad

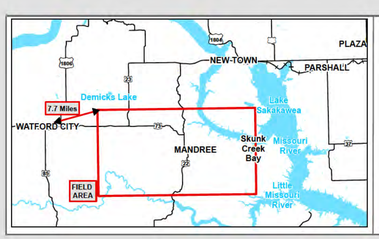
Well Names:	Helen 1MBH (NDIC Well File No.35919) Helen 2TFH (NDIC Well File No. 35758)
Field:	Eagle Nest
Location:	NWNW 9-148-94
Address:	1689 99th Avenue NW Mandaree, ND 58757
Directions:	• West from Hwy 22 and BIA 12 • Follow BIA 12, 1.5 Miles • Turn Left follow 7.4 Miles to BIA 14 • Turn Left follow 3.6 Miles • Turn Right follow 1.0 Miles Fort Berthold #148-94-9D-04-02H pad • Turn Left follow 0.4 Miles to Access Road • Follow Road flags to Proposed Location.
Total Distance:	14.8 miles
Approx. Geographical Location:	Latitude: 47.658913 Longitude: -102.670853

10.1.8 Maps

ERP Map

Area map on following page:





Petroshale Wells
- Abandoned
- Gas
- Gas - Shut In
- Oil
- Oil - Shut In
- Oil - Approved Permit
- Oil - New Permit
- Water
- Bottom Hole
- Well EPZ

Petroshale Pipelines
- Abandoned/Discontinued
- Sour Gas
- Natural Gas
- Fuel Gas
- Oil
- Water
- HVP Products
- LVP Products
- Miscellaneous Gas
- Block Valves
- Pipeline EPZ

Petroshale Facilities
- Battery
- Compressor Station
- Gas Plant
- Gathering Point
- Injection Plant
- Meter Station
- Pump Station
- Satellite

Transportation
- Roads
- Low Grade / Seasonal
- Railways
- Dead Ends
- Road Blocks

Residents
- Abandoned
- Occupied
- Sensitive
- Business
- Sensitive Business
- Cabin
- Occupied Part-Time
- Vacant
- Campground
- Cemetery
- Church
- Community Hall
- Farm/Ranch
- Gravel Pit
- School
- Shop
- Tower

Other Symbols
- Urban Area
- Counties
- Reserve Land
- Federal Land
- Park
- Unit Boundary

Waterbody
- Intermittent
- Perennial

Other Operator Wells and Pipelines represented in BROWN.

PETROSHALE (US) INC.
A WHOLLY OWNED SUBSIDIARY OF
LUCERO ENERGY CORP.

North Dakota - Mckenzie / Dunn County

USA Corporate Map

Notes
- Location of residence in LSD is approximate
- Well and Pipeline Information is provided by IHS, and must be considered approximate.

Projection: UTM Zone 13
Datum: NAD 83
Mapscale: 1:60 000

N W E S

0 0.75 1.5 3
Miles

Created by: LN
May 20, 2022

Modified by: LN
May 29, 2023

Lucero ENERGY CORP.
PetroShale (US), Inc.

BLACK GOLD EMERGENCY PLANNERS INC. ERP

10.2 McKenzie Field Area

10.2.1 McKenzie Telephone Directory

PetroShale 24-Hour Emergency Number
1-701-774-7777

PetroShale Main Number
1-701-774-7777

Field Office			
Telephone Number			
Address		508, 13th Ave SW, Watford City, ND 58854	
Name	**Position**	**Cell**	**Email**
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

Government Agencies

Resource	Contact	Office	Cell/24 Hour
North Dakota Industrial Commission Oil and Gas Division	Oil and Gas Division	1-701-328-8020	Call 1-701-328-8020 during an emergency
	Bismarck	1-701-328-8020	
	Dickinson	1-701-227-7436	
	Minot	1-701-857-7646	
	Williston	1-701-774-4380	
McKenzie County	Karolin Jappe Emergency Management	1-701-444-7483	--
	Matthew Johansen, Sheriff's Office	1-701-444-3654	
	Road and Bridge Department	1-701-444-2600	
North Dakota Department of Emergency Services (NDDES) (Division of Homeland Security)	Bismarck	1-701-328-8100 1-800-733-3259	1-800-472-2121
North Dakota State Radio Ask for the NDDES Duty Officer	Bismarck	1-800-472-2121	1-800-472-2121
	Out of State	1-701-328-9921	
North Dakota State Fire Marshal's Office	Bismarck	1-701-328-5555	911
Tat Law Enforcement Services	Nelson Heart, Director	--	1-701-627-3610
North Dakota Department of Health	Main	1-701-328-2372	--
	Emergency Preparedness	1-701-328-2270	
North Dakota Department of Environmental Quality (NDDEQ)	Department of Environmental Quality	1-701-328-5150	
	Division of Water Quality	1-701-328-5210	
	Division of Air Quality	1-701-328-5188	

Resource	Contact	Office	Cell/24 Hour
Upper Missouri District Health Unit	Stanley	1-701-628-2951	--
North Dakota Highway Patrol	Statewide	1-844-474-NDHP (6347) or 1-701-328-2447	911
	State Radio Dispatch Non-emergency	1-701-328-9921 1-800-472-2121	
	Western Division (Bismarck and Williston)	1-701-328-2467	
North Dakota Department of Transportation (NDDOT)	General Information	1-701-328-2500 1-855-NDROADS (637-6237)	--
	Williston District	1-701-774-2700	
	Road Conditions	1-866-696-3511	511
Bureau of Land Management – Eastern Montana / Dakotas District	ND Field Office – Dickinson	1-701-227-7700	--
Environmental Protection Agency Region 8, Denver, CO	National Response Center	--	1-800-424-8802
	Environmental Emergencies	1-303-312-6312	1-800-227-8917
US Department of Transportation	Hazardous Materials Information Center	1-202-366-4488	1-800-467-4922
	Pipeline Safety Information Center	1-202-366-4595	--
	Pipeline and Hazardous Materials Safety Administration	1-202-366-4433	--
	Hazardous Materials Safety – Central Region	1-816-329-3800	--
	Pipeline Safety – Central Region		
	Hazardous Materials Safety – Western Region	1-909-937-3279	--
	Pipeline Safety – Western Region	1-720-963-3160	--
North Dakota One Call	State-wide	1-800-795-0555	811
National Poison Control Hotline	Nation-wide	--	1-800-222-1222
Occupational Safety & Health Administration	National Office	--	1-800-321-6742
	Region 8 Office, Denver Colorado	--	1-720-264-6550
	North Dakota Bismarck Area Office	--	1-701-250-4521
US Forest Service – Dakota Prairie Grasslands	Bismarck	1-701-989-7300	--
North Dakota Game and Fish Department	Bismarck	1-701-328-6300	--
Federal Railroad Administration Region 8 - Vancouver, Washington	Governs North Dakota	1-360-696-7536	1-800-724-5998
FEMA (Federal Emergency Management Agency (Disaster Assistance)	Nation-wide	1-303-235-4800	1-800-621-3362 1-303-235-4800

Resource	Contact	Office	Cell/24 Hour
Region VIII – CO, MT, ND, SD, UT, WY			

Spill Notifications

Resource	Contact	Office	Cell/24 Hour
National Response Center	--	--	1-800-424-8802
MHA Energy	--	1-701-627-5154	--
North Dakota Industrial Commission (NDIC)	Oil and Gas Division	1-701-328-8020	1-701-328-8020
	Todd Holweger, Permit Manager	tholweger@nd.gov	1-701-328-8020
	Nicole Ewoniuk, Dickinson District Supervisor	1-701-227-7436	--
	Austin Karsky, Field Inspector	1-701-227-7436	--
	Jason Roshau, Field Inspector	1-701-227-7436	--
Bureau of Land Management (BLM)	BLM On-call	1-701-227-7700	1-701-290-8220
	Hattie Payne, BLM NRS	hapayne@blm.gov	1-701-227-7780
	Edward Kraft, BLM Assistant Field Manager	ekraft@blm.gov	1-701-290-7717
	Andrew Hamilton, Petroleum Engineer	ahamilton@blm.gov	1-701-260-5057
Bureau of Indian Affairs (BIA)	Sal Beston, Compliance Manager	1-701-627-6212	1-701-421-8762
	Renita Howlingwolf, Realty Officer	renita.howlingwolf@bia.gov	1-701-627-4707 ext. 6521
	Mark Haman, BIA Regional Environmental Engineer	Mark.haman@bia.gov	1-605-226-7656
	Rick Clifford, Acting Superintendent–New Town	Rick.clifford@bia.gov	1-605-252-0585
USFS (US Forest Service) – McKenzie Ranger District	Heidi Kummer, Minerals Area Manager	hkummer@fs.fed.us	1-701-842-8512 1-701-770-4809
Environmental & Cultural Contractors	Todd Hartleben	thartleben@carlsonmccain.com	1-701-202-5147 1-701-595-7001
	Wade Burns, RPA	wburns@bcarch.org	1-701-367-8993 1-701-663-5521

Emergency Services

Contact	Location	Telephone
Ambulance		
Dunn County EMS New Town Ambulance Service	Killdeer / Mandaree New Town	911 1-701-627-2992
Air Ambulance		
Air Ambulance Flight Coordination Center	Nation-wide	1-800-827-0745
Executive Air Taxi Corporation	Bismarck	1-800-932-8924

Contact	Location	Telephone
Hospitals		
CHI St. Alexius Health	Williston	1-701-774-7400
McKenzie County Healthcare	Watford City	1-701-842-3000
Trinity Hospital	Minot	1-701-418-8000
Fire Fighters		
New Town Volunteer Fire Dept.	New Town	1-701-627-3903
Three Tribes Fire Management	New Town	1-701-627-2897
MHA Emergency Response	New Town	1-701-627-7300
Mandaree Fire Department	Mandaree	911 or 1-701-421-1423
Dunn Center Fire Department	Dunn Center	911

Industry Support Services

Contact	Location	Telephone
Air Quality Monitoring Equipment		
TriHydro Corp.	Bismarck	1-701-204-0065
Total Safety	Dickinson	1-701-483-1527
Construction Companies		
Farden Construction Inc.	Maxbass	1-701-268-3127
Darby's Welding & Machine, Inc	Dickinson	1-701-483-5896
E & M Services LLC	Watford City	1-701-842-6309
Cranes		
Liberty Lift Solutions LLC	Williston	1-701-260-1244
Borsheim Crane Service	Williston	1-701-572-6301
Horizon Cable Service	Williston	1-701-774-1091
Hotels/Potential Reception Centres		
Four Points By Sheraton	Williston	1-701-609-5490
The Watford	Watford City	1-701-842-6000
MainStay Suites Event Center	Watford City	1-701-566-7664
Safety Equipment/Personnel		
Ko Safety Services	Watford City	1-701-444-2098
DXP Safety	Minot	1-701-420-9706
Total Safety Inc.	Williston	1-701-774-3014
Supply Stores		
Double EE Service LLC	Williston	1-701-572-2332
Distribution NOW	Watford City	1-701-842-4064
Vac and Steam Trucks		
Newkota Services & Rentals LLC	Minot	1-701-858-6000
Vac U Jet Septic & Water and Portables	Williston	1-701-572-0826
Safe Dig Services	State-wide	1-941-773-5634
Stallion Oilfield	Williston	1-701-774-3824
E & M Services LLC	Watford City	1-701-842-6309
Well Control Equipment		
Northern Valley Electrical Services, Inc	Williston	1-701-757-3865
Halliburton (Boots and Coots)	USA/Canada-wide	1-281-931-8884 1-800-256-9688

Note: The above listed corporate entities are subject to change without notice. Information regarding support services is accurate at time of printing.

10.2.2 McKenzie Area Summary

PetroShale's McKenzie field is an oil/gas producing property located in eastern North Dakota within McKenzie County, approximately 6 miles from New Town. Farming and oil/gas activity is prominent in the McKenzie Field.

Highways / Area Roads / Railways

Highway 23 runs east / west and Highway 22 runs north / south through the field area.

There are several petroleum development roads in the area. The roads are a combination of pavement and gravel and not all are all-weather roads. Access to the area is dependent on weather.

Creeks / Rivers / Lakes

Lake Sakakawea and several unnamed water bodies flow within the field area.

10.2.3 Hazard Summary

McKenzie Field Area – Hazard Summary					
Hazardous Product	**General Description**	**Health Effects**	**Downwind Evacuation**	**Fire**	**HPZ Public Safety** (immediate precautionary measures)
Methane Natural gas, compressed	• Often referred to as "sweet gas". • Flammable. • Lighter than air. • At room temperature and standard pressure, methane is a colorless, odorless gas. • It is the simplest a kane and the main component of natural gas.	• Vapors may cause dizziness or asphyxiation without warning. • Some may be irritating if inhaled at high concentrations. • Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. • Fire may produce irritating and/or toxic gases.	**Large Spill** Consider initial downwind evacuation for at least 1/2 mile	If tank, rail car or tank truck is involved in a fire, isolate for 1 mile in all directions; also, consider initial evacuation for 1 mile in all directions.	330 ft
Petroleum Crude Oil	• Brown to black. • Viscous liquid. • May contain or release poisonous hydrogen sulfide gas. • Extremely flammable liquid and vapour	• Inhalation or contact with material may irritate or burn skin and eyes. • Fire may produce irritating, corrosive and/or toxic gases. • Vapors may cause dizziness or suffocation.	**Large Spill** Consider initial downwind evacuation for at least 1000 ft	If tank, rail car or tank truck is involved in a fire, isolate for 1/2 mile in all directions; also, consider initial evacuation for 1/2 mile in all directions.	150 ft

Facilities - Hazardous Products

Bear Den Upper Explorer CTB							
		Latitude	Longitude	Easting	Northing		
NWNW 30-149-95		47.70216472	-102.8946359	657949.19	5285344.88		
Type	**Capacity**	**Substance**	**United Nations (UN) ID Number**	**ER Guide Number**	**Downwind Evacuation**	**Fire**	**HPZ Public Safety (immediate precautionary measures)**
Tank	8 x 400 BBL	Oil	1267	128 – Flammable Liquids (Water-Immiscible)	**Large Spill** - 1000 ft	1/2 mile	50 m (150 ft)
Tank	4 x 400 BBL	Produced Water	N/A	N/A	N/A	N/A	N/A

Anderson 12-14H CTB							
		Latitude	Longitude	Easting	Northing		
SWSW 14-149-96		47.719180	-102.938615	654599.57	5287147.05		
Type	**Capacity**	**Substance**	**United Nations (UN) ID Number**	**ER Guide Number**	**Downwind Evacuation**	**Fire**	**HPZ Public Safety (immediate precautionary measures)**
Tank	12 x 400 BBL	Oil	1267	128 – Flammable Liquids (Water-Immiscible)	**Large Spill** - 1000 ft	1/2 mile	50 m (150 ft)
Tank	6 x 400 BBL	Produced Water	N/A	N/A	N/A	N/A	N/A

Wells - Hazardous Products

Wellsite Hazard Summary							
Type	**Capacity**	**Substance**	**United Nations (UN) ID Number**	**ER Guide Number**	**Downwind Evacuation**	**Fire**	**HPZ Public Safety (immediate precautionary measures)**
Tank	400 BBL	Oil	1267	128 – Flammable Liquids (Water-Immiscible)	**Large Spill** - 1000 ft	1/2 mile	50 m (150 ft)
Tank	400 BBL	Produced Water	N/A	N/A	N/A	N/A	N/A

10.2.4 Public Summary

Oil & Gas Operators

Name	Location	Telephone
Hess Corporation	Minot / 24 Hour Number	1-701-420-6900
Continental Resources Inc.	Oklahoma City, OK 24 Hour Number	1-405-234-9000 1-844-883-5257
Enerplus Resources	Denver, CO 24 Hour Number	1-720-279-5500 1-877-576-5636
PG&E RESOURCES CO.	24 Hour Number	1-800-743-5002
XTO Energy Inc.	Spring, TX 24 Hour Number	1-817-870-2800 1-800-299-2800

Note: The above listed corporate entities are subject to change without notice owing to mergers, acquisitions, re-licensing, etc. Information regarding industrial operators is updated in conjunction with map updates.

10.2.5 Spill Support Services

The area is governed by the North Dakota Environmental Protection Agency, Region 8 as well as the US Environmental Protection Agency. In accordance with federal and state regulations, the facility is required to have a Spill Prevention, Control and Countermeasure Plan in place. EPA Region 8 is responsible for the administration and enforcement of the federal Spill Prevention, Control and Countermeasure Plan requirements for facilities in North Dakota.

Below are companies capable of responding to an environmental spill

Company	Contact	Office	Fax	Cell/24 Hour
Olsson Associates Inc.	Bismarck	1-402-474-6311	1-402-474-5160	1-877-831-6389
Clean Harbors Environmental	Sawyer Landfill Facility Sawyer, ND	1-701-624-5622	--	1-800-645-8265
Minnesota Limited, LLC	North Dakota Regional Office Berthold, ND	1-701-453-3700	1-701-453-3749	--
Tervita	Williston, ND	1-701-264-8145	--	1-800-327-7455

10.2.6 Asset Data: Wells, Pipelines & Facilities

Asset tables on following pages.

Wells

LICENSEE	UNIQUE WELL IDENTIFIER (UWI)	SURFACE LOCATION	STATUS	SUBSTANCE CODE	WELL NAME (UWI)	WELL LICENSE #	ASSIGNED WELL H_2S (%)	H_2S RELEASE RATE (m^3/s)	EPZ (KM)	IZ (KM)	PAZ (KM)	LAND USE SETBACK LEVEL
SWEET ASSETS												
PETROSHALE (US) NC.	3305303166	NENE 30-149-95	ACT	OG	JORGENSON FEDERAL 1X-30H	0019049	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309183	NWNW 30-149-95	ACT	OG	CLARK FEDERAL 2TFH	0036889	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309185	NWNW 30-149-95	ACT	OG	CARSON FEDERAL 3TFH	0036891	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309186	NWNW 30-149-95	ACT	OG	BOW E FEDERAL 3MBH	0036892	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309612	NWNW 30-149-95	ACT	OG	THOMPSON FEDERAL 4TFH	0038013	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309613	NWNW 30-149-95	ACT	OG	LAVERENDRYE FEDERAL 5TFH	0038014	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309614	NWNW 30-149-95	ACT	OG	SACAGAWEA FEDERAL 4MBH	0038015	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309134	SWSE 19-149-95	CONFIDENTIAL	CONFIDENTIAL	JORGENSON FEDERAL 2TFH	0036666	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309618	SENE 29-152-94	ACT	OG	TAHU 2MBH	0038033	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309619	SENE 29-152-94	ACT	OG	TAHU 3TFH	0038034	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309620	SENE 29-152-94	ACT	OG	TAHU 3MBH	0038035	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309622	SENE 29-152-94	ACT	OG	TAHU 2TF2H	0038037	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309623	SENE 29-152-94	ACT	OG	TAHU 4TFH	0038038	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309669	SESW 19-150-94	CONFIDENTIAL	CONFIDENTIAL	BEAR CHASE NORTH 3MBH	0038205	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309670	SESW 19-150-94	CONFIDENTIAL	CONFIDENTIAL	BEAR CHASE NORTH 2TFH	0038206	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305307771	NENW 17-152-94	EXP	OG	PETROSHALE US 7H	0033001	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305307772	NWNW 17-152-94	EXP	OG	PETROSHALE US 6H	0033002	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305307657	NENW 17-152-94	EXP	OG	PETROSHALE US 10H	0032778	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305307779	NWNE 17-152-94	EXP	OG	PETROSHALE US 15H	0033009	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305307781	NWNE 17-152-94	EXP	OG	PETROSHALE US 11H	0033011	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305307866	NWNE 17-152-94	EXP	OG	PETROSHALE US 14H	0033202	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305304020	SESE 15-149-96	ACT	OG	ANDERSON FEDERAL 16-15H	0022520	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309022	SWNW 14-149-96	ACT	OG	ANDERSON NORTH 1MBH	0036316	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309023	SWNW 14-149-96	INACT	OG	ANDERSON NORTH 1TFH	0036317	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309024	SWNW 14-149-96	ACT	OG	ANDERSON NORTH 2MBH	0036318	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305303043	NWNW 30-149-95	ACT	OG	BEAR DEN FEDERAL 4Z-30H	0018248	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305303076	NWSW 14-149-96	ACT	OG	ANDERSON FEDERAL 12-14H	0018436	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305303094	NENE 30-149-95	ACT	OG	JORGENSON FEDERAL 1-30H	0018579	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309112	SESE 15-149-96	ACT	OG	ANDERSON SOUTH 2TFH	0036618	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309113	SESE 15-149-96	ACT	OG	ANDERSON SOUTH 3MBH	0036619	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309132	SWSE 19-149-95	ACT	OG	JORGENSON FEDERAL 2MBH	0036664	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309133	SWSE 19-149-95	ACT	OG	JORGENSON FEDERAL 3MBH	0036665	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309184	NWNW 30-149-95	INACT	OG	LEWIS FEDERAL 2MBH	0036890	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309187	NWNW 30-149-95	ACT	OG	CROCKETT FEDERAL 1TFH	0036893	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309188	NWNW 30-149-95	ACT	OG	BOONE FEDERAL 1MBH	0036894	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309189	NWNW 30-149-95	ACT	OG	HICKOK FEDERAL 1MBH	0036903	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305309190	NWNW 30-149-95	ACT	OG	BRIDGER FEDERAL 1TFH	0036904	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305304518	SWSE 19-149-95	ACT	OG	JORGENSON FEDERAL 14-19H	0024190	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305304519	SWSE 19-149-95	ACT	OG	JORGENSON FEDERAL 14X-19H	0024191	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305307650	NENW 17-152-94	ACT	OG	PETROSHALE US 8H	0032767	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305308677	NENW 30-150-94	ACT	OG	BEAR CHASE 1MBH	0035269	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305308678	NENW 30-150-94	ACT	OG	BEAR CHASE 1TFH	0035270	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305308679	NENW 30-150-94	ACT	OG	BEAR CHASE 2MBH	0035271	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305307774	NWNW 17-152-94	ACT	OG	PETROSHALE US 4H	0033004	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305307775	NWNW 17-152-94	ACT	OG	PETROSHALE US 3H	0033005	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305307780	NWNE 17-152-94	ACT	OG	PETROSHALE US 12H	0033010	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305307868	NWNE 17-152-94	ACT	OG	PETROSHALE US 13H	0033204	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305302870	NENW 30-150-94	ACT	OG	CHASE 21-30H	0017197	0.00	0.000000	na	na	na	na

Wells

LICENSEE	UNIQUE WELL IDENTIFIER (UWI)	SURFACE LOCATION	STATUS	SUBSTANCE CODE	WELL NAME (UWI)	WELL LICENSE #	ASSIGNED WELL H_2S (%)	H_2S RELEASE RATE (m^3/s)	EPZ (KM)	IIZ (KM)	PAZ (KM)	LAND USE SETBACK LEVEL
PETROSHALE (US) NC.	3305303893	NWNW 18-149-95	ACT	OG	KIRKLAND FEDERAL 4-18H	0021985	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305302944	NWNW 30-149-95	ACT	OG	BEAR DEN FEDERAL 4Y-30H	0017662	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305302967	SENE 13-149-96	ACT	OG	KIRKLAND FEDERAL 8-13H	0017778	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305303973	SWNW 14-149-96	ACT	OG	ANDERSON FEDERAL 5X-14H	0022376	0.00	0.000000	na	na	na	na
PETROSHALE (US) NC.	3305303974	SWNW 14-149-96	ACT	OG	ANDERSON FEDERAL 5-14H	0022377	0.00	0.000000	na	na	na	na

Notes

Well Substance Codes *: Acid GAS, GAS, Fuel GAS, OIL, WATER, CO2 - Carbon Dioxide, CBM - Coalbed Methane, OG - Oil or Gas*

Status Codes *: ABD - Abandoned, ABZ - Abandoned Zone, CMG - Comingled, DISP - Disposal, DR&C - Drilled & Cased, FLW - Flowing, INJ - Injection, OBS - Observation, POT - Potential, PMP - Pumping, STD - Standing, SUS - Suspended, TEST - Testing, ACT - Active, INACT - Inactive, EXP - Expired*

Facilities

LICENSEE	LICENSE OR FACILITY CODE	FACILITY TYPE	LOCATION	STATUS	NAME	EPZ (KM)	IIZ (KM)	PAZ (KM)	EPZ Based on Pipeline	Pipeline Licensed H2S % content
OPERATING ASSETS										
PETROSHALE (US) INC.	na	CENTRAL TREATMENT BATTERY	na	ACTIVE	ANDERSON - CENTRAL TREATMENT BATTERY	na	na	na	na	na
PETROSHALE (US) INC.	235269	CENTRAL TREATMENT BATTERY	NENW 30-150-94	ACTIVE	BEAR CHASE - CENTRAL TREATMENT BATTERY	na	na	na	na	na
PETROSHALE (US) INC.	217662	CENTRAL TREATMENT BATTERY	NWNW 30-149-95	ACTIVE	BEAR DEN - CENTRAL TREATMENT BATTERY	na	na	na	na	na
PETROSHALE (US) INC.	TBD	CENTRAL TREATMENT BATTERY	NWNW 30-149-95	ACTIVE	EXPLORER - CENTRAL TREATMENT BATTERY	na	na	na	na	na
PETROSHALE (US) INC.	218579	CENTRAL TREATMENT BATTERY	NENE 30-149-95	ACTIVE	JORGENSON 1-30 - CENTRAL TREATMENT BATTERY	na	na	na	na	na
PETROSHALE (US) INC.	218579	CENTRAL TREATMENT BATTERY	SWSE 19-149-95	ACTIVE	JORGENSON 14-19 - CENTRAL TREATMENT BATTERY	na	na	na	na	na
PETROSHALE (US) INC.	233010	CENTRAL TREATMENT BATTERY	NWNE 17-152-94	ACTIVE	PRIMUS 12/13 - CENTRAL TREATMENT BATTERY	na	na	na	na	na
PETROSHALE (US) INC.	233004	CENTRAL TREATMENT BATTERY	NWNW 17-152-94	ACTIVE	PRIMUS 3/4 - CENTRAL TREATMENT BATTERY	na	na	na	na	na

Notes

The EPZ for a facility that handles or processes sour fluids is the largest EPZ of any pipeline entering or leaving the facility measured outward in all directions from the facility lease boundary.
If the facility has a sour gas well, sour water disposal well, or acid gas disposal well on site, the EPZ for the well may determine the size of the EPZ for the facility.

10.2.7 Driving Directions

17/20 Primus Unit (4 Bears Segment FBIR)

Petroshale Pad #2		
Well Names:	Petroshale US 12H (NDIC File No: 33010) Petroshale US 13H (NDIC File No: 33204)	
Field:	Antelope	
Location:	NENW 17-152-94	
Address:	3949 100th Avenue NW New Town, ND 58763	
Directions:	• From the Junction of where Hwy 22 ends into Hwy 23, Continue North 0.6 miles • Turn Left (West) 0.5 miles, access Rd. turns to the Right (North) for another 0.5 miles • STAY RIGHT and arrive at Location. Adjacent to Pad #3.	
Total Distance:	1.6 miles	
Approx. Geographical Location:	Latitude: 47.5929333	Longitude: -102.4413472

Petroshale Pad #3		
Well Names:	Petroshale US 8H (NDIC File No: 32767)	
Field:	Antelope	
Location:	NENW 17-152-94	
Address:	3953 100th Avenue NW New Town, ND 58763	
Directions:	• From the Junction of where Hwy 22 ends into Hwy 23, Continue North 0.6 miles • Turn Left (West) 0.5 miles, access Rd. turns to the Right (North) for another 0.5 miles • STAY RIGHT and arrive at Location. Adjacent to Pad #3.	
Total Distance:	1.6 miles	
Approx. Geographical Location:	Latitude: 47.991647	Longitude: -102.740876

Petroshale Pad #4 (Primus)

Well Names:	Petroshale US 3H (NDIC File No: 33005) Petroshale US 4H (NDIC File No: 33004)
Field:	Antelope
Location:	NENW 17-152-94
Address:	3996 101st M Avenue NW New Town, ND 58763
Directions:	• From the Junction of where Hwy 22 ends into Hwy 23, Take Hwy 23 West 1.6 miles • Turn Right (North) onto 101 Ave NW, follow 1 mile • Turn Right on access Rd. follow 0.5 miles • staying to the Left of Enerplus access arrive at Location.
Total Distance:	3.1 miles
Approx. Geographical Location:	Latitude: 47.991667 Longitude: -102.747947

Petroshale Pronghorn Pad

Well Names:	Pronghorn 1 (NDIC File No: 11686) – (ABD)
Field:	Antelope
Location:	NESE 17-152-94
Address:	3937 100th Avenue NW New Town, ND 58763
Directions:	• From the Junction of where Hwy 22 ends into Hwy 23, Continue North 0.5 miles • Turn Left (West) onto Location.
Total Distance:	0.5 miles
Approx. Geographical Location:	Latitude: 47.983159 Longitude: -102.731072

Bear Chase Area (West Segment FBIR)

Bear Chase Well Pad (Chase 21-30H)

Well Names:	Chase 21-30H (NDIC File No: 17197) Bear Chase 1MBH (NDIC File No: 35269) Bear Chase 1TFH (NDIC File No: 35270) Bear Chase 2MBH (NDIC File No: 35271)
Field:	Spotted Horn
Location:	NENW 30-150-94
Address:	10090 Highway 73, Mandaree, ND 58757
Directions:	• West from the junction of Hwy 22 and BIA 12 • follow BIA 12, 1.5 miles • Turn right follow 3.5 miles • Turn left follow 1.7 miles to Access Road • Turn left follow 0.7 miles into Location.
Total Distance:	7.4 miles
Approx. Geographical Location:	Latitude: 47.788922 Longitude: -102.761221

Island Area

Kirkland 4-18H Pad (Pad #1):

Well Names:	Kirkland Federal 4-18H (NDIC File No. 21985)
Field:	Croff
Location:	NWNW 18-149-95
Address:	10808 21st Street NW Watford City, ND 58854
Directions:	• From Watford City head east on Hwy 23, • at the roundabout head south on Hwy 53 • Follow for approximately 3.9 miles and turn left to stay on Hwy 53 • After approximately 2.3 miles, turn left to access Location
Total Distance:	6.2 miles
Approx. Geographical Location:	Latitude: 47.730030 Longitude: -102.897283

Kirkland 8-13H Pad (Pad # 2):

Well Names:	Kirkland Federal 8-13H (NDIC File No. 17778)
Field:	Croff
Location:	SENE 13-149-96
Address:	10818 21st Street NW Watford City, ND 58854
Directions:	• From Watford City head east on Hwy 23, • at the roundabout head south on Hwy 53 • Follow for approximately 3.9 miles and turn left to stay on Hwy 53 • After approximately 2.3 miles, turn left to access Location
Total Distance:	6.2 miles
Approx. Geographical Location:	Latitude: 47.728103 Longitude: -102.900333

Anderson North Pad (Pad #3):

Well Names:	Anderson North 1MBH (NDIC File No. 36316) Anderson North 2MBH (NDIC File No. 36318) Anderson North 1TFH (NDIC File No. 36317) Anderson Federal 5X-14H (NDIC File No. 22376) Anderson Federal 5-14H (NDIC File No. 22377)
Field:	Croff
Location:	SWNW 14-149-96
Address:	10983 21st Street NW Watford City, ND 58854
Directions:	• From Watford City head east on Hwy 23, • at the roundabout head south on Hwy 53 • Follow for approximately 3.9 miles and turn left to stay on Hwy 53 • After approximately 2.8 miles, turn right to access Location
Total Distance:	6.2 miles
Approx. Geographical Location:	Latitude: 47.725928 Longitude: -102.939638

Anderson 12-14H Pad (Pad #4)

Well Names:	Anderson Federal 12-14H (NDIC File No. 18436)	
Field:	Croff	
Location:	NWSW 14-149-96	
Address:	10987 21st Street NW Watford City, ND 58854	
Directions:	• From Watford City head east on Hwy 23, • at the roundabout head south on Hwy 53 • Follow for approximately 3.9 miles and turn left to stay on Hwy 53 • After approximately 2.8 miles, turn right to access Location	
Total Distance:	6.2 miles	
Approx. Geographical Location:	Latitude: 47.721021	Longitude: -102.938348

Anderson Central Tank Battery (Pad #4A)

Well Names:	Takes Production from all Anderson Wells	
Field:	Croff	
Location:	NWSW 14-149-96	
Address:	10975 21st Street NW, Watford City, ND 58854	
Directions:	• Head east on hwy 23, at the roundabout head south on hwy 53 for 3.9 miles • turn left to stay on hwy 53. After approximately 2.8 miles turn right to Location	
Total Distance:	6.7 miles	
Approx. Geographical Location:	Latitude: 47.720140	Longitude: -102.936759

Anderson South (Pad #5)

Well Names:	Anderson Federal 16-15H (NDIC File No. 22520) Anderson South 2TFH (NDIC File No. 36618) Anderson South 3MBH (NDIC File No. 36619)	
Field:	Croff	
Location:	SESE 15-149-96	
Address:	11007 21st Street NW Watford City, ND 58854	
Directions:	• Head east on Hwy 23, at the roundabout head south on Hwy 53 for 3.9 miles • turn left to stay on Hwy 53. After approximately 3.1 miles turn left to Location	
Total Distance:	6.9 miles	
Approx. Geographical Location:	Latitude: 47.719265	Longitude: -102.942957

Anderson North (Pad #5B)

Well Names:	Anderson Federal 5-14H (NDIC File No. 22377) Anderson Federal 5X-14H (NDIC File No. 22376) Anderson North 1MBH (NDIC File No. 36316) Anderson North 1TFH (NDIC File No. 36317) Anderson North 2MBH (NDIC File No. 36318)
Field:	Croff
Location:	SESE 15-149-96
Address:	11007 21st Street NW Watford City, ND 58854
Directions:	• Head east on Hwy 23, at the roundabout head south on Hwy 53 for 3.9 miles • turn left to stay on Hwy 53. After approximately 2.8 miles turn right • Turn Right just past entrance to CTB and travel north for 1 mile to Anderson North Pad
Total Distance:	6.7 miles
Approx. Geographical Location:	Latitude: 47.719265 Longitude: -102.942957

Bear Den Unit (Sec 25)
Island (Pad #6)

Well Names:	Bear Den Federal 10-25HR (NDIC File No. 11913) (ABD)
Field:	Bear Den
Location:	NWSE 25-149-96
Address:	1935 108th Avenue NW Watford City, ND 58854
Directions:	• Head east on Hwy 23, at the roundabout head south on Hwy 53 for 3.9 miles • turn left to stay on Hwy 53. After approximately 4.7 miles turn right onto 108th Ave NW • Follow this for approximately 2.2 miles and the well will be on the right.
Total Distance:	10.8 miles
Approx. Geographical Location:	Latitude: 47.694153 Longitude: -102.907570

Bear Den/Upper Explorer/Jorgenson Unit (Sec 30/31):
Bear Den Pad (Pad #7)

Well Names:	Bear Den Federal 4Y-30H (NDIC File No. 17662) Bear Den Federal 4Z-30H (NDIC File No. 18248)	
Field:	Bear Den	
Location:	NWNW 30-149-95	
Address:	1951 108th Avenue NW Watford City, ND 58854	
Directions:	• Head east on Hwy 23, at the roundabout head south on Hwy 53 for 3.9 miles • turn left to stay on Hwy 53. After approximately 4.7 miles turn right onto 108th Ave NW • Follow this for approximately 1.5 miles • turn right and continue for approximately 0.5 miles to Location.	
Total Distance:	10.6 miles	
Approx. Geographical Location:	Latitude: 47.702148	Longitude: -102.894164

Upper Explorer (Pad #7a)

Well Names:	Bridger Federal 1TFH (NDIC File No. 36904) Hickok Federal 1MBH (NDIC File No. 36903)	
Field:	Bear Den	
Location:	NWNW 30-149-95	
Address:	--	
Directions:	• Head east on Hwy 23, at the roundabout head south on Hwy 53 for 3.9 miles • turn left to stay on Hwy 53. After approximately 4.7 miles turn right onto 108th Ave NW • Follow this for approximately 1.5 miles • turn right and continue for approximately 0.5 miles to Location.	
Total Distance:	10.6 miles	
Approx. Geographical Location:	Latitude: 47.70260241	Longitude: -102.8955657

Explorer (Pad #)

Well Names:	Crockett Federal 1TFH (NDIC File No. 36893) Boone Federal 1MBH (NDIC File No. 36894) Clark Federal 2TFH (NDIC File No. 36889) Lewis Federal 2MBH (NDIC File No. 36890) Thompson Federal 4TFH (NDIC File No: 38013) Sacagawea Federal 4MBH (NDIC File No: 38015) La Verendrye Federal 5TFH (NDIC File No: 38014) Carson Federal 3TFH (NDIC File No: 36891) Bowie Federal 3MBH (NDIC File No: 36892)
Field:	Bear Den
Location:	NWNW 30-149-95
Address:	1945 108th Avenue NW, Watford City, ND 58854
Directions:	• Head east on Hwy 23, at the roundabout head south on Hwy 53 for 3.9 miles • turn left to stay on Hwy 53. After approximately 4.7 miles turn right onto 108th Ave NW • Follow this for approximately 1.5 miles • turn right and continue for approximately 0.5 miles to Location.
Total Distance:	10.6 miles
Approx. Geographical Location:	Latitude: 47.701814 Longitude: -102.896217

Jorgenson Federal (Pad #8)

Well Names:	Jorgenson Federal 2MBH (NDIC Well File No. 36664) Jorgenson Federal 2TFH (NDIC Well File No. 36666) Jorgenson Federal 14X-19H (NDIC File No. 24191) Jorgenson Federal 14-19H (NDIC File No. 24190) Jorgenson Federal 3MBH (NDIC File No: 36665)
Field:	Bear Den
Location:	SWSE 19-149-95
Address:	1995 108th Avenue NW Watford City, ND 58854
Directions:	• Head east on Hwy 23, at the roundabout head south on Hwy 53 for 3.9 miles • turn left to stay on Hwy 53. After approximately 4.7 miles turn right onto 108th Ave NW • Follow this for approximately 1.5 miles • turn right and continue for approximately 0.5 miles and turn right onto road, follow to pad.
Total Distance:	10.6 miles
Approx. Geographical Location:	Latitude: 47.703873 Longitude: -102.886589

Jorgenson Federal Central Tank Battery (Pad #9)
Takes all production from Jorgenson Federal Pad #8

Well Names:	Jorgenson Federal 1X-30H (NDIC File No. 19049) Jorgenson Federal 1-30H (NDIC File No. 18579)
Field:	Bear Den
Location:	NENE 30-149-95
Address:	1991 108th Avenue NW Watford City, ND 58854
Directions:	• Head east on Hwy 23, at the roundabout head south on Hwy 53 for 3.9 miles • turn left to stay on Hwy 53. After approximately 4.7 miles turn right onto 108th Ave NW • Follow this for approximately 1.5 miles • turn right and continue for approximately 0.5 miles and turn right onto road, follow to pad.
Total Distance:	10.6 miles
Approx. Geographical Location:	Latitude: 47.702556 Longitude: -102.882139

Tahu Area

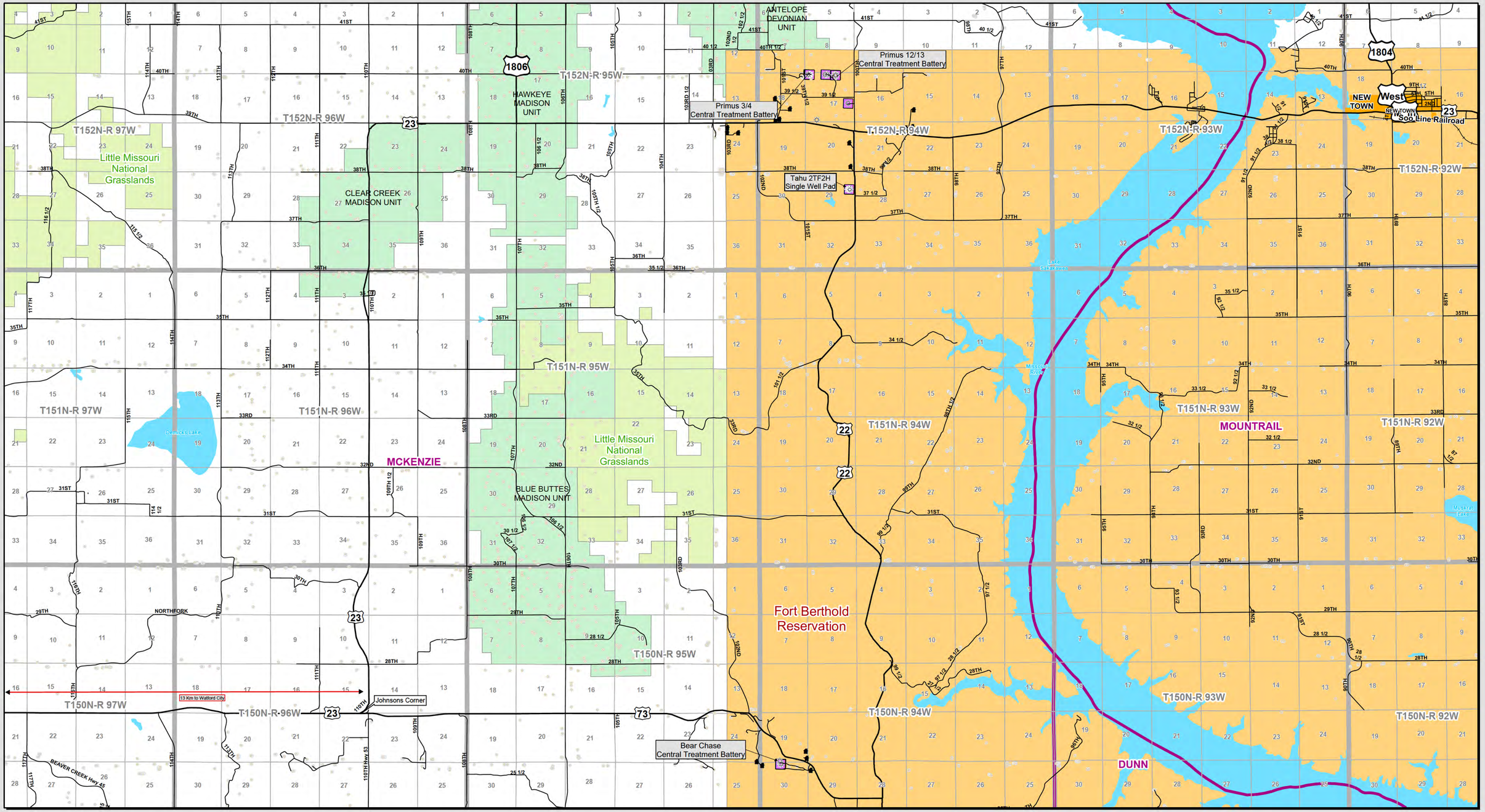
Tahu Well Pad

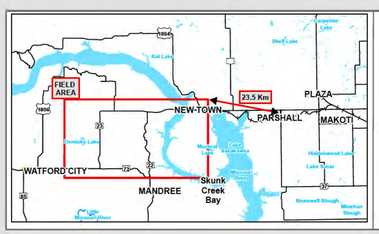
Well Names:	Tahu 2MBH (NDIC File No: 38033) Tahu 3TFH (NDIC File No: 38034) Tahu 3MBH (NDIC File No: 38035) Tahu 4TFH (NDIC File No: 38038) Tahu 2TF2H (NDIC File No: 38037)
Field:	Antelope
Location:	SENE 29-152-94
Address:	3763 HIGHWAY 22 N, NEW TOWN, ND 58763
Directions:	• Travel west from New Town on Hwy 23, 11 miles • Turn south at Hwy 22 • follow Hwy 22, 1.2 miles • Turn right into location
Total Distance:	12.2 miles
Approx. Geographical Location:	Latitude: 47.95782 Longitude: -102.72920

10.2.8 Maps

ERP Map

Area map on following page:





Petroshale Wells
- Abandoned
- Gas
- Gas - Shut In
- Oil
- Oil - Shut In
- Oil - Approved Permit
- Oil - New Permit
- Water
- Bottom Hole
- Well EPZ

Petroshale Pipelines
- Abandoned/Discontinued
- Sour Gas
- Natural Gas
- Fuel Gas
- Oil
- Water
- HVP Products
- LVP Products
- Miscellaneous Gas
- Block Valves
- Pipeline EPZ

Petroshale Facilities
- Battery
- Compressor Station
- Gas Plant
- Gathering Point
- Injection Plant
- Meter Station
- Pump Station
- Satellite

Transportation
- Roads
- Low Grade / Seasonal
- Railways
- Dead Ends
- Road Blocks

Residents
- Abandoned
- Occupied
- Sensitive
- Business
- Sensitive Business
- Cabin
- Occupied Part-Time
- Vacant
- Campground
- Cemetery
- Church
- Community Hall
- Farm/Ranch
- Gravel Pit
- School
- Shop
- Tower

Other Symbols
- Urban Area
- Counties
- Reserve Land
- Federal Land
- Unit Boundary
- Park

Waterbody
- Intermittent
- Perennial

Other Operator Wells and Pipelines represented in BROWN.

PETROSHALE (US) INC.
A WHOLLY OWNED SUBSIDIARY OF
LUCERO ENERGY CORP.

North Dakota - Mckenzie County

USA Corporate Map

Notes
- Location of residence in LSD is approximate
- Well and Pipeline Information is provided by IHS, and must be considered approximate.

Projection: UTM Zone 13
Datum: NAD 83
Mapscale: 1:60 000

N W E S

0 0.75 1.5 3
Miles

Created by: LN
May 25, 2022

Modified by: LN
May 25, 2023

Lucero ENERGY CORP.
PetroShale (US), Inc.

BLACK GOLD EMERGENCY PLANNERS INC. BGEPlan ERP Compliant

11.0 FORMS

11.1 ICS Forms

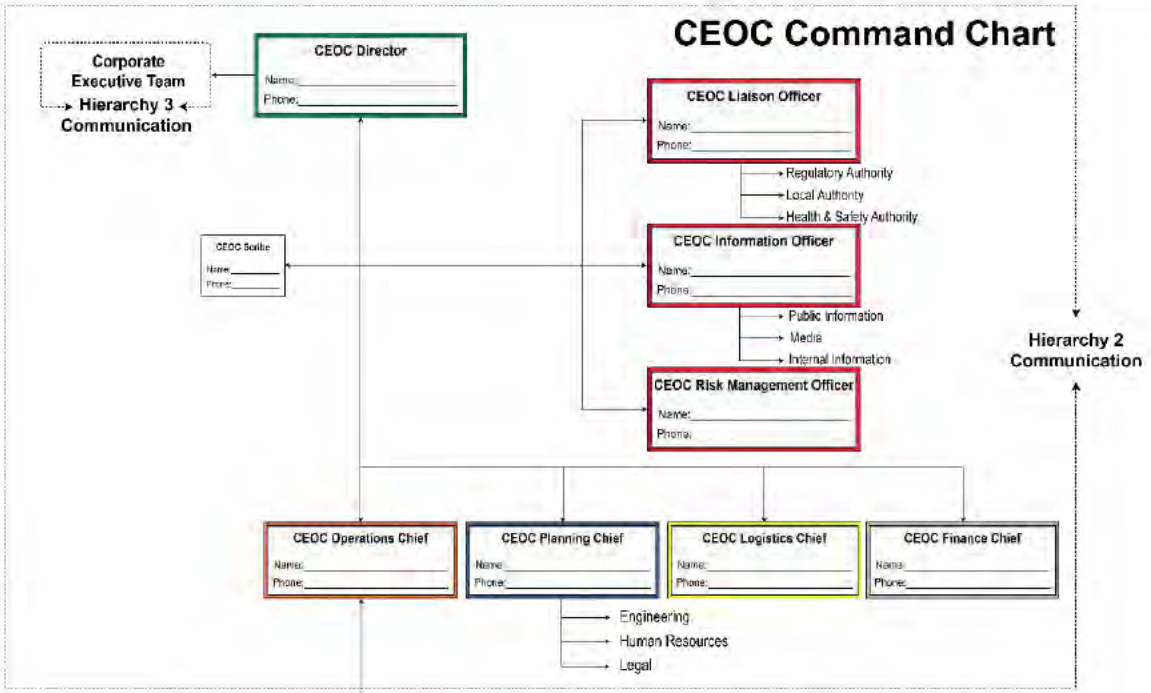
ICS 201 - Incident Briefing

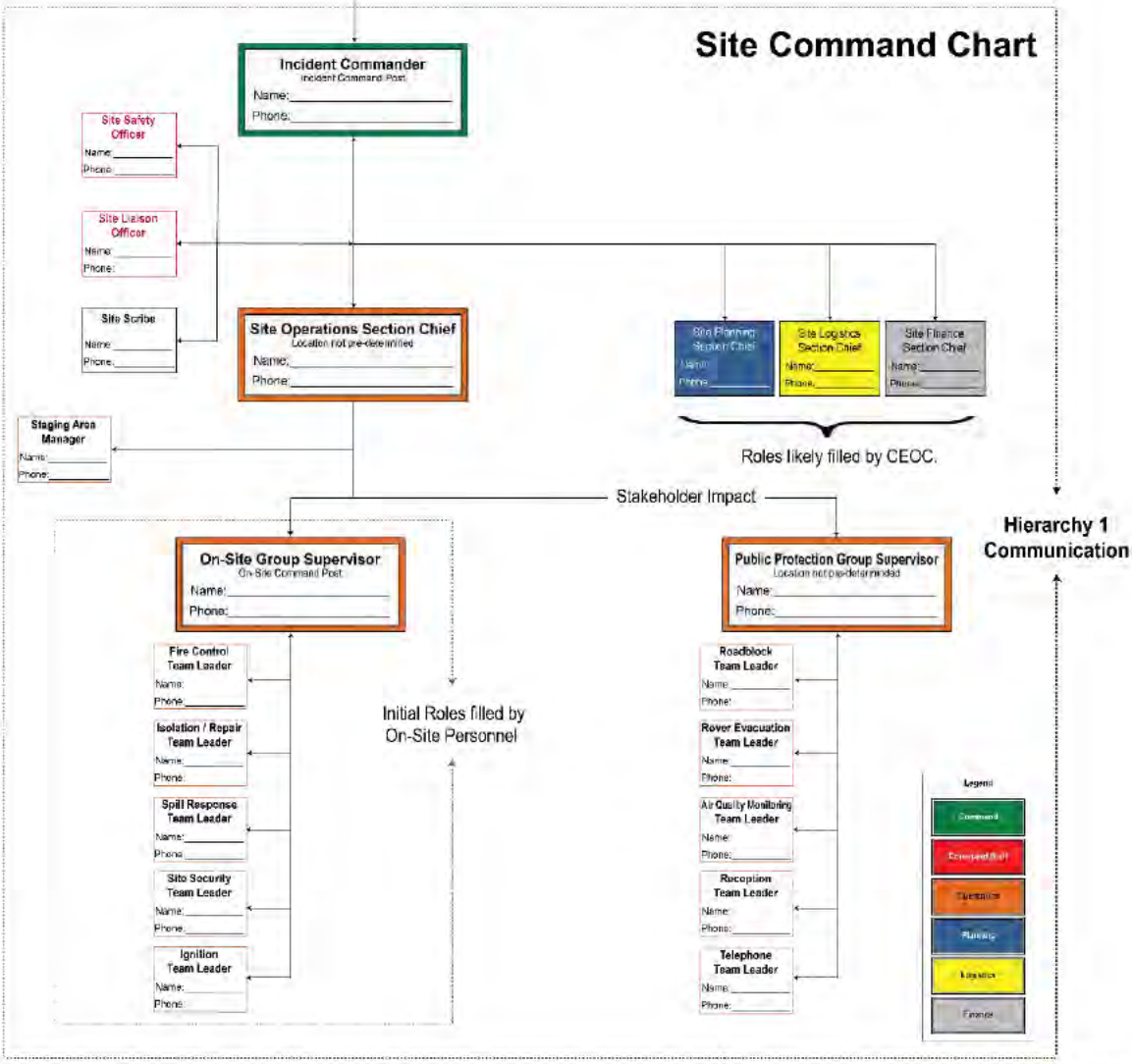
DETAILS	**Incident:**	
	Date:	
	Time (0-2400 hrs):	**Time Zone:**
	Prepared by (Name and Position):	**Signature:**
MAP SKETCH		
SITUATION SUMMARY AND SAFETY BRIEFING		

CURRENT AND PLANNED OBJECTIVES	

CURRENT AND PLANNED ACTIONS, STRATEGIES AND TACTICS	Time:	Actions:

CURRENT ORGANIZATION





RESOURCES SUMMARY

RESOURCES ORDERED	RESOURCE NAME	ETA	ON SCENE (Yes/No)	LOCATION/ ASSIGNMENT

ICS 202 - Incident Objectives

DETAILS

Incident:		
Date:		
Time (0-2400 hrs):		**Time Zone:**
Operational Period (Date/Time)	Date From: _____ Time From: _____	Date To: _____ Time To: _____
Prepared by (Site Planning Section Chief or CEOC Planning Chief):	**Signature:**	
Approved by (Incident Commander):	**Signature:**	

GENERAL CONTROL OBJECTIVES FOR THE INCIDENT

(Include alternatives)

WEATHER FORECAST

GENERAL SAFETY MESSAGE

ATTACHMENTS

☐ ICS 203 - Organization List	☐ Medical Plan (ICS 206)	☐ _____
☐ ICS 204 - Assignment List	☐ ERP Map	☐ _____
		☐ _____

ICS 203 - Organization Assignment List

DETAILS

Incident:	
Date:	
Time (0-2400 hrs):	**Time Zone:**
Operational Period (Date/Time)	**Date From:** _____ **Date To:** _____ **Time From:** _____ **Time To:** _____
Prepared by (Site-Planning Section Chief or CEOC Section Chief):	**Signature:**

INCIDENT COMMAND STAFF

Incident Commander	
Deputy IC	
Site Safety Officer	
Site Liaison Officer	
Unified Commander(s)	

AGENCY/ ORGANIZATION REPRESENTATIVES

Agency/Organization	Representative

SITE / CEOC PLANNING SECTION

Site Planning Section Chief	
CEOC Planning Section Chief	
Engineering	
Human Resources	
Legal	

SITE / CEOC LOGISTICS SECTION

Site Logistics Section Chief	
CEOC Logistics Chief	
a. Additional Support	
b. Additional Services	

OPERATIONS SECTION

Site Operations Section Chief	
a. Staging Area Manager	
b. Public Protection Group Supervisor	
Roadblock Team Leader	
Rover Evacuation Team Leader	
Air Monitoring Team Leader	
Reception Team Leader	
Telephone Team Leader	
c. On-Site Group Supervisor	
Fire Control Team Leader	
Isolation Repair Team Leader	
Spill Response Team Leader	
Site Security Team Leader	
Ignition Team Leader	
d. Additional Support	
e. Additional Services	

CEOC / SITE FINANCE /ADMIN SECTION

Site Finance Section Chief	
CEOC Finance Chief	

ICS 204 - Assignment List

DETAILS

Incident:

Operational Period (Date/Time) Date From: _____ Date To: _____ Time From: _____ Time To: _____

Prepared by (Site Operations Section Chief):	Signature:	Date/Time
Approved by (Planning Section Chief):	Signature:	Date/Time

OPERATING PERSONNEL

Site Operations Section Chief: _____ Staging Area Manager: _____

Public Protection Group Supervisor: _____ On-Site Group Supervisor: _____

RESOURCES ASSIGNED TO THIS PERIOD

Resource Identifier	Leader	No. of Persons	Contact Cell #, radio freq. etc.	Reporting Location, Special Equipment and Supplies, Remarks

WORK ASSIGNMENTS

SPECIAL INSTRUCTION

COMMUNICATION

Function:	Frequencies:	System:	Chan:	Function:	Frequencies:	System:	Chan:
Command				Logistics			
Tactical (Field Operations)				Air to Ground			

ICS 206 - Medical Plan

DETAILS

Incident:			
Date:			
Time (0-2400 hrs):			Time Zone:
Operational Period (Date/Time)	Date From: _____ Time From: _____	Date To: _____ Time To: _____	
Prepared by (Site Safety Officer):	Signature:	Date/Time	
Approved by (Incident Commander):	Signature:	Date/Time	

INCIDENT MEDICAL AID STATION

Medical Aid Stations	Location	Contact (number or frequency)	Paramedics	
			Yes	No
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐

TRANSPORTATION

Ambulance Service	Location	Contact (number or frequency)	Level of Serv.	
			ALS	BLS
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐

HOSPITALS

Hospital Name	Address (lat/long if helipad)	Travel Time		Contact (number or frequency)	Helipad		Burn Centre	
		Air	Ground		Yes	No	Yes	No
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

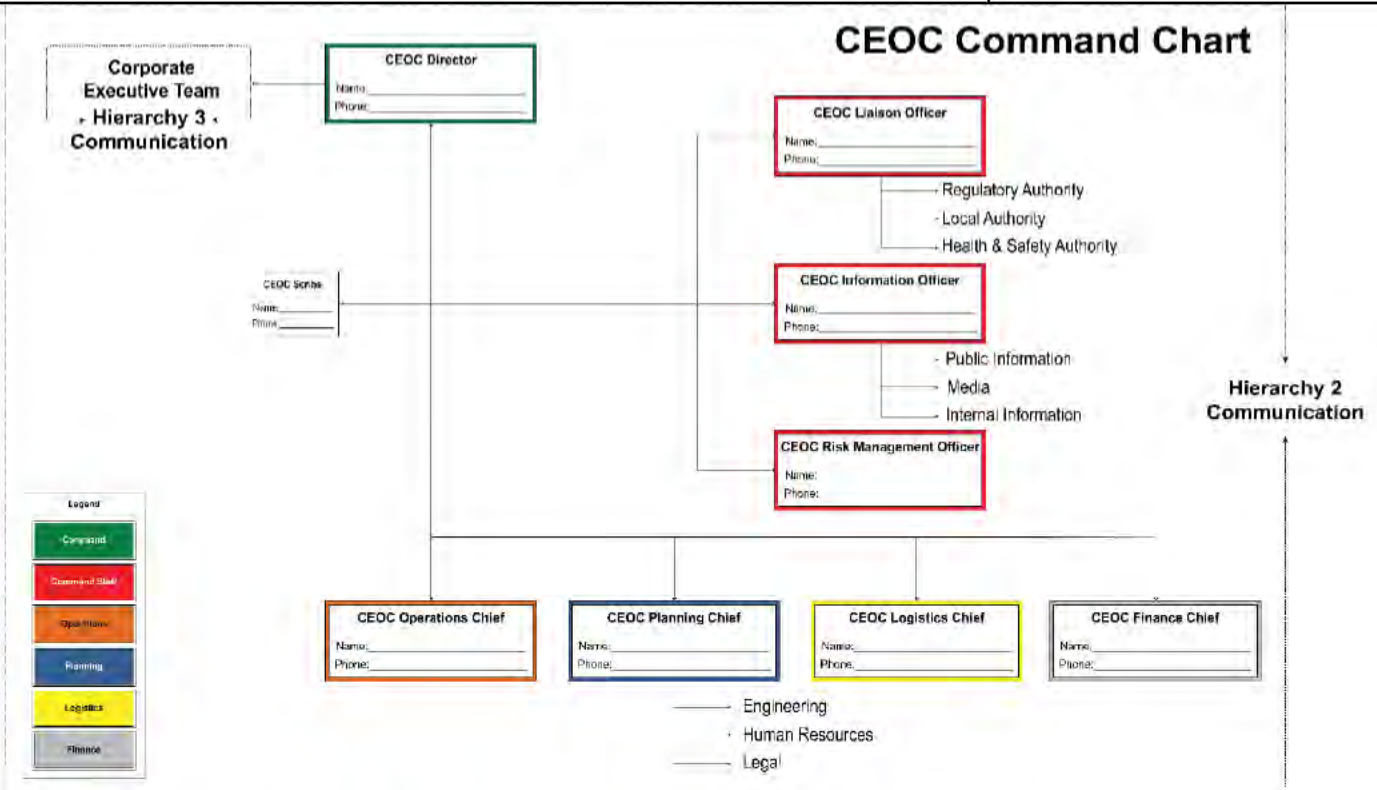
SPECIAL MEDICAL EMERGENCY PROCEDURES

ICS 207 - Incident Organization Chart

DETAILS

Incident:		
Date:		
Time (0-2400 hrs):		Time Zone:
Operational Period (Date/Time)	Date From: _____ Time From: _____	Date To: _____ Time To: _____
Prepared by (Name & Position):		Signature

ORGANIZATION CHART



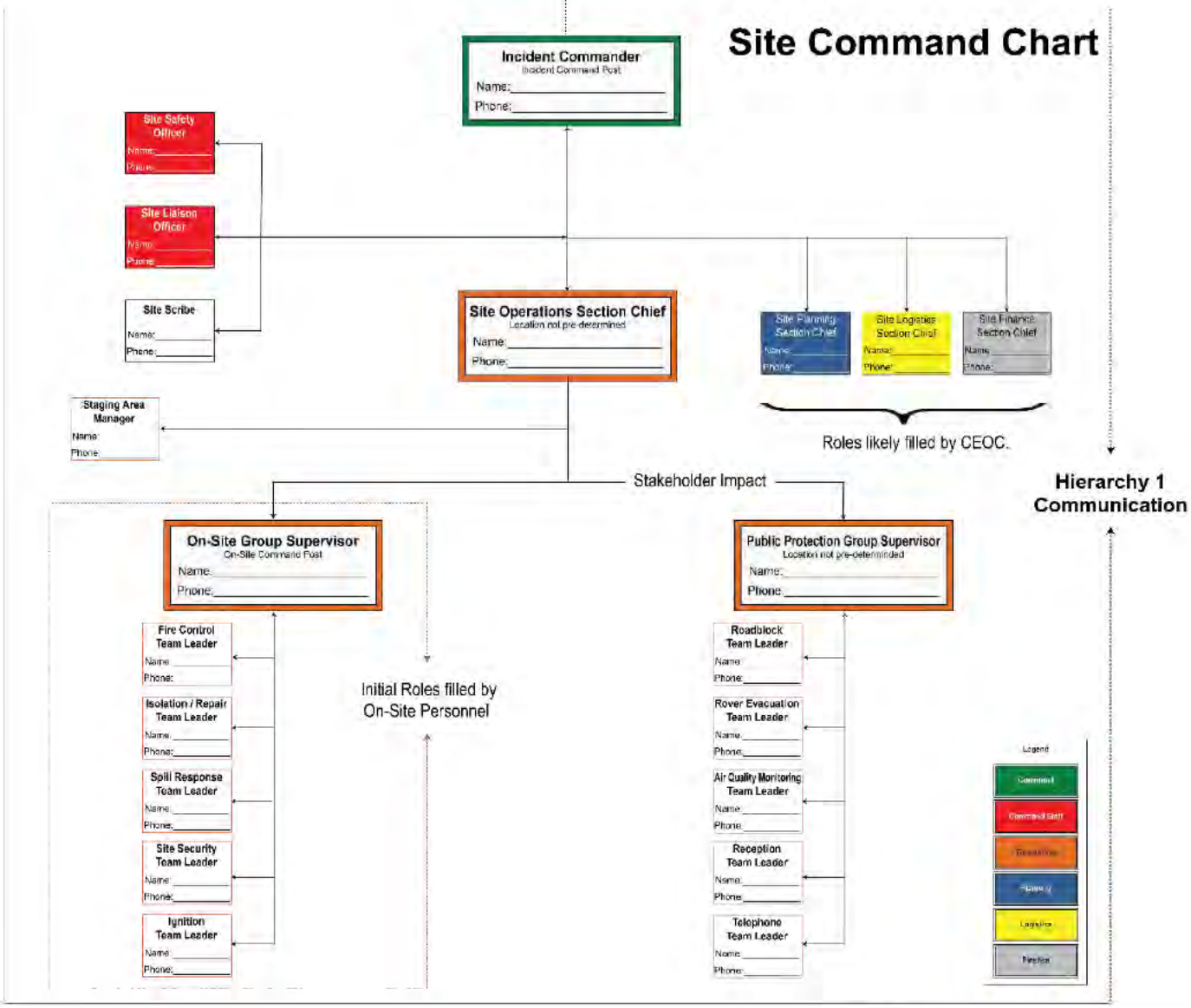
See Site Command Chart

Page:

ORGANIZATION CHART

See CEOC Command Chart

Site Command Chart



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ICS 208 - Safety Message / Plan

DETAILS

Incident:

Date:

Time (0-2400 hrs): | **Time Zone:**

Operational Period (Date/Time)
Date From: _____ **Date To:** _____
Time From: _____ **Time To:** _____

Prepared by (Site Safety Officer): | **Signature:**

SAFETY MESSAGE/EXPANDED SAFETY MESSAGE, SAFETY PLAN, SITE SAFETY PLAN

SAFETY PLAN

Site Safety Plan Required? Yes ☐ No ☐

Approved Site Safety Plan(s) located at: _____

ICS 209 - Incident Status Summary

DETAILS

*Incident Name:		Incident No:	
*Report Version Check one box on left): ☐ Initial Rpt# ☐ Update (if used) ☐ Final	*Incident Commander(s) & Agency or Organization	Incident Management Organization	*Incident Start Date/Time Date: Time:
Current Incident Size or Area Involved (Use unit label – e.g. 'sq mi', 'city block')	% Contained / Completed; *Incident Definition	Incident Complexity Level	*For Time Period From Date/Time: To Date/Time:

APPROVAL & ROUTING INFORMATION

*Prepared by:	ICS Position:	Signature:	*Date/Time
Approved by:	ICS Position:	Signature:	*Date/Time
*Date/Time Submitted:			
*Primary Location, Organization, or Agency Sent To:			

INCIDENT LOCATION INFORMATION

*State	*County, Regional/Rural State, Regional District	*City
Unit or Other	*Incident Jurisdiction	Incident Location Ownership (if different than jurisdiction)
Longitude / Latitude	Datum	Legal Description (twp, range, section)
*Short location or area description (list all affected areas or a reference point)		*UTM Coordinates
Note any electronic geospatial data included or attached (indicate data format, content, and collection time information and labels)		

INCIDENT SUMMARY

*Significant events for the time period reported (summarize significant progress made, evacuations, incident growth, etc.)

Primary materials or hazards involved (hazardous chemicals, fuel types, infectious agents, radiation, etc.)

Damage Assessment Information (summarize damage and/or restriction of use or availability to residential or commercial property, natural resources, critical infrastructure and key resources, etc.)

Structural Summary	# Threatened (72 hrs)	# Damaged	# Destroyed
Single Residences			
Non-residential Commercial Property			
Other Minor Structures			
Other			

*required when applicable

DETAILS	*Incident Name:	Incident No:

ADDITIONAL INCIDENT DECISION SUPPORT INFORMATION	*Public Status Summary	# This Reporting Period	Total # To Date	*Responder Status Summary	# This Reporting Period	Total # To Date
	Indicate number of Stakeholders (public) below			Indicate number of responders below		
	Fatalities			**Fatalities**		
	With Injuries/Illness			**With Injuries/Illness**		
	Trapped/In Need of Rescue			**Trapped/In Need of Rescue**		
	Missing (note if estimated)			**Missing** (note if estimated)		
	Evacuated (note if estimated)			**Evacuated** (note if estimated)		
	Sheltering in Place (note if estimated)			**Sheltering in Place** (note if estimated)		
	In Reception Centres (note if estimated)			**In Reception Centres** (note if estimated)		
	Total # Stakeholders (Public) Affected			**Total Responders Affected**		

	Life, Safety, and Health Status/Threat Remarks	Life, Safety, and Health Threat Mgmt	Check if active
		No likely threat	☐
		Potential Future Threat	☐
		Mass notifications in progress	☐
		Mass notifications completed	☐
		No evacuation(s) imminent	☐
		Planning for evacuation	☐
		Planning for shelter-in-place	☐
	Weather Concerns (synopsis of current and predicted weather, discuss related factors that may cause concern)	Evacuation(s) in progress	☐
		Shelter-in-Place in Progress	☐
		Area restriction in effect	☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐

	Project Incident Activity, Potential, Movement, Escalation, or Spread and influencing factors during the next operational period and in 12-, 24-, 48-, and 72-hour timeframes
	12 hours
	24-hours
	48 hours
	72 hours
	Anticipated after 72 hours
	Objectives (define planned end-state for incident)

*required when applicable

DETAILS	*Incident Name:	Incident No:

ADDITIONAL INCIDENT DECISION SUPPORT INFORMATION (continued)

CURRENT INCIDENT THREAT SUMMARY AND RISK INFORMATION IN 12-, 24-, 48-, AND 72-HOUR TIMEFRAMES AND BEYOND
Summarize primary incident threats to life, property, communities and community stability, residences, health care facilities, other critical infrastructure and key resources, commercial facilities, natural and environmental resources, cultural resources, and continuity of operations and/or business.
Identify corresponding incident-related potential economic or cascading impacts.

12 hours

24-hours

48 hours

72 hours

Anticipated after 72 hours

Critical Resource Needs in 12-, 24-, 48-, and 72-hour timeframes and beyond to meet critical incident objectives.
List resource category, kind, and/or type, and amount needed, in priority order:

12 hours

24-hours

48 hours

72 hours

Anticipated after 72 hours

Strategic discussion: explain in relation to overall strategy, constraints, and current available information to:
1) critical resource needs identified above,
2) the Incident Action Plan and management objectives,
3) anticipated results.
Explain major problems and concerns such as operational challenges, incident management problems, and social, political, economic, or environmental concerns or impacts.

Planned Actions for Next Operational Period

Projected final incident size/area (Use Unit Label – e.g., "sq mi")

Anticipated Incident Management Completion Date

Projected Significant Resource Demobilization Start Date

Estimated Incident Costs to Date

Projected Final Incident Cost Estimate

Remarks (or continuation of any blocks above – list block number in notation)

*required when applicable

DETAILS

*Incident Name:	Incident No:

INCIDENT RESOURCE COMMITMENT SUMMARY

Agency or Organization	RESOURCES (summarize resources by category, kind, and/or type; show # of resources on top ½ of box, show # of personnel associated with resource on bottom ½ of box)	Additional Personnel (not assigned to a resource)	Total Personnel (includes those associated with resources - e.g. aircraft or engines - and individual overhead)
Total Resources			

Additional cooperating and assisting organizations not listed above

*required when applicable

ICS 211 - Check-In List

DETAILS

Incident Name:	Incident Number (if assigned):	Check-In Location	Start Date/Time Date: Time:
		☐ OSCP ☐ ICP ☐ Staging Area ☐ CEOC ☐ Hel base ☐ Other _____	

Prepared by (Name & Position): Signature

CHECK-IN INFORMATION (use reverse of form for remarks or comments)

List Personnel (overhead) by Agency & Name – OR List Resources by the Following Format							LDW	Order Request Number	Date/Time Check-In	Leader's Name	Total Number of Personnel	Contact Information	Home Unit/ Base	Departure Point	Method of Travel	Incident Assignment	Other Qualifications	Sent to Resource Unit
P/T	AGENCY	CAT.	KIND	TYPE	ST/TF	Resource Name or ID #												

Remarks or Comments

ICS 214 - Activity Log

DETAILS

Incident:		
Date:		
Time (0-2400 hrs):		**Time Zone:**
Operational Period (Date/Time)	**Date From:** _____ **Time From:** _____	**Date To:** _____ **Time To:** _____
Prepared by:	**ICS Position:**	**Signature:**

PERSONNEL ASSIGNED

Name	ICS Position	Command Centre (OSCP, ICP, CEOC)

ACTIVITY LOG

Time	Major Events

DETAILS			
	Incident:		
	Date:		
	Time (0-2400 hrs):		Time Zone:
	Operational Period (Date/Time)	Date From: ______________ Time From: ______________	Date To: ______________ Time To: ______________
	Prepared by:	ICS Position:	Signature:

ACTIVITY LOG	Time	Major Events

ICS 215 - Operational Planning Worksheet

DETAILS

Incident:		
Date:		
Time (0-2400 hrs):		Time Zone:
Operational Period (Date/Time)	Date From: ______________ Time From: ______________	Date To: ______________ Time To: ______________
Prepared by (Site Operations Section Chief)):		Signature

OPERATIONAL PLANNING

Branch	**Division, Group, or Other**	**Work Assignment & Special Instructions**	**Resources**													**Overhead Position(s)**	**Special Equipment & Supplies**	**Reporting Location**	**Requested Arrival Time**
			Req.																
			Have																
			Need																
			Req.																
			Have																
			Need																
			Req.																
			Have																
			Need																
			Req.																
			Have																
			Need																
			Req.																
			Have																
			Need																
			Req.																
			Have																
			Need																
Total Resources Required																			
Total Resources – Have on Hand																			
Total Resources Need to Order																			

Page:

ICS 215a - Incident Action Safety Plan Analysis

DETAILS

Incident:		
Date:		
Time (0-2400 hrs):		**Time Zone:**
Operational Period (Date/Time)	**Date From:** _____ **Time From:** _____	**Date To:** _____ **Time To:** _____
Prepared by (Site Safety Officer):	**Name:**	**Signature:**
Prepared by (Site Operations Section Chief):	**Name:**	**Signature:**

INCIDENT ACTION SAFETY PLAN

Incident Area	Hazards/Risks	Mitigations

ICS 221 - Demobilization Checkout

DETAILS

Incident Name/Number:	**Date/Time:**				**Demob Number:**	
Prepared by (Site Planning Section Chief or CEOC Planning Chief):					Signature	
Approved by (Incident Commander):					Signature	
Unit/Personnel Released:						
Transportation Type/Number:						
Actual Release Date/Time:					Manifest Completed ☐ Yes ☐ No	
Destination:	Notify	ICP ☐	Agency ☐	Region ☐	Area ☐	Dispatch ☐
	Name					
	Date					

UNIT/PERSONNEL

You and your resources have been released subject to Sign-Off from the following:
Site Planning Section Chief or CEOC Planning Chief - Check the appropriate box

LOGISTICS SECTION	**COMMENTS**
☐ Site Logistics Section Chief	
☐ CEOC Logistics Section Chief	
☐ a. Additional Support	
☐	
☐ b. Additional Services	
☐	
PLANNING SECTION	
☐ Planning Section Chief	
☐ CEOC Planning Section Chief	
☐ Engineering	
☐ Human Resources	
☐ Legal	
OPERATIONS SECTION	
☐ Site Operations Section Chief	
☐ Staging Area Manager	
☐ Public Protection Group Supervisor	
☐ Roadblock Team Leader	
☐ Rover Evacuation Team Leader	

DETAILS			
	Incident Name/Number:	**Date/Time:**	**Demob Number:**
	Prepared by (Site Planning Section Chief or CEOC Planning Chief):		Signature
	Approved by (Incident Commander):		Signature

UNIT/PERSONNEL Continued	
☐ Air Monitoring Team Leader	
☐ Reception Team Leader	
☐ Telephone Team Leader	
☐ On-Site Group Supervisor	
☐ Fire Control Team Leader	
☐ Isolation Repair Team Leader	
☐ Spill Response Team Leader	
☐ Site Security Team Leader	
☐ Ignition Team Leader	
☐ a. Additional Support	
☐	
☐ b. Additional Services	
☐	
FINANCE / ADMIN SECTION	
☐ Site Finance Section Chief	
☐ CEOC Finance Chief	
CORPORATE EMERGENCY OPERATIONS CENTRE (CEOC)	
☐ CEOC Director	
☐ CEOC Operations Chief	
☐ CEOC Liaison Officer	
☐ CEOC Risk Management Officer	
REMARKS:	

ICS 230 – Daily Meeting Schedule

DETAILS

Incident:

Operational Period (Date/Time) Date From: _____ Date To: _____

Time From: _____ Time To: _____

Prepared by (Planning Chief): **Signature:** **Date/Time**

MEETING SCHEDULE

Date/Time	Meeting Name	Purpose	Attendees	Location

ICS 234 – Work Analysis Matrix

DETAILS			
	Incident:		
	Operational Period (Date/Time)	**Date From:** _____ **Time From:** _____	**Date To:** _____ **Time To:** _____
	Prepared by (Operations Chief):	**Signature:**	**Date/Time**

Operation's Objectives DESIRED OUTCOME	**Strategies HOW**	**Tactics/Work Assignments WHO, WHAT, WHERE, WHEN**

11.2 ERP Forms

Environmental Monitoring Record

DETAILS

Incident:		
Date:		
Time (0-2400 hrs):	Time Zone:	
Completed by:	Response Team Position:	

ENVIRONMENTAL MONITORING RECORD

Time	Location of Sample:	LEL (%)	O_2 (%)	H_2S (ppm)	SO_2 (ppm)	Other	Temp. (°F)	Wind Conditions From	Wind Conditions Speed (mph)

Page:

Notification Record

DETAILS	**Incident:**			
	Date:			
	Time (0-2400 hrs):			Time Zone:
	Completed by:			
INCIDENT COMMANDER		**Who was notified?**	**Date/Time**	**Who did notification?**
	Supervisor:			
	Ambulance:			
	Police:			
	Fire Department:			
	Forestry Service:			
	Local Authority:			
	Prime Contractor:			
	Area Stakeholder:			
	Other:			
CEOC OPERATIONS CHIEF		**Who was notified?**	**Date/Time**	**Who did notification?**
	Executive Team:			
	President:			
	Disaster Services:			
	Regulatory Authority:			
	Workplace Health and Safety			
	Authority:			
	Health Authority:			
	Hospital/Health Care Facility:			
	Environmental Agency:			
	Other:			

Roadblock Checkpoint Record

DETAILS

Incident:	
Date:	
Time (0-2400 hrs):	Time Zone:
Completed by:	Response Team Position:

ROADBLOCK CHECKPOINT RECORD

Vehicle Type	Licence Plate Number & State	Name of Driver (if available)	Number of People in Vehicle	Time Entering EPZ	Time Exiting EPZ	Comments (Record all vehicles turned away)

Page:

Note: The permit holder has the responsibility to protect the public but without the assistance of the police cannot legally prevent the public from entering the secured area. If someone insists on going through the roadblock, ask him or her for emergency contact numbers, this may encourage the driver to stop.

Spill/Release Written Report Form

DETAILS	**Incident:**						
	Date of Notification:						
	Time of Notification (0-2400 hrs):						Time Zone:
	Completed by:			Phone Number:			
DISCOVERY	Name of person who discovered release:			Phone number:			
	Date of Release (Estimate if necessary):			Time of Release (Estimate if necessary):			
	Date Release Discovered:			Time Release Discovered:			
LOCATION	Nearest Town/Road Intersection:						
	Directions:						
	Facility Name (any signs indicating well name, rig number, etc.?):						
	Additional Location Information:						
WEATHER CONDITIONS	Temperature °F						
	Wind speed and direction:						
	Precipitation:						
SPILL/RELEASE	Name of product/substance:						
	Volume (m^3)/Quantity (bbl) Spilled/Released:			Volume/Quantity Recovered:			
	☐ Sweet gas	☐ LVP	☐ HVP	☐ Toxic substance	☐ Sour gas	☐ Produced water	☐ Oil	☐ Other
	Was there a fire? ☐ Yes ☐ No				Was there an explosion? ☐ Yes ☐ No			

RELEASE INFORMATION

	Yes	No	Details
Is the health or safety of any individuals (residences, communities, etc.) in imminent danger?	☐	☐	
Are any specially designated environmental areas (wetland, preserves, etc.) in imminent danger?	☐	☐	
Was any waterway affected?	☐	☐	If yes, provide name of waterway:
Was release contained? If no, describe dimensions of release (length, width depth). If yes, describe containment (within firewall, booms, etc.).	☐	☐	

Description of release and impacts, including wells and/or facilities involved, and the source of release (stuffing box rubber on well head burned up, internal corrosion on flow line, etc.):

RESPONSE ACTIONS

Resource	Contractor/Equipment	Estimated Cost
List contractors summoned to assist in containment:		$
		$
		$
List contractors summoned to assist in clean-up:		$
		$
		$
List special clean-up equipment used:		$
		$
		$

Describe remedial action taken and current status:

Status Board

DETAILS	**Incident:**	
	Date:	
	Time (0-2400 hrs):	Time Zone:
	Operational Period Start:	Operational Period End:
	Level of emergency:	
	Completed by:	

EMERGENCY PLANNING ZONE DATA	Size of the EPZ:	
	Number of residences:	
	Number of businesses:	
	Number of public facilities:	
	Number of school children:	
	Number of rivers and streams:	
	Number of industry operators:	
	Number of roadblocks:	
	Mobile air monitoring:	
	Media:	
	Mutual Aid:	
	Weather:	
	Injuries/Fatality:	
	Other:	

NOTES	

Telephone Checklist for Threatening Calls

DETAILS

Date:

Time (0-2400 hrs):

Time Zone:

Completed by:

CALL DETAILS

When a threat is received:

- Have someone listen in on the call and have call traced, if possible.
- Listen.
- Be calm and courteous.
- Do not interrupt the caller.
- Obtain as much information as you can.

Questions to ask for bomb threats:

- When is the bomb going to explode?
- Where is it right now?
- Why did you place the bomb?
- What does it look like?
- What will cause it to explode?
- What is your name and address?

Exact wording of the threat:

BACKGROUND SOUNDS

☐ Street Noises	☐ PA System	☐ Motor	☐ Animal noises
☐ Local	☐ Crockery	☐ Music	☐ Office machinery
☐ Clear	☐ Long distance	☐ Voices	☐ House noises
☐ Factory	☐ Static	☐ Booth	☐ Other

THREATENING LANGUAGE

☐ Well spoken (educated)	☐ Foul	☐ Irrational
☐ Message being read by threat maker	☐ Taped	☐ Incoherent

CALLER DETAILS

Distinguishing accent:

Age:

Sex:

Length of call:

Number called:

CALLER'S VOICE

☐	Calm	☐	Angry	☐	Excited	☐	Slow
☐	Rapid	☐	Soft	☐	Loud	☐	Laughter
☐	Crying	☐	Normal	☐	Distinct	☐	Slurred
☐	Nasal	☐	Stutter	☐	Lisp	☐	Raspy
☐	Deep	☐	Ragged	☐	Clearing throat	☐	Deep breathing
☐	Cracking	☐	Disguised	☐	Accent	☐	Familiar

If familiar, who did it sound l ke:

NOTES

Report call immediately to your supervisor, corporate security, or administrative services.

11.3 Drilling and Completions Forms

Drilling and Completions Emergency Evacuation Pre-Planning Sheet

Site Location with longitudes/latitudes: _____

Site Supervisor: _____

- Contact information _____
- Other Information (ie Air Ambulance, etc.) _____
- Nearest health care facility (define services available)
- Is it available 24 hours? _____ Travel Time (hrs): _____
- Transportation vehicle: _____
- Valid First Aid training certificates on site: _____
- Appropriate First Aid supplies on site: _____
- Test Plan:
  - Phone emergency transportation (24 hr)? _____
  - Phone emergency services (24 hr)? _____
  - Phone others (24 hr)? _____
- Other activities with support facilities (contacts/numbers):
  - Rigs in the area:
    - Name: _____ Phone: _____
    - Name: _____ Phone: _____
  - Production facilities in the area:
    - Name: _____ Phone: _____
    - Name: _____ Phone: _____
  - Construction/other in the area:
    - Name: _____ Phone: _____
    - Name: _____ Phone: _____

Helicopter landing location identified? Yes No

Rig-Site Supervisor Responsibilities

Evaluation Date: _____

Location: _____

Contractor: _____

Company Supervisor: _____

SUBJECT AREA	Yes	No	N/A	Comments
Safety				
a) Have all workers on site completed a Safety Orientation?	☐	☐	☐	_____
b) Have orientation sign-off sheets been collected from the workers and forwarded to you?	☐	☐	☐	_____
c) Have workers reviewed the Safety Statement posted on the worksite?	☐	☐	☐	_____
Emergency Response Planning				
a) Are emergency numbers and directions posted and is a map of the area available for quick reference?	☐	☐	☐	_____
b) Are lease signs adequate to direct emergency response workers to the worksite?	☐	☐	☐	_____
c) Are first aid supplies available including a transportation method, well maintained, and do they meet regulated standards?	☐	☐	☐	_____
d) Has the communication equipment on the worksite been tested for emergency response procedures?	☐	☐	☐	_____
Inspections				
a) Are inspections being completed on rig equipment?	☐	☐	☐	_____
b) Are general inspections completed on non-rig based equipment?	☐	☐	☐	_____
c) Have you received copies of all inspections completed on the worksite or participate in inspections?	☐	☐	☐	_____
d) Have the deficiencies that were identified in inspections been addressed?	☐	☐	☐	_____

Personal Protective Equipment	**Yes**	**No**	**N/A**	**Comments**
a) Is appropriate PPE and other safety equipment available and being used by all workers?	☐	☐	☐	_____
b) Is the PPE and safety equipment in good working order and is there a preventative maintenance and inspection program for equipment?	☐	☐	☐	_____
Meetings				
a) Are safety meetings held on a regular basis?	☐	☐	☐	_____
b) Are the meetings documented and do you receive a copy of the meeting minutes?	☐	☐	☐	_____
c) As the Supervisor have you attended pre-job safety meetings for critical/non-standard operations?	☐	☐	☐	_____
Procedures				
a) Are hazard assessments completed for the task being conducted?	☐	☐	☐	_____
b) Are the results of hazard assessments reviewed during the safety meeting process?	☐	☐	☐	_____
c) Have documented safe work procedures been developed for the task being completed and have they been reviewed?	☐	☐	☐	_____
d) Do the procedures include requirements for work permits, including hot work, confined space and well flow back?	☐	☐	☐	_____
e) Are the contractors and their workers aware of the Company incident reporting procedures, and are they complying?	☐	☐	☐	_____
Camp (If Applicable)				
a) Are there adequate smoke detectors and fire extinguishers?	☐	☐	☐	_____
b) Are regular emergency drills conducted, and do they correct deficiencies identified?	☐	☐	☐	_____
c) Have “Camp Rules” been posted at the main entrance and kitchen area of the camp?	☐	☐	☐	_____

12.0 APPENDIX

12.1 Properties of Hydrogen Sulphide (H_2S)

H_2S gas (also commonly referred to as sour gas) is naturally occurring, colourless, flammable, and toxic and is slightly heavier than air. At very low concentrations, it has an offensive odour (similar to rotten eggs), but at higher concentrations or with prolonged exposure it deadens the sense of smell. Concentrations of H_2S are generally measured in parts per million (ppm). 1 ppm means that there is one part of H_2S gas in one million parts of air (1% H_2S gas concentration equals 10,000 ppm). It affects people differently depending on concentration and length of exposure.

Concentration (ppm)	Health Effects
0.01 - 0.3	Odour threshold
1-20	Offensive odour, possible nausea, tearing of the eyes or headaches with prolonged exposure
20-50	Nose, throat and lung irritation; digestive upset and loss of appetite; sense of smell starts to become fatigued; acute conjunctivitis may occur (pain, tearing and light sensitivity)
100-200	Severe nose, throat and lung irritation; ability to smell odour completely disappears.
250-500	Pulmonary edema (buildup of fluid in the lungs)
500	Severe lung irritation, excitement, headache, dizziness, staggering, sudden collapse (knockdown), unconsciousness and death within a few hours, loss of memory for the period of exposure
500-1000	Respiratory paralysis, irregular heartbeat, collapse and death without rescue.
>1000	Rapid collapse and death

12.2 Properties of Sulphur Dioxide (SO_2)

SO_2 gas is a colourless, non-flammable, non-explosive gas, and has a pungent odour such as a burning match. SO_2 is a by-product from the combustion of hydrogen sulphide and would only be present if the source of H_2S was ignited.

In its normal state SO_2 is heavier than air, however during the combustion process, the heat from the fire will carry the SO_2 and smoke upwards resulting in rapid dispersion and low concentration values.

Toxicity Information	
Concentration (ppm)	**Effects**
2	• 8-hour exposure limit
3 – 5	• Odour detection threshold
5	• 15-minute exposure limit
6 – 50	• Exposure for 5 to 15 minutes irritates the eyes and may irritate the respiratory system (e.g. choking and coughing) • Possible nosebleed under extended exposure
50 – 100	• Irritation increase may become unbearable and vision impossible
Over 100	• Immediately dangerous to life • Immediate feeling of suffocation

12.3 NATO Phonetic Alphabet

Letter	Code word
A	Alpha
B	Bravo
C	Charlie
D	Delta
E	Echo
F	Foxtrot
G	Golf
H	Hotel
I	India
J	Juliet
K	Kilo
L	Lima
M	Mike

Letter	Code word
N	November
O	Oscar
P	Papa
Q	Quebec
R	Romeo
S	Sierra
T	Tango
U	Uniform
V	Victor
W	Whiskey
X	X-ray
Y	Yankee
Z	Zulu
- (hyphen)	Dash

12.4 Glossary

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 82 feet.
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 Temperature:	All NGL products are flammable and will flash at extremely low temperatures. An open flame or spark is not necessary to cause ignition. Any hot surface which exceeds the auto-ignition temperature 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, 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 employee's exposure to a hazardous substance shall at no time exceed the ceiling value.
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 temperature 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 permit holder.
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.

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 temperature 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 temperature conditions. Note: Data for flammability limits is often published for standard atmospheric and temperature 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 can't be processed for sale or use because of technical or economic reasons.
Flash Point:	The lowest temperature 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.
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 34.8 psig at a temperature of 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.
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.
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.
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.
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.
Permit holder:	A term used to designate the responsible duty holder (e.g. permit holder, 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 state 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 the United States of America 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 authority (city, town, 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 temperatures.
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.

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.
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.
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.
OSHA:	An abbreviation for Occupational Safety and Health Administration.
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 temporary 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:	Pumper 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 temporarily 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, Indigenous 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 temporarily in the response zones (examples: camper, cross-country skier, and hunter).
Uncontrolled Flow:	A release of product that the permit holder cannot shut off at the permit holder'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.