

Blackwater

Mine Emergency Response Plan

24-Hour Emergency Number: 778-916-9115
Mine Incident Reporting Line: 1-888-348-0299



BW Gold Ltd. 101-139 1st Street East Vanderhoof, BC V0J 3A0 Bus: 250-567-3276

H₂Safety Services Inc. 210, 7260 12 Street SE Calgary, Alberta T2H 2S5 Bus: 403-212-2332 Fax: 403-313-9180



Revision History

This Mine Emergency Response Plan (MERP) is effective November 2024. The company's Health & Safety Coordinator - Emergency Preparedness is responsible for updating this plan annually or as required. Any errors or omissions in the plan should be brought to their attention.

Date of Issue	Reason For Revision	Section	Affected Pages
		All – Form naming changed	Title Page / Cover Spine Table of Contents (TOC) Section 1: TOC, External Notification Flowchart Five Step Initial Response Guide Section 2: Roles and Responsibilities – Incident Commander Role, Asset Protection (Security) Role, Liaison Officer Role, Ongoing Response Section 4: Medical Emergencies Gas Release, Cyanide Release Section 6 Form replaced
	Annual Update	Foreword Missi	
November 2024		Section 1: Initial Response	Internal Notification Flowchart External Notification Flowchart
		Section 4: Emergency Response Procedures	TOC Spill Response – Berms (New) Dam Section – Recreated Note: This section was previously called "Dam Breach"
		Mine Area Specific Information	TOC (New) Blackwater Mine information - verified all contact information, identified radio control roads, Operations Summary replaced, ERAC information added. General Arrangement Drawing (New) Equipment Listing Page (New) Vanderhoof Fire Rescue Mutual Aid – revised version.
	Updated	Foreword	Cover Page
October 2024	Company 24 Hr.	Section 1: Initial Response	Step 2 – Internal Notification
	Emergency Number	Area Specific Information	Blackwater 11x17 Site Section
November 2022	New MERP Manual	All	All



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Artemis Gold - Blackwater Mine

Distribution List

Manual #	Туре	Branch	Title / Agency	Name		
	Corporate					
71878	Binder	Vanderhoof, BC	Blackwater Community Office	Office Copy		
71879	Binder	Prince George, BC	Prince George Office	Office Copy		
71880	Binder	Vancouver, BC	Vancouver Corporate Office	Office Copy		

3 Hard Corporate Manuals

0 Digital Corporate Manuals

Field							
71881	Binder	Vanderhoof, BC	IMine Conv #1	Emergency Response Security Health Manager			
73619	Binder	Vanderhoof, BC	Mine Copy #2	Mine Manager			

2 Hard Field Manuals

0 Digital Field Manuals

	External							
71882	Binder	Prince George, BC	Ministry of Energy, Mines and Low Carbon Innovation (EMLI)	Kristopher Bailey				
71883	Digital	Quesnel, BC	Lhoosk'uz Dene Nation	Liliane Squinas				
71884	Digital	Anahim Lake, BC	Ulkatcho First Nation	Lynda Price				
71885	Binder	Calgary, AB	H₂Safety Services Inc.	Library Copy				

² Hard External Manuals

² Digital External Manuals

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Emergency Forms

- A1 Mine Incident Preliminary Reporting Form
- A2 Incident Action Plan (IAP) Checklist
- A3 Threatening Call / Bomb Threat
- A4 STARS Landing Zone Card

Resident Forms

- **B1** Reception Centre Registration Log
- **B2** Resident Compensation Log
- **B3** Resident Contact Log
- B4 Roadblock Log
- **B5** Evacuation Notice
- B6 Early Notification / Voluntary Evacuation Phone Message
- B7 Shelter-In-Place Phone Message
- **B8** Evacuation Phone Message

Media Forms

- C1 Preliminary Media Statement
- C2 Media Contact Log
- C3 Government Agency Contact Log
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Confined Space Entry Log

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Mine Area Specific Information

Blackwater Mine Site Section

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Operations Camp Map

Construction Map

Mission Statement

Create and grow sustainable value by applying leading, technically excellent and differentiated approaches to managing mining assets and unlocking their unrealized potential, while being firmly committed to protecting the health, safety and wellbeing of our employees, the environment and the communities in which we work.

8 Behavioural Standards



Zero Is About Choices



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Section 1: Initial Response

Mine Incident Preliminary Reporting Form (A1)

Five Step Initial Response Guide

Step 1 – Level of Emergency

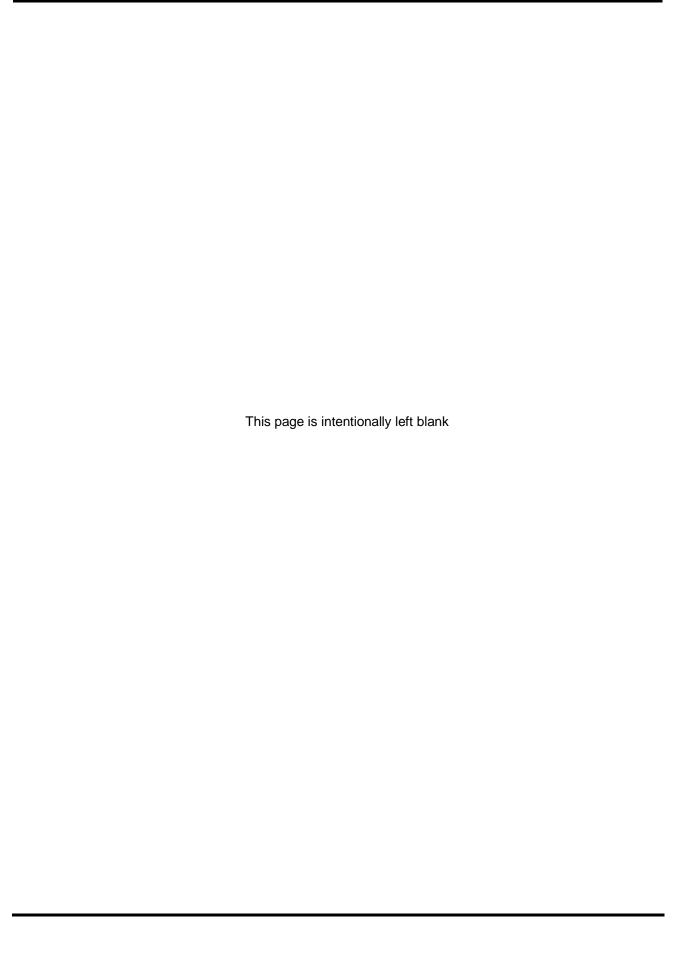
Step 2 - Internal Notification

Step 3 – External Notification

Step 4 - Incident Briefing

Step 5 - Site Safety







Mine Incident Preliminary Reporting Form

Mine Incident Reporting Line

24/7 Phone: 1-888-348-0299 or Email: MineIncidents@gov.bc.ca

Pursuant to section 1.7.2 of the Code - In the event of an incident resulting in the loss of life or serious injury, the manager must:

- 1) provide verbal notification to an inspector, the OHSC Co-chairs, and the local union within 4 hours, AND
- 2) provide written notice to an inspector, the OHSC Co-chairs, and the local union within 16 hours.

In the event of any other incident (see section 1.7.1) the manager must provide written notice to an inspector, the OHS co-chairs, and the local union within 16 hours.

the local union within 16 nours.									
Incident Information									
Mine Name					Mine #				
Mine Type					Mine Status	(Select)			
Reported By				Cont	act's Phone #				
Contact's Email					Incident Date				
Incident Location				Time of I	ncident (24hr)				
Incident #				# of inju	ured/involved				
JOHSC/Worker Rep Name	9					Notified?	Yes	No 🗌	
JOHSC/Management Rep	Name					Notified?	Yes	No 🗌	
Name of Local Union (if a	pplicable)					Notified?	Yes	No 🗌	
Mine Contractor Company Name(s) (if applicable)									
Select the ge	eneral typ	e of reportable	inc	ident (refe	er to s.1.7.1 of	the Code f	or guidance)	
Health & Safety	En	vironmental		Geot	echnical		Other		
Describe the inciden	Describe the incident:								
Immediate measures taken:									
If any injuries, pleason			vas r	eceived					
	(27111)	a date the report t		CCCITCU					





CODE 1

First On-Scene Actions

Evacuate
Alarm
Assess
Protect
Rescue
First Aid
Medical Aid

Step 1 - Level of Emergency

After a Code 1 notification has been made, determine the Level of Emergency:

- Level 1 Emergency (Insignificant)
- □ Level 2 Emergency (Minor)
- □ Level 3 Emergency (Moderate)
- □ Level 4 Emergency (Significant)
- Level 5 Emergency (High)

Use the following resources:

• Section 1: Initial Response (Level of Emergency)

Note: The permit holder must use the Risk Matrix for Classifying Incidents to determine the Level of Emergency. If the incident overlaps more than one level, always choose the highest level.

Step 2 - Internal Notification

- □ Follow the Internal Emergency Notification Flowchart (found after Step 1 Determining Level of Emergency Matrix) to determine who needs to be notified.
- CMT to be notified and activated at a Level 2 Emergency.
- □ Crisis and Emergency Management System (CEMS) activated at a Level 2 Emergency.
- Relay the information in the completed Mine Incident Preliminary Reporting Form (A1).
- Mobilize internal resources to the site, to the Incident Command Post (ICP), to the Corporate Emergency Operations Centre (CEOC), or place them on standby as required.

Use the following resources:

- Section 1: Initial Response (Internal Emergency Notification Flowchart)
- · Section 2: Roles & Responsibilities (Incident Management Team Phone List)
- Section 6: Forms (A1)

Note: On receiving the initial report, the General Manager (GM) / designate will assess the situation and decide whether to convene the IMT.

Step 3 - External Notification

- □ Follow the External Emergency Notification Flowchart (found after Step 2 Internal Notification) to determine which external agencies need to be notified:
 - □ 911 (police, fire, ambulance)
- □ Northern Health Authority (NHA)
- Ministry of Energy, Mines and Low Carbon Innovation (EMLI)
- □ Emergency Management BC (EMBC)

- □ Local Authorities (First Nation):
 - □ Cariboo Regional District

□ Regional District of Bulkley-Nechako

Lhoosk'uz Dene Nation

- Ulkatcho First Nation
- Utilize the Area Specific Information tab to determine which Area Users and Transients need to be notified.
- □ Record all phone calls and communications using the following forms: ICS 214, B3, B6, B7, & B8.
- □ Regularly provide status updates to the Safety Group Supervisor.
- □ Use the following resources:
- · Section 1: Initial Response (External Emergency Notification Flowchart)
- Section 5: External Agencies (Provincial Notification Matrix)
- Section 6: Forms
- Area Specific Information (White tabs)

Step 4 - Incident Briefing

Complete an ICS 201 Incident Briefing Form:

- □ Define incident details and an operational period (page 1).
 - Establish the On-Site Command Post (OSCP) and ICP.
- □ Document current incident objectives, strategies and tactics (page 2).
- □ Prioritize objectives (page 2).
- □ Define initial Incident Command Structure (page 3).
- □ Identify required resources and when they'll be available (page 4).

Use the following resources:

- Section 1: Initial Response (ICS 201)
- Section 6: Forms (ICS 201)

Step 5 - Initiate Public Safety

Protection Measures

- Determine and isolate the hazard area.
- □ Identify any affected area users and transients. (Houses, businesses, guides/outfitters, trappers, rights holders, other industrial operators, etc.)
- Determine the appropriate protection measure for the affected area users. (Evacuation or shelter-inplace)
- □ Coordinate evacuation with the local authority (First Nation), if required.
- □ Utilize TV and Radio to notify people in immediate evacuation situations, if required.

Use the following resources:

- Section 1: Initial Response (Protection Measures Flowchart)
- Section 4: Emergency Response Procedures (Protection Measures)
- Area Specific Information (Map)

Roadblocks

- □ Follow safety procedures to safely establish roadblocks wherever a road intersects with the main egress and advise vehicles to reroute.
- □ Record all vehicle encounters. Complete the following forms: ICS 214, B3 & B4.
- □ Gain permission from the Safety Group Supervisor for response vehicles to enter the hazard area.
- □ Provide status updates to the Safety Group Supervisor at established intervals.

Use the following resources:

- Section 2: Roles & Responsibilities (Roadblocks)
- Section 6: Forms
- Area Specific Information (Map)

Rovers

- Dispatch Rovers to patrol the hazard area
- □ Follow safety procedures and have appropriate PPE.
- □ Search the hazard area for transients.
- □ Assist those that require evacuation assistance.
- □ Post notices as required.
- Record all contacts, communications and monitoring readings using the following forms: ICS 214, B3 & B5.
- Provide status updates to the Safety Group Supervisor at established intervals.

Use the following resources:

- · Section 2: Roles & Responsibilities (Rovers)
- Section 6: Forms
- Area Specific Information (Map)

Reception Centre Rep

- If personnel or transients are evacuated, dispatch a Reception Centre Representative to the Artemis Vanderhoof office.
- □ Meet and register evacuated personnel and transients.
- Record contact information for those who choose to stay elsewhere. Complete the following forms:
 ICS 214, B1, B2 & C2.
- Regularly provide status updates to the Safety Group Supervisor (those who have arrived and those who have not yet arrived).

Use the following resources:

- Section 2: Roles & Responsibilities (Reception Centre Rep)
 Section 6: Forms
- Section 6. Forms

Telephoners

- □ Establish a Telephoner Team to notify known surface developments to evacuate or shelter-in-place as required.
- □ Follow-up phone calls to address known surface development inquiries.
- □ Record all phone calls and communications using the following forms: ICS 214, B3, B6, B7, & B8.
- □ Regularly provide status updates to the Safety Group Supervisor.

Use the following resources:

- · Section 2: Roles & Responsibilities (Telephoners)
- Section 6: Forms

Response ii & Responsit Ongoing 1 2: Roles 8 Refer to Section 2 Step 5 Response **Incident Briefing** Note: Initial Response takes place over a single operational Step 3 period (optimally 8 to 12 External Notification 95% of all hours). incidents will be Initial Step resolved within the first Step 2 operational period. Internal Notification Step 1 Level of Emergency

First On-Scene

Actions

Reactive Phase

in ibilities

Five Step Initial Response Guide







Risk Matrix for Classifying Incidents

Impact Hazard Effect / Consequence								
Impact	(Where			ierrce Consequence with the higher	st rating)			
(Additional 'Loss Types' may exist for an	Level 1	Level 2	Level 3	Level 4	Level 5			
event; identify & rate accordingly	Insignificant	Minor	Moderate	Significant	High			
Business Unit Supply, Demand and Financial (Business Interruption / Material Damage & OTHER Consequential Losses)	No disruption to operation < 0.5% materiality	Brief disruption to operation > 0.5% – 5% materiality	Partial shutdown > 5% - 20% materiality (> US \$100k - US	Partial shutdown > 20% - 100% materiality (> US \$1m - US	Substantial or total loss operation / materiality			
Property Damage/Loss to Process	(< US \$10k)	(> US \$10k - US \$100k)	\$1m)	(> 05 \$1m = 05 \$10m)	(> US \$10m)			
People – Safety and Health	First aid case.	Medical treatment case.	Lost time injury – including restricted work.	Permanent disability or single fatality.	Numerous permanent disabilities or multiple fatalities.			
People – Occupational Health	Exposure to health hazard resulting in temporary discomfort.	Exposure to health hazard resulting in symptoms requiring medical intervention and full recover (no lost time)/	Exposure to health hazards / agents (over OEL) resulting in reversible impact on health (with lost time) or change with no disability or quality loss of life.	Exposure to health hazards / agents (significantly over OEL) resulting in irreversible impact on health with loss of quality of life or single fatality.	Exposure to health hazards / agents (significantly over OEL) resulting in irreversible impact on health with loss of quality of life of numerous groups / populations or multiple fatalities.			
Environmental	Lasting days or less; affecting small area (metres); receiving environment with no sensitive habitats and no biodiversity value (e.g. urban / industrial areas).	Lasting weeks; affecting limited area (hundreds of metres); receiving environment altered with little natural habitat and lo diversity value	Lasting months; affected extended area (kilometer's); receiving environment comprising largely natural habitat and moderate biodiversity value.	Lasting years; affecting area on sub- basin scale; receiving environment classified as having sensitive natural habitat with high biodiversity value.	Permanent impact; affecting area on a whole basin or regional scale; receiving environment classified as highly sensitive natural habitat with very high biodiversity value.			
Legal & Regulatory	Technical noncompliance. No warning received; no regulatory reporting required.	Breach of regulatory requirements. Report / involvement of authority. Attracts administrative fine.	Minor breach of law; report / investigation by authority. Attracts compensation / penalties / enforcement action.	Breach of the law, may attract criminal prosecution, penalties / enforcement action. Individual license temporary revoked.	Significant breach of the law. Individual or company lawsuits; permit to operate substantially modified or withdrawn.			
Social / Community	Minor disturbances of culture / social structures.	Some impacts on local population, mostly repairable. Single stakeholder complaint in reporting period.	Ongoing social issues. Isolated complaints from community / members / stakeholders	Significant social impacts. Organized community protests threatening continuity of operations.	Major widespread social impacts. Community reaction affecting business continuity. "License to operate" under jeopardy.			
Reputational	Minor impact – public awareness may exist but no public concern.	Limited impact – concern/complaints from certain groups / organizations (e.g. NGOs).	Local impact, public concern / adverse publicity localized within neighbouring communities.	Suspected reputational damage; local / regional public concern and reactions.	Noticeable reputational damage – national / international public attention and repercussions.			

	Examples	Risk Rating						
Likelihood		Level 1	Level 2	Level 3	Level 4	Level 5		
	Events)	Insignificant	Minor	Moderate	Significant	High		
5 Almost Certain	The unwanted event has occurred frequently; occurs in order of 1 or more x per year & is likely to reoccur within 1 year.	11 (M)	16 (S)	20 (S)	23 (H)	25 (H)		
4 Likely	The unwanted event has occurred infrequently; occurs in order of less than 1 x per year & is likely to reoccur within 3 years.	7 (M)	12 (M)	17 (S)	21 (H)	24 (H)		
3 Possible	The unwanted event has happened in the business at some time; or could happen within 10 years.	4 (L)	8 (M)	13 (S)	18 (S)	22 (H)		
2 Unlikely	The unwanted event has happened in the business at some time; or could happen in 30 years.	2 (L)	5 (L)	9 (M)	14 (S)	19 (S)		
1 Rare	The unwanted event has neve been known to occur in the business; or it is highly unlikely that it will occur within 30 years.	1 (L)	3 (L)	6 (M)	10 (M)	15 (S)		

Risk Rating	Risk Level	Guidelines for Risk Matrix
21 to 25	High	A high risk exists that management's objectives may not be achieved. Appropriate mitigation strategy to be devised immediately.
13 to 20	Significant	A significant risk exists that management's objectives may not be achieved. Appropriate mitigation strategy to be devised as soon as possible.
6 to 12	Moderate	A moderate risk exists that management's objectives may not be achieved. Appropriate mitigation strategy to be devised as part of the normal management process.
1 to 5	Low	A low risk exists that management's objectives may not be achieved. Monitor risk, no further mitigation required.

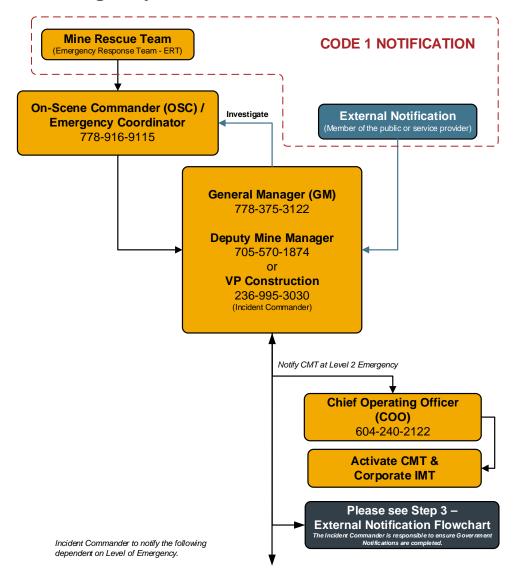


Level of Crisis and Communication Responses							
Incident Levels							
Level 1 / 2 Contained Insignificant / Minor	Level 3 Uncontained Moderate	Level 4 / 5 Incident Significant / High (Crisis)					
Event has clearly defined circumstances, Life or property is not threatened, It does not have adverse reputational effects Examples: minor spill, minor loss of production, minor operational incident, incident with no injuries or injuries not requiring hospitalization. Managed by affected operations area.	Event is emerging and is not clearly defined, Life, property, or the environment may be threatened, The possibility of adverse reputation effects is high Examples: Operational issue that impacts production plans. Contained fire / explosion. Short term environmental incident (unplanned release). Injuries to people requiring hospitalization. Corporate governance issue.	There is acute risk to life and/or property, There is a serious adverse public comment or criticism Examples: Incident involving serious injuries/death. Major equipment damage, loss of production, interruption to ongoing business, or environmental damage. Labour disruption.					
	Communications Response						
*Please note we rarely broadly communicate Stage One incidents. Depending on the incident, the on-call delegate may be required to prepare: • Employee communications (Bulletin or Radio, Article in the Artemis Newsletter) Typically, Stage One incident learnings are communicated within the operations area at the discretion of area management. Learnings from the incident may be discussed and shared across the site in a Safety Alert, HSE Bulletin or site wide email.	Onsite Communications notifies the Incident Management Team (IMT), Communications within 12 hours of incident, provides basic by AP Control Room sent e-mail if required pager. If necessary, the Corporate Incident Communications procedure is activated. If necessary, Communications prepares: Background info Key messages/Q&As Local news release and/or stakeholder bulletin Employee communications Other steps as per Incident Plan (see Specific Roles and Responsibilities)	On site Communications immediately alerts the incident Management Team (IMT), Communications which starts the call out procedure by the AP Control Room sent via e-mail / pagers. Manager, Communications prepares: Plan/strategy Background info Key messages/Q&As News release(s) via Trained spokesperson Broad employee communications Broad stakeholder Relations plan Post Incident strategies					
		For material events, all disclosure requirements must be met.					

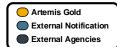
Section 1: Initial Response Page 2 of 2



Internal Emergency Notification Flowchart



Incident Level	Phone Number / Radio Channel	Level 1	Level 2	Level 3	Level 4	Level 5
Responsible	Thore Number / Radio chariler	Insignificant	Minor	Moderate	Major	Critical
Area Manager / Superintendent	TBD – For future consideration	Immediate	Immediate	Immediate	Immediate	Immediate
General Manager	778-375-3122	Immediate	Immediate	Immediate	Immediate	Immediate
Deputy Mine Manager	705-570-1874	Immediate	Immediate	Immediate	Immediate	Immediate
VP Construction	236-995-3030	Immediate	Immediate	Immediate	Immediate	Immediate
Asset Protection CCTV / Radio Channel Dispatch	Security Channel	Immediate	Immediate	Immediate	Immediate	Immediate
Emergency Response Coordinator	ERT Channel	Immediate	Immediate	Immediate	Immediate	Immediate
Department Superintendent	TBD – For future consideration	Immediate	Immediate	Immediate	Immediate	Immediate
Safety Emergency Response Security Health Director	604-735-3664	Immediate	Immediate	Immediate	Immediate	Immediate
JOHSC Worker Member	N/A	Immediate	Immediate	Immediate	Immediate	Immediate
Emergency Response Security Health Manager	780-717-0684	Immediate	Immediate	Immediate	Immediate	Immediate
Danastonant Managan	N1/A	Immediate	luana a di ata	As per Safety	lancar a di ata	luana a di ata
Department Manager	N/A	immediate	immediate	Manager	Immediate	immediate
Safety Manager	Work 1	Immediate	Immediate	Immediate	Immediate	Immediate
HR Manager	306-391-9955	Immediate	Immediate	Immediate	Immediate	Immediate



Note: After Initial Notifications are complete, please reference Step 4 – Incident Briefing and begin building the initial Organizational Structure (pg 3) within the ICS 201 Incident Briefing form.

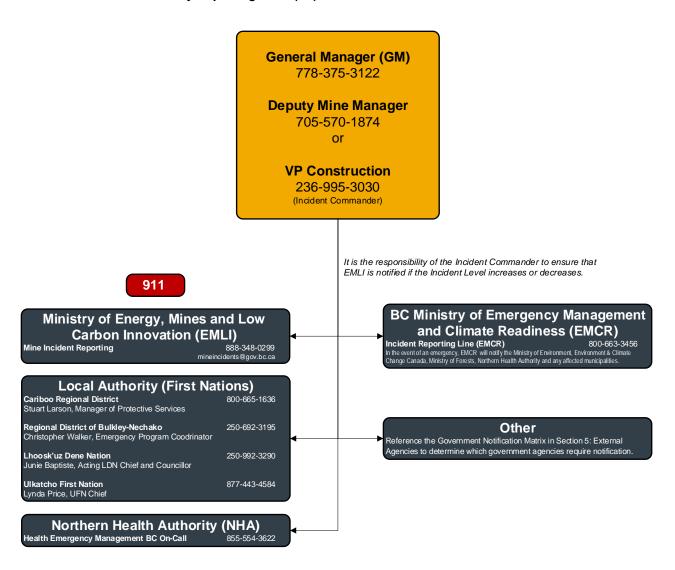


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External Emergency Notification Flowchart

Prior to commencing contact of the agencies below, make sure a completed Mine Incident Preliminary Reporting Form (A1) is available and at hand for reference.



Refer to Section 5: External Agencies for the Government Notification Matrix, Provincial Lead and Supporting Agencies and Federal Agencies required to be contacted or notified.

Refer to Area Specific Information for a listing of contacts for government agencies and support services.



Note: After Initial Notifications are complete, please reference Step 4 – Incident Briefing and begin building the initial Organizational Structure (pg 3) within the ICS 201 Incident Briefing form.

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Step 4 – Incident Briefing



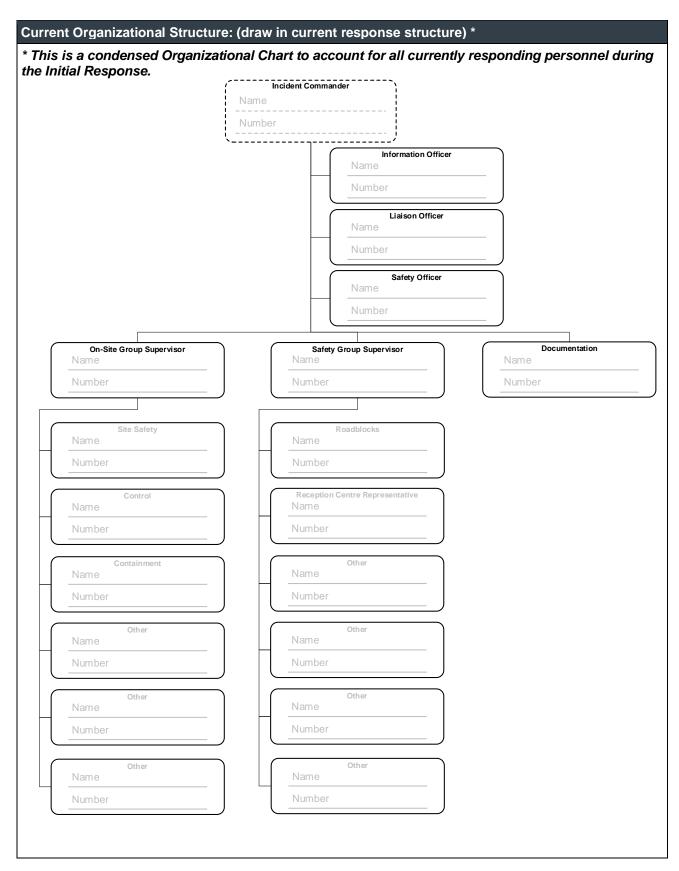
Incident Name:							
Date/Time Initiated:							
Prepared By: ICS Position:							
Level of Emergency Level 1		□ Level 1	□ Level 2 □ Level 3		☐ Level 4	□ Level 5	
Map Sketch: Note: Maps can be drawn or attached here.							
Note. Maps	Carr be drawi	n or allached he	ere.				
Situation Su	ummary: (W	rite description	n or attach A1)			
Safety Brief	ing:						



Current and Planned Objectives:							
Priorities: (1) Life Safety (2) Incident Stabilization (3) Environment & Property							
1. Ensure Safety of Personne	l:	4. Minimize Economic Impacts:					
☐ 1a. Identify hazard(s).		☐ 4a. Consider tourism and local economic impacts.					
☐ 1b. Establish site control (hot security).	zone, warm zone, cold zone, &	☐ 4b. Protect Blackwater and other private assets, as resources permit.					
☐ 1c. Isolate hazard area and Ir	nitiate Site Safety Actions.	 4c. Establish damage claims process (Blackwater Gold internal process). 					
☐ 1d. Consider evacuations if no	eeded.	5. Keep Stakeholders and Site Informed of Response Activities (Starting at Level 2 Emergencies):					
☐ 1e. Establish helicopter restric	ctions.	☐ 5a. Provide forum to obtain stakeholder input and concerns.					
☐ 1f. Monitor air in impacted are	eas	☐ 5b. Provide stakeholders with details of response actions.					
☐ 1g. Develop safety plan for peare conducted.	ersonnel and ensure safety briefings	☐ 5c. Identify stakeholder concerns and issues, and address as practical.					
2. Control the Source:		☐ 5d. Provide timely safety announcements.					
☐ 2a. Complete emergency shu	tdown.	☐ 5e. Conduct regular news briefings.					
☐ 2b. Conduct firefighting.		☐ 5f. Conduct public meetings, as appropriate.					
☐ 2c. Initiate temporary repairs.		☐ 5g. Blackwater Legal department must be involved.					
3. Manage a Coordinated Res		** All communication, both internal and external, needs to be under legal privilege.					
☐ 3a. Complete or confirm notifi							
☐ 3b. Establish a unified comma (command post, etc.).	and organization and facilities						
3c. Ensure mobilization and trepersonnel and equipment.	racking of resources and account for						
☐ 3d. Complete documentation.							
Current and Planned Action	ons, Strategies and Tactics:						
Time:	Actions:						
HHMM							
ННММ							
HHMM							
HHMM							
HHMM							
HHMM							
HHMM							
HHMM							
ННММ							

Section 1: Initial Response





Note: Refer to ICS 207 Incident Organization Chart in Section 6: Forms (Blue Tab) for full command structure.

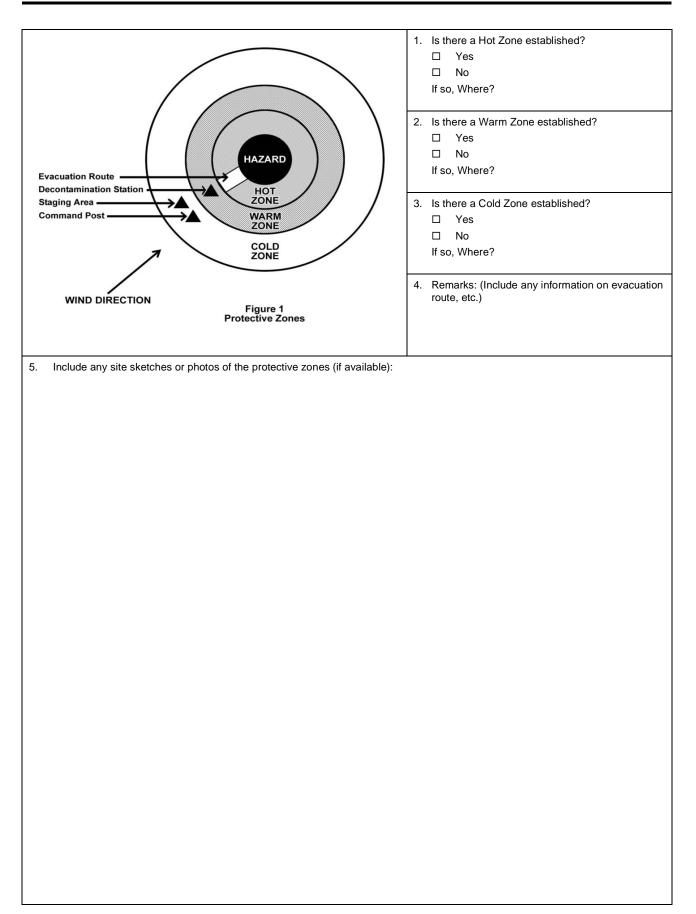


Resources Summary:							
Resource(s)	Time Called	ETA	On-Site	Notes (Location/Assignment/Status)			
External Notification	s: (Governmen	t, Local	Authorities	s, First Nations, etc.)			
Agency	Time Called			Notes			
EMLI							
EMBC							
Cariboo R.D.							
R.D. of Bulkley-Nechako							
Lhoosk'uz Dene Nation							
Ulkatcho First Nation							
Other							
Other							
Other							
Other							

Step 4 – Incident Briefing

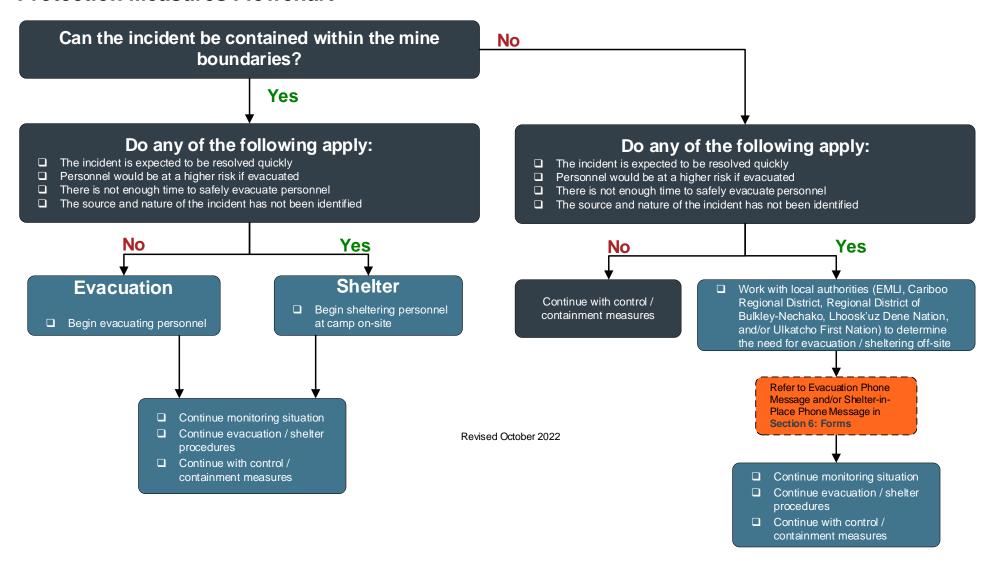


Si	te Safety and Hazard Control Analysis			
Si	te Control			
1.	Is Site Control set-up? ☐ Yes ☐ No	Is there an On-Scene Command Post? If so, where?	□ Yes	□No
3.	Have all personnel been accounted for? ☐ Yes ☐ No ☐ Don't Know	Injuries: Fatalities: Unaccounted: Trapped:		
4.	Are observers involved or rescue attempts planned? Observers: □ Yes □ No Rescuers: □ Yes □ No	5. Are Decontamination areas setup? If so, where?	□ Yes	□ No
Ha	azard Identification, immediate signs of: (if yes, o	explain in remarks)		
1.	Electrical line(s) down or overhead? \square Yes \square No	2. Unidentified liquid or solid products visible?	☐ Yes	□No
3.	Wind direction across incident: ☐ Towards your position Wind Speed: ☐ Away from your position	4. Is a safe approach possible?	□ Yes	□No
5.	Odours or smells? ☐ Yes ☐ No	6. Vapours visible?	□Yes	□No
7.	Holes, ditches, fast water, cliffs, etc. nearby? ☐ Yes ☐ No	8. Fire, sparks, sources of ignition nearby?	□Yes	□No
9.	Is local traffic a potential problem? ☐ Yes ☐ No	10. Product placards, colour codes visible?	□ Yes	□No
11.	Other Hazards?	12. As you approach the scene from the upwind a change in the status of any of the above?	side, do y □ Yes	/ou note ☐ No
13	Remarks:			
Ha	azard Mitigation: have you determined the neces	sity for any of the following?		
1.	Entry Objectives:			
2.	Warning sign(s), barriers, colour codes in place? ☐ Yes	s □ No		
3.	Hazardous material being monitored?			
4.	Protective gear / level:	4a. Gloves:		
	4b. Respirators	4c. Clothing:		
_	4d. Boots:	4e. Chemical cartridge change frequency:		
5.	Decontamination 5a. Instructions: 5b. Decontamination equipment and materials:			
6.	Emergency escape route established? ☐ Yes ☐ No Route?			
7.	Field responders briefed on hazards? ☐ Yes ☐ No			
8.	Remarks:			
Pro	otective Zones: record initial control perimeters (see Figure 1)			





Protection Measures Flowchart





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Section 2: Roles and Responsibilities

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Demobilization Unit	
Logistics Section	
Logistics Section Chief	
Communications Unit	
Medical Unit	
Food Unit	
Supply Unit	
Facilities Unit	
Ground Support Unit	
Finance / Admin Section Finance / Admin Section Chief	
Time Unit	
Procurement Unit	
Compensation & Claims Unit	
Cost Unit	
Finance / Admin Section Chief	
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Introduction

Command Structure

To maintain the ability to interact with emergency response agencies outside of the company and in keeping consistent with the Ministry of Energy, Mines and Low Carbon Innovation. The company will utilize a general procedure for an Incident Command System (ICS) as prescribed in relevant legislation. This structure is further described in the Crisis Management Duty Cards located in each Emergency Operations Centre and Incident Command Post.

Crisis Management Team (CMT)

The Crisis Management Team (CMT) will operate from the Emergency Operations Centre (EOC) located in the main administration building. CMT will be notified and activated if the site is at a Level 2 Emergency (Minor). The team's focus will be on strategic issues that may affect future operability, profitability, and reputation. The CMT will support the Incident Management Team (IMT) as needed, primarily in the areas of corporate communications, HR, and high level technical and commercial assistance. The CMT will be activated solely by the **EOC Director**.

Activating the Crisis Management Team

The General Manager, who also acts as the Incident Commander can reference the Step 1: Risk Matrix for Classifying Incidents (Risk Matrix) found in Section 1: Initial Response. If any outcome in the Risk Matrix is Level 2 (Minor), then an event in the Crisis and Emergency Management System (CEMS) should be created and the Incident Management Team notified. The Incident Commander should also notify the EOC Director that an event is about to be created.

The **Step 1: Risk Matrix for Classifying Incidents** should be reviewed regularly and if any outcome escalates to Level 2 (Minor), the **Incident Commander** will notify the **EOC Director** to activate the CMT.

The IMT should form in a different room than the Emergency Response Team (ERT) Incident Command Post (ICP) and should not hinder the initial response that the ICP is providing.

Connect to the online CEMS system.

Note: The CEMS system is also used for creating events which does not involve emergency response and are outside the scope of this MERP.

Crisis and Emergency Management System (CEMS)

The Crisis and Emergency Management System (CEMS) is designed to link the corporate headquarters and operating sites within a common incident response framework. It aims to provide organizational structure, notification guidelines, defined activation thresholds and a basic concept of operations to allow an appropriate response to any circumstance, in any geographic location, in a predictable, measurable, and consistent manner.

The Crisis and Emergency Management System aims to achieve the following:

- Provide appropriate support to an affected site in its technical response to an incident or issue.
- Minimize the impact on the company by consideration of the safety, environmental, strategic, legal, financial, and public image aspects of the event or issue.
- Ensure communications are being carried out in accordance with legal and ethical requirements.
- Identify actions which need to be taken on a broader scale than can be envisaged by those involved in overcoming the immediate threats to the company.

Incident Management Team

The IMT will operate from the Incident Command Post (ICP). The IMT gives technical, logistic, and service support to the ERT(s) through the **Operations Section Chief** as well as liaises with external stakeholders including the CMT, media and local governing bodies. The IMT will identify and hands-off strategic issues arising from the event to the CMT as appropriate. The **Incident Commander** will retain overall control of the event and the entire site.



Incident Management Team (IMT) Asset Protection (Security) Incident Commander Responsible for controlling access to the The Incident Commander is responsible site or specific areas. Keeps record of persons entering and leaving the scene/ for all elements of each role until they're area and informing IC and OSC. assigned to a nother person. Information Officer Develops and releases information about the incident to the news media, to incident personnel and to other appropriate agencies and organizations. Liaison Officer **Deputy Incident** Notifies government agencies and is the Staff contact for agency representatives Commander assigned to the incident by assisting or Can assume responsibility for a specific cooperating agencies. Command portion of the primary (Incident Commander) position, work as relief, or Safety Officer be assigned other tasks. The Deputy should always be as qualified to make decisions and manage the incident as the Develops and recommends measures for Incident Commander. assuring personnel safety, and assesses and / or anticipates hazardous and unsafe situations. Field assistants may be dispatched. General Staff Finance/Admin Section Operations Section Chief / **Planning Section Chief Logistics Section Chief On-Scene Commander** Provides planning and status services for Responsible for all incident support needs. The section is responsible for Manages all tactical operations occurring the incident. Under the direction of the incident. at the location of the incident. The Planning Section Chief, the Planning providing: facilities, transportation. Incident Action Plan provides the Section collects situation and resources communications supplies equipment status information, evaluates it, and necessary guidance. maintenance and fuelling, food services. processes the information for use in medical services, and ordering resources. developing action plans. Staging Area Manager -Time **→** Documentation → Communications Unit **Emergency Response Team** ➤ Technical Specialists → Medical Unit → Procurement Unit **On-Site Group Supervisor** Safety Group Supervisor (Mine Rescue Team) Compensation & → Situation Unit → Food Unit Focus on saving life, protecting property and Reports to the Operations Section Chief Claims Unit minimizing damage to environment. Each and is responsible for the management, Reports to the Operations Section Chief Supply Unit Cost Unit → Resources Unit project/operating site has an ERT or identified consideration and is responsible for the management, First Responders capable of dealing with any implementation of onsite activities and consideration Demobilization Unit → Facilities Unit emergency/hazard that may be foreseen as a protection activities for the duration of the I implementation of externa protection I function of its operations. activities for the duration of the incident. Ground Support Unit **Reception Centre** Site Safety Rep **Primary Roles** → Control Roadblocks to be filled Contain ment → Rovers → Telephoners

Section 2: Roles and Responsibilities



Key Response Personnel

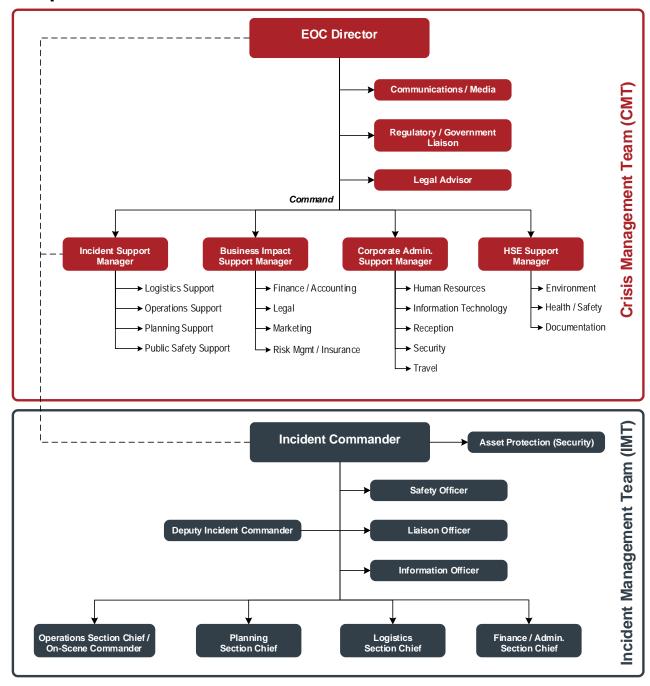
The following individuals are likely to fill the key response roles identified:

The following individuals are likely to fill the key response roles identified.		
	Emergency Response Team	TBD – For future consideration
	On-Site Group Supervisor	TBD – For future consideration
	Safety Group Supervisor	TBD – For future consideration
On-Site	Operations Section Chief / On-Scene Commander	TBD – For future consideration
	Roadblock / Rovers	TBD – For future consideration
	Telephoners	TBD – For future consideration
	Incident Commander	General Manager (GM)
	Asset Protection (Security)	TBD – For future consideration
IMT	Information Officer	TBD – For future consideration
	Liaison Officer	TBD – For future consideration
	Safety Officer	TBD – For future consideration
	General Staff	TBD – For future consideration
	EOC Director	Chief Operating Officer (COO)
	Incident Support Manager	TBD – For future consideration
Crisis Management	Communications / Media	Legal Advisor
Team (CMT)	Regulatory Govt	TBD – For future consideration
	Legal Advisor	TBD – For future consideration
	HSE Support Manager	TBD – For future consideration

Please refer to the **Area Specific Information (White tabs)** for the full list of personnel and their contact information.



Response Team Structure





^{*} Detailed role descriptions for the CMT can be found in the CMT Plan located at the corporate office EOC.



Crisis Management Team (CMT) - Quick Reference Guide

(Located at the Corporate Emergency Operations Centre)

The **EOC Director** is responsible for all elements of each role until they're assigned to another person. Below are brief descriptions of each of the key roles that the EOC Director might choose to assign right away.

EOC Director	The EOC Director is responsible for coordination of response efforts from corporate to support the Incident Management Team (IMT) and for efforts to ensure business continuity during the incident. The EOC Director determines the level of activation of the Crisis Management Team (CMT) and assigns all positions to meet the required level of activation.
Communications & Media	Serves as the coordination point for all public information, media relations and internal information sources. Communications & Media is responsible for preparing the IMT and the CMT to deal successfully with internal and external communication.
Legal Advisor	Calls into the ICP and advises the IMT on all legal issues related to the incident. In consultation with the other advisors, they provide advice on the company's regulatory and statutory obligations and issues of legal liability related to the incident. Initiates communication with the company's appointed legal firm as required. The Legal Advisor has decision all making authority regarding communication outside of the organization and all parties must seek approval through the Legal Advisor before doing so.
Regulatory / Government Liaison	Provides regulatory guidance and advice to the CMT as well as to be a liaison between responding government agencies and the company. The Regulatory / Government Liaison is responsible for providing support to the field Liaison Officer.
Incident Support Manager	The Incident Support Manager is the main link between the IMT and the CMT and is the main informant for the CMT. The Incident Support Manager speaks directly with the field Deputy Incident Commander, if assigned, or the field Incident Commander. The Incident Support Manager provides operational, safety, planning and logistics advice and support to assist the IMT with developing an effective Incident Action Plan (IAP).
Business Impact Support Manager	The role of business impact is to identify and work to mitigate all of the negative impacts of the incident on the business as well as to provide business advice and support. The Business Impact Support Manager provides support to the company in the areas of finance / accounting, legal, marketing, risk management and insurance.
Corporate Admin Support Manager	The Corporate Admin Support Manager provides administrative and technical support to the company in the areas of human resources, information technology, travel, security, and reception.
Health, Safety & Environment Support Manager	The Health, Safety & Environment Support Manager is responsible for providing Health, Safety & Environmental support to the IMT. The Health, Safety & Environment Support Manager is also responsible for managing the health / safety / environmental / planning / documentation activities of the CMT.



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Incident Management Team – Command Staff

Incident Commander

Role Description

The **Incident Commander** is in charge of overall management of the incident and Incident Management Team (IMT) and must be fully qualified to manage the incident. As incidents grow in size or complexity, a more highly qualified **Incident Commander** may be assigned by the company.

Note: The highest ranking authority arriving at the site of the incident (first on-scene) becomes the **Incident Commander** and establishes command and control. The first on-scene will remain the **Incident Commander** until there is formal transfer of command to a more senior company employee and / or qualified personnel.

Initial Response

Refer to the 5 Step Initial Response Guide in Section 1: Initial Response

Step 1: Level of Eme	ergency
----------------------	---------

- ☐ If necessary, investigate and confirm the emergency. Take appropriate safety precautions (PPE, SCBA, etc.). Ensure personal safety at all times.
- □ Determine the Level of Emergency using the Step 1: Risk Matrix for Classifying Incidents found in Section 1: Initial Response.

Step 2: Internal Notification

- □ Follow the Internal Emergency Notification Flowchart outlined in Section 1: Initial Response to contact required field resources. Refer to the **Section 2: Roles and Responsibilities / Response Team Phone List.** Relay the information from the **Mine Incident Preliminary Reporting Form (A1)**. Mobilize internal resources to the site, to the Incident Command Post (ICP) or place them on standby as required.
- □ Contact required company resources and to communicate the level of emergency. Refer to **Section 2**: Roles and Responsibilities / Response Team Phone List.

Step 3: External Notification

□ Follow the External Emergency Notification Flowchart in Section 1: Initial Response for communication structure and the **Provincial Notification Matrix** in Section 5: External Agencies to determine which external agencies need to be notified. Refer to **Area Specific Information** for further contacts specific to the location of incident.

Step 4: Incident Briefing

- ☐ The following positions are always filled regardless of the size of the incident: Incident Commander, On-Site Group Supervisor and Documentation.
- □ Assess the situation, identify the incident source, and consider how to stop the source. Carry out a site assessment that includes the following: identify hazardous materials, evaluate risk to workers and the public, determine the potential for the incident to escalate, identify safety concerns, determine which other company's facilities are involved.
- □ Detail and prioritize the objectives for the next operational period taking into consideration the priorities of (1) Life Safety, (2) Incident Stabilization, (3) Environment & Property using the ICS 201 Incident Briefing Form.
- □ Assign other positions as required to meet the identified objectives. Review and complete the ICS 207 Incident Organization Chart in Section 6: Forms. Depending on the scale of emergency, all positions may not be assigned. The Incident Commander assumes responsibility for all unassigned roles until personnel have been assigned to them.
- ☐ Conduct a role review with each of the positions above to ensure they clearly understand their roles and responsibilities.



	Incident Commander		
	Develop detailed plans of action (strategies) to achieve the objectives and determine what tactics and resources are required to implement the strategies (safety services, etc.).		
	Activate the Incident Command Post (ICP). Refer to the Appendices for Incident Command Post activation guidelines.		
	Ensure the Planning Section posts and updates the status board with incident details.		
Ste	ep 5: Site Safety		
	Use the Protection Measures Flowchart located in Section 1: Initial Response to assist with determining if evacuation / shelter is required.		
	Ensure the affected personnel are contacted and advised to shelter or evacuate as required.		
	Continue with control / containment measures.		
	Ongoing Response		
	Refer to the Five Step Ongoing Response Guide in Section 2: Ongoing Response		
	Establish a method to track responders and resources to ensure they are accounted for at all times.		
	Monitor implementation of IAP and revise as the situation dictates. Prepare for next operational period.		
	Support the Operations Section Chief in the preparation of an incident control and containment action plan.		
	Ensure each section chief has adequate staff, is not violating span of control and clearly understands the roles and responsibilities.		
	Conduct frequent Command Staff and General Staff meetings and regularly update the Crisis Management Team .		
	Request additional specialist support from Crisis Management Team if required.		
	If transfer of command occurs, an incident status briefing must take place. Provide all documentation and review situation status, objectives and priorities, current organization and resources, facilities, communications plan, concerns, and introductions to staff.		
	As the emergency is brought under control, the decision to downgrade the level and/or stand down the emergency will be determined in consultation with the Incident Commander and the applicable government regulator.		
	The Demobilization Unit will develop and implement objectives/strategies for demobilization.		
	Establish communications, exchange information and coordinate activities with other relevant response		



Deputy Incident Commander

Role Description

The **Deputy Incident Commander** may assume responsibility for a specific portion of the primary position, work as relief, or be assigned other tasks. The **Deputy** should always be as qualified to make decisions and manage the incident as the **Incident Commander**.

☐ If no scribe has been assigned to the Incident Commander , support the Incident Commander be documenting details of the emergency, focusing on activities and decisions made.	у
☐ Record, update and maintain a chronological summary of the incident including:	
☐ Names of personnel in each assigned position and their location	
☐ Control and containment measures	
☐ Environmental monitoring information	
☐ Injuries / deaths / missing persons	
☐ Phone calls	
☐ Actions and decisions	
☐ Status of the protection actions	
☐ Manage the flow of traffic to and communication with the Incident Commander so that he can focus or managing the incident.	n
☐ Conduct status update meetings.	
☐ Provide status to head office.	
☐ Deal with some day-to-day decision making.	
☐ Assume duties of the Incident Commander, if required.	
☐ Maintain communication with the Incident Commander.	



Asset Protection (Security)

Role Description

The **Asset Protection (Security)** reports to the **Incident Commander** and is responsible for controlling access to the site or specific areas of Mine Site as advised by the IMT. **Asset Protection** is responsible for keeping records of persons entering and leaving the scene/area and for informing the **Operations Section Chief** and IMT of all activities at the control point or requests from the **Operations Section Chief**.

Chief and IMT of all activities at the control point or requests from the Operations Section Chief.		
Responsibilities – Pre-Emergency		
 □ Duties to be covered in site Emergency Response and Scene Management Training □ Remain up to date with the Emergency Response Procedures □ Remain up to date with AP Standard Operating Procedures 		
Responsibilities – Immediate Actions		
☐ Initiate and record all details of emergency activation call in the Mine Incident Preliminary Reporting Form (A1)		
 □ Maintain a constant information flow from the incident scene to the IMT □ Be sure affected Area Manager is informed 		
☐ Track activation of the Emergency Response Team		
 □ Secure all points of entry are to prevent any unauthorized access to the site □ Communicate with the HSE Advisor and Incident Commander regularly and update them on Emergency Response Team, Medical Unit and Asset Protection (Security) status. 		
 □ Establish scene preservation status □ Track all personnel and vehicles entering and exiting the site are documented □ Initiate and update Individual Logbook 		
□ Provide Asset Protection (Security) to assist with scene control, scene documentation and investigation as required		
☐ Liaise with Law Enforcement and outside Emergency Services as required		
Responsibilities – During Incident		
Be prepared to: Advise on site policy and procedure compliance Control the scene Continuous communication with On-Site Supervisor and Incident Commander Continue Site Access Controller duties Perform other duties as directed Facilitate the entry of approved personnel Support Incident Commander and Deputy Incident Commander Act as Alternate Deputy Incident Commander if required Liaise with Law Enforcement and outside emergency service as required		
Responsibilities – Post Emergency		
□ Attends debrief the Emergency Response Team.□ Contribute to the incident report as required.		



Information Officer

Role Description

The **Information Officer** is responsible for developing and releasing information about the incident to the news media, to incident personnel and to other appropriate agencies and organizations. All communication outside of the organization must seek approval through the **Legal Advisor** first.

Receive incident briefing from the Incident Commander before contacting external agencies.
Prepare regular status updates that will be provided to internal company personnel to keep them apprised of the situation.
Identify and document any media involvement that has already taken place.
If the media statement hasn't yet been prepared ensure that the generic media statement from the MERP is communicated and being used in the field.
Assist head office with the preparation of a preliminary media statement if required using the Preliminary Media Statement form.
Document all communications with the media using the C2 Media Contact Log.
Develop a detailed media strategy for the incident.
Designate and prepare media briefing rooms away from the Incident Command Post.
Organize tours and photo opportunities if required.
Maintain communication with the Incident Commander.
Media releases must be coordinated with applicable regulatory agency.
If necessary, coordinate with and use broadcast media to notify surface developments in the hazard area.
Work with Communications / Media to develop a communications plan that includes establishing protocols for responders and all company personnel as required to ensure incident information remains confidential (i.e. restriction on cell phone usage for photography, social media, speaking to the media, etc.).



Liaison Officer

Role Description

The **Liaison Officer** is responsible for notifying government agencies and is the contact for agency representatives assigned to the incident by assisting or cooperating agencies. All communication outside of the organization must seek approval through the **Legal Advisor** first.

□ Complete Mine Incident Preliminary Reporting Form (A1)
☐ Refer to Section 5: External Agencies for the Government Notification Matrix. Notify as soon as possible and provide status updates at agreed upon intervals to:
☐ Government regulator
☐ Local authorities (counties, cities, towns, MDs, RDs, First Nations Reserves, etc.)
☐ Health authority
☐ Environment
☐ Provincial emergency management organization
☐ Other agencies
☐ Keep track of all government correspondence using the C3 Government Agency Contact Log.
☐ Obtain cooperating and assisting agency information that includes: contact information, radio frequencies, cooperative agreements, equipment type, number of personnel, condition of equipment and personnel, agency constraints, etc.
☐ Conduct appropriate periodic briefings to keep agencies informed of planning actions.
☐ Coordinate with any government agency representatives attending the ICP or REOC.



Safety Officer

Role Description

The **Safety Officer** develops and recommends measures for assuring personnel safety and assesses and / or anticipates hazardous and unsafe situations.

Initial / Ongoing Response
Ensure the site is evacuated if unsafe.
Initiate rescue plans if safe to do so.
Review the Incident Action Plan to identify and correct any potential occupational and health hazards.
Ensure work / rest guidelines are followed.
Continuously monitor workers to ensure they are wearing the required PPE.
Take appropriate action to mitigate or eliminate unsafe conditions, operations, or hazards.
Immediately stop any unsafe practices.
Conduct a general inspection of the facilities, food services and sanitation services soon after they become operational and follow up on a periodic basis throughout the incident for compliance to all health and safety standards. Provide a report of deficiencies.
Document both safe and unsafe acts, corrective actions taken on the scene, accidents or injuries, and ways to improve safety on future incidents.
Investigate accidents that have occurred within the incident area.
Identify "Hot Zone" and declare when responders may enter it.
Ensure that responders inside the "Hot Zone" are accounted for and initiate search if required.

☐ Prepare a site-specific health and safety plan.



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Incident Management Team – Command Staff, continued Incident Management Team – General Staff Operations Section Roles

Operations Section Chief / On-Scene Commander

Role Description

The Operations Section Chief / On-Scene Commander (OSC) is responsible for managing all tactical operations occurring at the location of the incident. The Incident Action Plan provides the necessary guidance. The need to expand the Operations Section is generally dictated by the number of tactical resources involved and is influenced by span of control considerations. If required, the Emergency Response Team will assume the role of the Operations Section Chief.

Initial / Ongoing Response ☐ Identify and confirm communication links. ☐ Ensure the On-Site Command Post (OSCP) is established. ☐ Manage the following positions, as required: On-Site Group Supervisor, Safety Group Supervisor. Emergency Response Team (Mine Rescue Team). ☐ In conjunction with the Incident Commander, the Planning Section Chief, and the Safety Group Supervisor, develop and implement an Incident Action Plan (IAP). ☐ Contact the Asset Protection (Security), brief on details and ensure all subsequent radio communication is on Ch # - ERT, ☐ Ensure responder safety at all times. ☐ Oversee control / containment procedures; ensure the hazard is isolated. □ Determine the current and potential environmental impact of product released, response activities, or waste disposal. ☐ Ensure that all environmental laws and regulations are complied with during emergency response operations. ☐ Provide technical advice to **Incident Commander** to determine protection measures. ☐ Assess the requirements for on-site safety supervision, personnel, equipment, and other contract services. Coordinate with **Logistics** to obtain equipment and resources. ☐ Assist the Operations Section Chief in determining whether ignition is appropriate. If at all possible, input is to be obtained from the Incident Commander, the EOC Director and the applicable government regulator. ☐ Maintain continuous communications with the **Incident Commander**.

Responsibilities – During Emergency

Issuing SCBA packs to relevant Emergency Response Team members.
Support and ensure the safety of the Emergency Response Team.
Maintain communications with the Incident Management Team (IMT) via AP Advisor.
Ensure the Response Manager through Asset Protection lifts "Traffic Closure" once initial response
actions are completed via ALL CALL.
Brief the ERT and establish a response plan to contain and resolve the emergency.
Ensure that the IMT Response Manager is regularly updated on the situation
Evacuate affected personnel as required.
Ensure the incident area is secured and safe with the assistance of the Asset Protection (Security) .
Ensure that no one interferes with the incident scene, except when conducting response actions with the
assistance of Asset Protection (Security).
Commence actions to contain and control the situation.
Ensure that the Emergency Response Team has all the support they require to operate.
Cooperate with and coordinate the efforts of external agencies supporting the response if required.
Ensure that all relevant details about the incident have been recorded and if possible, photographed with
the assistance of Asset Protection (Security).
Ensure that a list of witnesses to the incident has been compiled and provided to Asset Protection
(Security)

☐ Advise the Asset Protection (Security) when the emergency is complete and Asset Protection

(Security) to relay to the Incident Commander.



Operations Section Chief / On-Scene Commander Responsibilities – Post Incident

Responsibilities – Post Incident	
☐ Develop the incident report for approval by the Incident Commander or designate.	
☐ Collect and file all environmental documentation applicable to Ministry requirements.	
☐ Ensure allocated post-crisis follow-up actions are completed.	
☐ Advise on environmental related issues at the post-crisis review (PCR).	
☐ Assist with the incident investigation.	
☐ Assist Legal Advisor as required.	
Review and draft relevant improvements to the IMP	



Staging Area Manager **Role Description** The Staging Area Manager is responsible for managing all activities within a Staging Area. **Initial / Ongoing Response** ☐ Establish a staging area near the incident site and outside of the hazard area. When choosing a site for the staging area ensure the following conditions are met: ☐ Adequately sized site that is stable and level with suitable access roads □ No entry problems such as narrow approach ways, gates, power lines, buried pipelines, etc. □ Approval has been received from landowner ☐ Reception of communication equipment is adequate ☐ 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 ☐ Coordinate traffic and maintain a log of personnel and services dispatched to or arriving from the site of the emergency. Communicate this information to the Logistics Section Chief. ☐ Respond to Operations Section Chief or Incident Commander requests for resources. ☐ Confirm all workers have required training before they are dispatched to the incident. ☐ Maintain and provide status to the **Planning Section** of all resources in Staging Area. ☐ Demobilize or move Staging Area as required.

Incident Management Team - General Staff Roles, continued

Emergency Response Team (Mine Rescue Team)

Role Description

The **Emergency Response Team** (Mine Rescue Team) focuses on saving life, protecting property, and minimizing damage to environment. Each project/operating site has an ERT or identified First Responders capable of dealing with any emergency/hazard that may be foreseen as a function of its operations.

Pre-Emergency

- Attend all scheduled Emergency Response Team training activities.
- Maintain emergency readiness and response capabilities.
- Remain familiar with the roles and responsibilities of the Operations Section Chief.

Immediate Actions

- Report to the Operations Section Chief and receive information/direction on the incident.
- Deploy to the incident site.
- Assume the role of Operations Section Chief (if required).
- · Initiates debrief paperwork.

During Emergency

- Understudy the Operations Section Chief and assume the role in their absence.
- Establish cordon around the incident site and ensure it is maintained with the assistance of **Asset Protection (Security).**
- In consultation with the **Operations Section Chief**, identify and request additional resources from the Incident Management Team (IMT).
- Contribute to the development of ERT response options with the Operations Section Chief.
- Coordinate the change of shifts and hand-over procedure.
- Other duties as directed by the Operations Section Chief.

Post Emergency

- Complete any follow-up actions as directed.
- Assist with equipment emergency readiness program to facilitate ALL CALL.
- Participate in the **Emergency Response Team** post emergency debrief.
- Contribute to the incident report as required.



Incident Management Team - General Staff Roles, continued **Operations Section Roles, continued**

On-Site Group Supervisor

Role Description

On-Site Group Supervisor is responsible for coordinating all activities of Control, Containment and Site Safety at the scene of the emergency / incident. All communication outside of the organization must seek approval through the Legal Advisor first.

Initial / Ongoing Response

Ensure all personnel are accounted for. Release non-essential personnel from the site.
Oversee and maintain control of all on-site personnel.
Establish On-Site Command Post (OSCP).
Obtain incident briefing and environmental impact information.
Coordinate activities of Staging Area Manager, Site Safety, Control and Containment.
Call police, fire and ambulance as needed.
Coordinate with ambulance / fire / RCMP / regulatory agencies / spill co-ops.
Conduct meetings with on-site personnel to review action plans, communication, and safety.
Request additional resources needed to implement on-site response actions.
Supervise the execution of the on-site response actions.

Site Safety

Role Description

Site Safety is responsible for responder safety and safety advice at all times at the scene of the emergency / incident.

Initial / Ongoing Response		
☐ Assess hazards & potential risks		
☐ Ensure responder safety at all times		
☐ Ensure that on-site personnel are taking appropriate safety actions.		
☐ Maintain security of the site to ensure authorized personnel are allowed access and to protect response personnel.		
☐ Ensure security of any evidence for investigative purposes.		
☐ Ensure workers that show signs of stress, fatigue, and other symptoms are demobilized and sent for treatment if necessary.		
☐ Maintain records of all injuries and on-site medical treatments.		
☐ Conduct responder safety orientations.		
☐ Monitor activities and conduct a head count on a regular basis.		
☐ Continually evaluate risks and stop unsafe activities immediately.		
☐ Recommend alternatives for activities that are considered to be unsafe.		



Incident Management Team – General Staff Roles, continued Operations Section Roles, continued

Control
Role Description
Control is responsible for implementing measures designed to bring the incident under control or stop the incident.
Initial / Ongoing Response
☐ Assist with the development of control procedures
☐ Identify immediate response tactics (i.e. offensive / defensive response tactics). Only when safety is assured, take immediate operational actions to bring the incident under control (i.e. shut down, isolate, de-pressure, etc.).
☐ Provide or seek technical / engineering advice around all control-related issues.
☐ Inform Operations Section Chief of any interactions with regulatory agencies or environmental personnel.
Containment
Role Description
Containment is responsible for implementing measures designed to reduce the impact of the incident on and prevent the spread of the incident to the surrounding areas.
Initial / Ongoing Response
☐ Assist with the development of containment procedures.
☐ Identify immediate response tactics (i.e. offensive / defensive response tactics). Only when safety is assured, take actions to contain the incident so as to prevent the incident from spreading offsite and to reduce the impact on the public, sensitive terrain, watercourses, etc.
☐ Provide or seek technical / engineering advice around all containment-related issues.
☐ Secure the scene and restrict access to essential and authorized personnel only.
☐ Inform Operations Section Chief of any interactions with regulatory agencies or environmental personnel.
☐ Coordinate external spill response equipment and activities (booms, dams, etc.).



Planning Section Chief

Role Description

The **Planning Section Chief** is responsible for providing planning and status services for the incident. Under the direction of the **Planning Section Chief**, the Planning Section collects situation and resources status information, evaluates it, and processes the information for use in developing action plans. Dissemination of information can be in the form of the Incident Action Plan, formal briefings, or through map and status board displays.

Initial / Ongoing Response
☐ Identify and confirm communication links
☐ Assign personnel to assume the following positions, as required: Documentation , Technical , Situation , Resources , and Demobilization
☐ Assist with setup of the Incident Command Post
☐ Review the details of the incident and support the Incident Commander with the development of a preliminary response strategy
☐ Identify the need for technical specialists.
□ Collect and analyze information on the current situation, prepare situation displays and situation summaries, and develop maps and projections.
☐ Establish special information collection activities as necessary, e.g., weather, environmental, toxics, etc.
☐ Provide technical support to the Incident Commander and work with Incident Commander to develop the Incident Action Plan (IAP).
☐ Review any changes to the Incident Action Plan (IAP) to ensure consistency.
☐ Assemble information on alternative strategies.
☐ Coordinate with Logistics to determine current available resources and resource availability for future plans of action.
☐ Establish reporting schedules.
☐ Conduct long-range and / or contingency planning.
☐ Develop plans for demobilization.
Maintain continuous communications with the Incident Commander



Documentation Unit

Role Description

The **Documentation Unit** is responsible for the maintenance of accurate, up-to-date incident files. Duplication services will also be provided by the **Documentation Unit**.

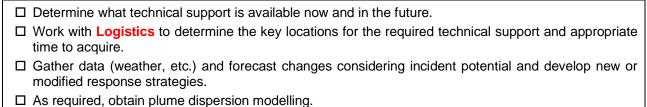
Initial / Ongoing Response	
□ Document the Incident Action Plan (IAP) strategies using the ICS 201 Incident Briefing Form provided in Section 1: Initial Response or Section 6: Forms and disseminate them to all key responders	
☐ Be prepared to document the Incident Commander's status update meetings using whiteboards, PC or Action Logs	
☐ Ensure consistent documentation	
☐ Ensure timely dissemination of all documentation.	
☐ Participate in planning meetings, capturing key information, decisions made, commitments and status.	
☐ Collect documentation from response team members and maintain a consistent system for organizing the data.	
☐ Records must be held for a minimum of 25 years as it may be requested by the regulatory agency at any point during that time. All documentation must be held throughout construction, operation, and for 25 years following the end of decommissioning of the project.	
☐ Establish duplication services.	
☐ Incident files will be stored for legal, analytical, and historical purposes.	
□ Post and maintain all Emergency Status Boards and other laminated charts in the Incident Command Post.	



Technical Specialists Unit

Role Description

Certain incidents or events may require the use of **Technical Specialists** who have specialized knowledge and expertise. **Technical Specialists** may function within the Planning Section or be assigned wherever their services are required.





Situation Unit

Role Description

The collection, processing, and organization of all incident information. The **Situation Unit** may prepare future projections of incident growth, maps, and intelligence information.

- ☐ Collect and evaluate information to establish an accurate picture of the situation and creates a detailed summary. Use this information to create maps and projections.
- ☐ Prepare, post, or disseminate resources and situation status information as required, including special requests.
- ☐ Provide photographic services and maps if required.



Resources Unit Role Description The Resources Unit is responsible for maintaining the status of all assigned resources at an incident. Initial / Ongoing Response Monitor the status and location of all incident resources / personnel responding to the incident. Oversee the check-in of all resources. Maintenance of a master list of all resources, e.g., key supervisory personnel, primary and support resources, etc. May assist in preparing the written Incident Action Plan. Maintain and post the current status and location of all resources



Demobilization Unit Role Description The Demobilization Unit is responsible for developing the Incident Demobilization Plan. Initial / Ongoing Response □ Prepare plan for the demobilization of all personnel and equipment upon resolution of the incident. □ Ensure resources in available status are still required. Identify surplus resources and probably release time. □ Debrief non-required resources and dismiss resources being demobilized. □ Coordinate demobilization with agency representatives. □ Develop incident check-out function for all units. □ Ensure the demobilization process is organized, safe and cos effective.



Logistics Section Chief

Role Description

All incident support needs are provided by the Logistics Section. The section is responsible for providing: facilities, transportation, communications, supplies, equipment maintenance and fuelling, food services, medical services, and ordering resources. Six units may be established within the Logistics Section and the Logistics Section Chief will determine the need to activate or deactivate a unit. If a unit is not activated, responsibility for that unit's duties will remain with the Logistics Section Chief.

military Origonia Response
Identify and confirm communication links.
Assign personnel as required.
List and obtain all immediate resources requested by the Incident Commander or Operations Section Chief .
Identify anticipated and known incident service and support requirements.
Maintain continuous communications with the Incident Commander.
Develop plans to move required resources to site.
Confirm spending authorities with the Finance / Admin Section.
Mobilize resources.
Move required resources to site.
Coordinate spending with the Finance / Admin Section Chief.



Communications Unit

Role Description

The Communications Unit is responsible for developing plans for the use of incident communications equipment and facilities; installing and testing of communications equipment; supervision of the Incident Communications Centre, if established; and the distribution and maintenance of communications equipment. All communication outside of the organization must seek approval through the Legal Advisor first.

Initial / Ongoing Response
☐ Establish the communications plan for the use of incident communications equipment and facilities.
☐ Install, test, distribute, and maintain all communications equipment.
☐ Advise on communications capabilities and limitations.
☐ Establish telephone, communication links, and public address systems.
☐ Establish clear and widespread communication throughout the incident.



Medical Unit Role Description The Medical Unit is responsible for all medical services for incident assigned personnel. The unit will develop procedures for managing major medical emergencies; and provide medical aid. Note: Medical assistance to the public or victims of the emergency is an operational function. Initial / Ongoing Response Arrange and provide response personnel with first aid and minor medical services. Develop Incident Medical Plan. Develop procedures for handling serious injuries of responder personnel. Provide medical aid to personnel. Assist the Finance / Administration Section with processing injury-related claims.

Note: Provision of medical assistance to the public or victims of the emergency is an operational function and would be done by the Operations Section and not by the Logistics Section Medical Unit. If there is a requirement for victims of an incident the local public ambulance service is most often utilized.



Food Unit

Role Description

Responsible for supplying the food needs for the entire incident, including all remote locations, (e.g., Camps, Staging Areas), as well as providing food for personnel unable to leave tactical field assignments. The **Food Unit** interacts with the **Facilities Unit** for location of fixed-feeding site; the **Supply Unit** for food ordering; and the **Ground Support Unit** for transporting food.

Initial / Ongoing Response

Responsible for supplying the food needs for the entire incident, including all remote locations (e.g., Camps, Staging Areas), as well as providing food for personnel unable to leave tactical field assignments.
Works with the Planning Section - Resources Unit to anticipate the numbers of personnel to be fed and develop plans for supplying food to all incident areas.
Interacts with the Facilities Unit for location of fixed-feeding site; the Supply Unit for food ordering; and the Ground and Air Support Units for transporting food.
Obtain necessary equipment and supplies and establish cooking facilities.
Order sufficient food and potable water from the Supply Unit.
Maintain inventory of food and water.
Maintain food services areas, ensuring that all appropriate health and safety measures and being followed.

☐ Supervise caterers, cooks, and other **Food Unit** personnel as appropriate.



Supply Unit Role Description The Supply Unit is responsible for ordering, receiving, processing, and storing all incident-related resources. Initial / Ongoing Response Order, receive, distribute, and track all incident equipment and supplies. Ordered all off-incident resources including: tactical and support resources (including personnel), all expendable and non-expendable support supplies. Management of tool operations, including the storage, disbursement, and service of all tools and portable non-expendable equipment.



Facilities Unit			
Role Description			
The Facilities Unit is responsible for set-up, maintenance, and demobilization of all incident support facilities except staging areas. The Facilities Unit will also provide security services to the incident as needed.			
Initial / Ongoing Response			
 □ Set-up, maintain, and demobilize incident support facilities with the exception of staging areas. □ Facilities may include: Incident Command Post, Incident Base, Camps, and other facilities within the incident area to be used for feeding, sleeping and sanitation services. □ Prepare layout of facilities; inform appropriate unit leaders. □ Will provide security services to the incident as needed. □ Contact local law enforcement agencies as required. □ Investigate and document all complaints and suspicious occurrences. □ Ensure strict compliance with applicable safety regulations. □ Provide facility maintenance services, e.g., sanitation, lighting, etc. □ Demobilize base and camp facilities. 			



☐ Develop the Incident Traffic Plan as required.

Ground Support Unit

Role Description

The **Ground Support Unit** is primarily responsible for the maintenance, services, and fuelling of all mobile equipment and vehicles, with the exception of aviation resources. The unit also has responsibility for the ground transportation of personnel, supplies, and equipment.

Responsible for the maintenance, service and fuelling of all mobile equipment and vehicles, with the exception of aviation resources.
Coordinates the transportation of all personnel, supplies, and equipment.
Update the Resources Unit with the status (location and capability) of transportation vehicles.



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Finance / Admin Section Chief

Role Description

The Finance / Administration Section Chief is responsible for managing all financial aspects of an incident. The Finance / Administration Section Chief will determine the need to activate or deactivate a unit.

Initial / Ongoing Response				
dentify and confirm communication links.				
Assign personnel to assume the following positions, as required: Time Unit, Procurement Unit, Compensation & Claims Unit, and Cost Unit.				
Review legal issues with the Incident Commander and EOC Director.				
Maintain continuous communications with the Incident Commander.				
Brief agency administrative personnel on all incident-related financial issues needing attention or follow- up.				
Manage all financial aspects of an incident.				



Time Unit

Role Description

The **Time Unit** is responsible for ensuring the accurate recording of daily personnel time, compliance with specific agency time recording policies and managing commissary operations if established at the incident.

Initial / Ongoing Response

- □ Record daily personnel time, ensure compliance with specific agency time recording policies, and manage commissary operations if established at the incident.
- ☐ Submit cost estimate data forms to Cost Unit as required.
- ☐ Ensure that all records are current and complete prior to demobilization.



Procurement Unit

Role Description

All financial matters pertaining to vendor contracts, leases and fiscal agreements are managed by the **Procurement Unit**. The unit is also responsible for maintaining equipment time records. The **Procurement Unit** establishes local sources for equipment and supplies; manages all equipment rental agreements; and processes all rental and supply fiscal document billing invoices.

Initial / Ongoing Response

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Manage finances relating to vendor contracts, leases, and fiscal agreements.
Maintain equipment time records.
Establish local sources for equipment and supplies. Coordinate with local jurisdiction on plans and supply sources.
Manage all equipment rental agreements. Establish contracts and agreement with supply vendors.
Processes all rental and supply fiscal document billing invoices.
Prepare and authorize contracts and land use agreements, as needed.



Compensation & Claims Unit

Role Description

This unit oversees the completion of all forms required by workers' compensation and local agencies. A file of injuries and illnesses associated with the incident will also be maintained and all witness statement will be obtained in writing. Close coordination with the medical Unit is essential. The **Compensation & Claims Unit** is also responsible for investigating all claims involving property associated with or involved in the incident.

Initial / Ongoing Response ☐ Handle all matters relating to compensation for injury or property damage due to the incident. ☐ Oversees the completion of all forms required by workers' compensation and local agencies. ☐ Maintain a file with all the injuries and illnesses associated with the incident. ☐ Obtain witness statements in writing. ☐ Investigate all claims involving property associated with or involved in the incident. ☐ Ensure the completion of a Resident Compensation Log for any out-of-pocket expenses incurred by evacuees. ☐ All claims must be submitted to the Finance and Legal departments for processing and disbursement of funds.

☐ If applicable, Finance and Legal will deal with insurers as well as any other extraneous circumstances

(affected parties want more, etc.).



Cost Unit

Role Description

The **Cost Unit** provides all incident cost analysis. It ensures the proper identification of all equipment and personnel requiring payment; records all cost data; analyzes and prepares estimates of incident costs; and maintains accurate records of incident costs.

Initial / Ongoing Response

Collect and evaluate cost data to establish an accurate picture of the incident costs.
Create cost summaries, cost estimates, and cost saving recommendations.
Prepare resources-use cost estimates for the Planning Section.
Identify all equipment and personnel requiring payment.



Finance / Admin Section Chief

Role Description

The Finance / Administration Section Chief is responsible for managing all financial aspects of an

inci uni	dent. The Finance / Administration Section Chief will determine the need to activate or deactivate a t.
	Initial / Ongoing Response
	Identify and confirm communication links.
	Assign personnel to assume the following positions, as required: Time Unit , Procurement Unit , Compensation & Claims Unit , and Cost Unit .
	Review legal issues with the Incident Commander and EOC Director.
	Maintain continuous communications with the Incident Commander.
	Brief agency administrative personnel on all incident-related financial issues needing attention or follow-up.
	Manage all financial aspects of an incident.



Incident Management Team – Safety Staff Safety Roles

Safety Group Supervisor

Role Description

The **Safety Group Supervisor** is responsible for the management, planning, consideration, and implementation of external protection activities for the duration of the incident.

Initial / Ongoing Response
☐ Confirm communication links with the Incident Commander and Operations Section Chief.
☐ In conjunction with the Incident Commander: determine the size of the hazard area; identify the surface developments, businesses, industrial operators, and / or transients in the area; and determine the initial protection measures to be taken. Consider the impact of major highways, navigable water courses & railways in the hazard area. Refer to Section 4: Emergency Response Procedures for guidelines on evacuation / shelter, roadblocks etc. Additional information for Roadblocks can be found in Section 2: Roles & Responsibilities.
☐ In conjunction with the Incident Commander, Planning Section Chief, and Operations Section Chief, develop and implement an Incident Action Plan (IAP).
☐ Review resident lists, area user lists, reception centres, and telephone numbers within the MERP.
☐ If required, establish a Regional Emergency Operations Centre (REOC).
☐ Assign personnel to assume the following positions as required: Reception Centre Representative, and Roadblocks.
☐ The Telephoners must have sufficient personnel to accommodate the following ratios when contacting surface developments: 1 Telephoner to every 7 residences; and 1 Supervisor for every 10 Telephoners.
☐ Consult with the Operations Section Chief to determine the need for evacuation / sheltering.
☐ Prioritize public closest to, downwind, those that have requested early notification, and those with special needs to establish the order of evacuation. Coordinate evacuation or shelter of surface developments, area users, and transients (via Telephoners and Rovers).
☐ Determine who needs to be notified and what script will be used: Early Notification / Voluntary Evacuation Message, Shelter-in-Place Phone Message, Evacuation Phone Message.
☐ If residences are evacuated, a reception centre must be established.
☐ Determine and notify landowner / occupant(s) as soon as possible.
☐ Ensure the schools / school buses are contacted to make arrangements for school age children (if applicable).
□ Determine the need for helicopters to identify human activity in the area. Refer to the Area Specific Information section (white tabs) for contacts to obtain helicopter companies.
☐ Determine the need for and location of Roadblocks to isolate and secure the area.
☐ Dispatch trained personnel with the appropriate equipment to establish roadblocks on the roads entering/exiting the hazard area.
☐ Contact the RCMP & Ministry of Transportation for permission to close 1, 2, or 3 digit provincial or secondary highways.
☐ Assess and expand the incident response to include those outside of the hazard area. Coordinate protection measures outside the hazard area with the local authority.
☐ Ensure security of evacuated homes, at roadblocks, and at the reception centre.
☐ Regularly update the Incident Commander.
☐ Confirm communication links with: Reception Centre and Roadblocks. Personnel should check in at scheduled intervals.
☐ Review and confirm evacuation of surface developments, area industrial users, transients, etc. from the area.
☐ Request that a Notice to Airmen (NOTAM) is issued to restrict the airspace above the hazard area.



Overview

In the event of an emergency in which residents need to be evacuated, a Reception Centre must be established to receive and register the evacuees. A Reception Centre Representative is assigned to manage / coordinate activities at the Reception Centre. The Reception Centre Representative continuously updtes the Safety Group Supervisor with a list of those who have, and have not, checked in at the Reception

Reception Centre Rep Roles

- ☐ Confirm Reception Centre is available for use.
- ☐ Establish Reception Centre.
- ☐ Confirm communication links.
- ☐ Receive evacuees and maintain a Reception Centre Registration Log.
- ☐ Arrange for food and accommodations for the evacuees.
- ☐ Provide evacuees with a place to request counselling services, if required.
- □ Record and follow up on all evacuees who choose to make their own accommodation arrangements.
- ☐ Arrange for temporary care of livestock (if possible) and ☐ B2 the security of evacuated property.
- ☐ Establish and oversee compensation administration activities at the reception centre.
- □ Reimburse evacuees for their immediate out-of-pocket expenses and log details on a Resident Compensation Log.
- ☐ Where possible, provide evacuees with information regarding their property, livestock, and the incident.
- □ Forward all media and incident inquiries to the Information Officer.
- □ Report all names of evacuees who have registered at the Reception Centre to the Safety Group Supervisor.
- ☐ Document activities using the ICS 214 Activity Log.
- ☐ Assist with post-incident activities.
- □ Confirm information to be released to public with the Information Officer.
- □ Address resident concerns and forward them to the Safety Group Supervisor.

Choosing a Reception Centre

- Reception Centres are usually located in schools, hotels / motels, or community halls.
- ☐ It may be useful to coordinate the location of the Reception Centre with the local authority (city, town, county, M.D., etc.).
- ☐ See Area Specific Information (white tabs) for pre-identified Reception Centres in your area.
- A Reception Centre should:
- ☐ Have a conference room of some type where a large number of people can gather.
- ☐ Have conferencing services including fax machine, internet access, and phone access.
- ☐ Be large enough to house all of the evacuees.
- ☐ Be outside of the hazard area.
- ☐ Allow residents to evacuate to the Reception Centre without travelling through the hazard area.
- ☐ Allow pets.

Tips

- ☐ Ensure you have enough staff to handle the needs of all of the evacuees
- ☐ Allow evacuees to vent their emotions.
- ☐ Do not make any promises that cannot be kept.
- ☐ Attempt to reunite families as quickly as possible.
- □ Document the details of anyone who may have trouble coping with the incident so that they can be given proper psychological support.
- ☐ Monitor whether residents that have been contacted by the Telephoners, Rovers, and Roadblock personnel have checked in at the Reception Centre.

Destination Phone #

Reception Centre personnel receive a list of evacuees from Is there an update the Safety Group Supervisor. to the evacuee status list? NO Are all evacuees accounted for? Maintain the Did the missing evacuees YES reception centre indicate that they would be and continue with using an alternative shelter YESresponsibilities. location (i.e., a friend or family members home)? YES Attempt to contact the evacuees at the phone numbers provided.

Have they arrived safely at their

destination and / or are they out

of the emergency area?

NO

Notify the Safety

Group Supervisor

of missing

evacuees.

В1

Reception Centre Feedback Loop

Reception Centre Registration Log - Example

Name (List all names in party) # of Number Arrival Depart **Resident ID** (Where they can be **Occupants** Arrived Time Last First reached) G124-A John Doe 2 19:06 19:21 555-555-5555 H131-B Doe 19:12 19:28 555-555-5555 Jane F122-A James Doe 5 3 19:20 555-555-5555

Media Statement

Comments

John and his wife arrived safely then left to stay at

Jane and her 2 children arrived safely then left to

stay with her mother in Bentley. James, his wife and 1 child arrived safely. The other

two children are away on a school trip. They will

stay at the reception centre for the night.

a friend's house in Red Deer.

NO

Refer all media inquiries to the Media Representative in Vancouver. However, if they insist on a statement, please use the following:

"We are currently dealing with the situation at hand to ensure the safety of the public, our personnel, and the environment. A statement will be released by the company once the facts have been determined. If you would like to leave your business card or phone number, a company representative will provide you with more information as it becomes available."

Note: See Section 3.0 Communication & Media for more information on media.

Record Information

Safety Group

Supervisor to

notify RCMP.

Record information on the following forms located within this Section:

- ☐ Reception Centre Registration Log
- ☐ Resident Compensation Log
- ☐ ICS 214 Activity Log
- ☐ Media Contact Log

rm	Form	Form	Fort
3S 14	B1	B2	C2
_			

A list of Reception Centres can be

found under Reception Centres

located in the Area Specific

Information section.

Reporting and Contacts

Reception	Centre	Reps	report t	o the	Safety	Group	Supervi	sor.

Phone Number:

Reception Centre

Location:

Phone Number:

Wind Direction:



Overview

In the event of an emergency, roadblock locations and road detours will be established. The company will initially establish and maintain roadblocks until relieved by highway maintenance contractors or the RCMP. Roadblock personnel will be assigned in teams of two, one member to stop approaching traffic, the other will record the information gathered and relay to the Safety Group Supervisor.

The Safety Group Supervisor must be continuously updated by Roadblock personnel so that all vehicles entering and exiting the hazard area are accounted for.

Roadblock Personnel Roles

- ☐ In conjunction with the Safety Group Supervisor, determine the need for and location of roadblocks.
- ☐ Pickup and check roadblock kits.
- ☐ Proceed to roadblock locations.
- ☐ Determine driving directions to assigned roadblock location that does not have you pass through the hazard area.
- ☐ Confirm communication links and establish communication interval times.
- ☐ Establish roadblocks to secure the hazard area.
- ☐ Follow the scripts and procedures in the MERP.
- ☐ If media personnel show up at your roadblock, forward all requests to your direct supervisor who'll direct them to the Information officer or Corporate
- ☐ Knowledge and ability to communicate safest route away from hazard.
- ☐ Report all reading changes / increases to the Safety Group Supervisor.
- □ Record all incoming and outgoing traffic, personnel, and equipment on B4 the Roadblock Log (B4)
- ☐ Forward information given to you by people passing through your location to the Safety Group Supervisor.
- ☐ Document activities using the ICS 214 Activity Log.
- ☐ Report any person that insists on going through the roadblock into the hazard area as well as any suspicious activity to the Safety Group
- ☐ Maintain communication with the Safety Group Supervisor.
- ☐ Maintain roadblock locations. Do not leave until requested to do so by the Safety Group Supervisor or until relieved by other Roadblock personnel.
- ☐ Assist with post-incident activities.

Roadblock Kit Contents - Sample

The roadblock kit may contain the following items:

Recommended

- ☐ Direct communication capability (radio, cell phone, etc.)
- MERP maps and roadblock forms
- ☐ Flashlight and batteries
- ☐ High visibility / reflective vests ☐ Orange traffic cones / reflectors
- ☐ Pens and / or pencils
- ☐ Portable rotating emergency light
- ☐ Hand-held stop sign with reflective tape ■ Waterproof bag

Optional

- ☐ Caution tane □ Rain suit
- Road barrier

Tips

- ☐ When talking to motorists at the roadblock, ONLY provide them with the information as directed by the Safety Group Supervisor.
- □ Ask for identification prior to granting access.
- ☐ You do not have the legal authority to restrict access to the area without an order from the relevant authority. Report any person who chooses to proceed, without permission, through the roadblock.
- ☐ Check with the motorists and ensure all members of their residence are accounted for and documented on the Resident Contact Log. Report any resident that is left behind in the hazard
- ☐ The roadblock should be setup to allow optimal visibility and sufficient distance for traffic to come to a safe and complete stop.
- □ Roadblock personnel should be highly visible on the side of the road and have an escape route in case of an emergency.
- ☐ DO NOT leave your position until you are directed to do so.

Choosing a Roadblock

Roadblocks should be established:

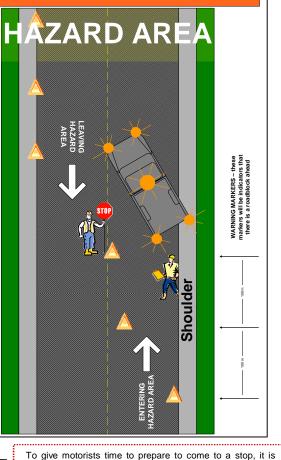
- ☐ Approximately where the hazard area intersects any highways / roads.
- ☐ Outside of the hazard area.
- ☐ At a conspicuous location where the **Roadblock** personnel will be visible to approaching traffic, providing them with enough time to safely stop.
- At a location where traffic can easily turn around or detour (consider the potential for larger vehicles such as buses, semi-trailers, drilling rigs, etc.).
- ☐ Where possible at natural roadblock locations (e.g., gates, bridges, junctions, etc).

Before Departure

- ☐ Make sure your vehicle is equipped and suitable for the travel conditions.
- ☐ Check roadblock kit to confirm all items are present (see sample of roadblock kit contents to
- ☐ Check all communications devices.
- ☐ Check that the red signaling baton flashlight is working and has spare batteries.
- ☐ Confirm that you have enough copies of the Roadblock Log form.
- ☐ Confirm the location of the roadblock with the Safety Group Supervisor and make sure you have a safe route to the assigned location that does not cross the hazardous area.

Setting up a Roadblock

- ☐ Park vehicle as illustrated. activating four way flashers and roof mounted rotating beacon.
- ☐ Put on reflective vests.
- ☐ Notify the Safety Group Supervisor once your roadblock is
- ☐ Maintain roadblock until the emergency is over and the "all clear" message is given or until relieved by other Roadblock personnel.



Reporting and Contacts

Roadblock personnel report to the Safety Group Supervisor.

Name: Phone Number:

Reception Centre

Location: Phone Number:

Wind Direction:

a minimum distance of 200 metres before the roadblock. Roadblock personnel cannot force an evacuation or restrict access to the area unless proper authority has been

recommended that the Roadblock personnel set up all

available collapsible reflective triangles 100 metres apart, at

granted. The authority for forced evacuation is gained only through the declaration of a State of Local Emergency by the local authority.

When establishing
roadblock consider
☐ Vicibility

- ☐ Distance
- ☐ Bends in the road ☐ Level of the ground
- Remember to: ☐ Remain calm ☐ Be courteous
- □ Record names
- ☐ Notify the Safety Group Supervisor

How to Stop Traffic

- 1. Hold the reflective stop / slow paddle erect and away from your body. Never wave the sign.
- 2. Look directly at the approaching driver.
- 3. Raise your free arm with the palm of your hand exposed to the driver.
- 4. Bring the vehicle to a full stop.
- 5. After the first vehicle has stopped, move to a spot (near the centre line of the roadway) where you can be seen by other approaching vehicles

Because visibility is reduced at night, it is important that you use utmost care when stopping traffic through a roadblock area, and that you protect yourself from injury by:

- ☐ Standing in a safe position on the shoulder of the road.
- ☐ Waving the red signaling baton flashlight back and forth.

Note: The red signaling baton flashlight should only be used in place of the reflective stop / slow paddle at night or in conditions of low / poor visibility.

Roadblock Script

"I am representing [Insert Company Name] and we are presently experiencing control problems ahead. This situation is serious enough to warrant restricted access beyond this point. For your own safety I must ask you not to proceed."

5a.

5b.

- ◆ Record driver's name, vehicle make, colour, etc. and at least the license plate number of all vehicles approaching your roadblock; also make a note of the time and of the direction the vehicle took when leaving (e.g., east, south, west, north) on your log sheet.
- ♦ Remember you have no legal position to restrict access to the general public. You are there to protect and notify - to protect the health and safety of the people by notifying them of the danger and secondly to protect the property of the residents who have evacuated the area.
- ♦ Should someone continue into the restricted area, regardless of your warning about personal safety, then use the 2-way radio or cell phone to notify the Safety Group Supervisor and the matter shall be immediately turned over to the Police.

Media Statement

If the media arrives at your roadblock location, company personnel may give the following statement:

"We are currently dealing with the situation at hand to ensure the safety of the public, our personnel, and the environment. A statement will be released by the company once the facts have been determined. If you would like to leave your business card or phone number, a company representative will provide you with more information as it becomes available.'

Contact the Safety Group Supervisor if a media representative arrives at your roadblock.

NEVER offer your opinion of what is happening at the location to a media person or stranger. This can be interpreted as the company's position. DO NOT give statements, other than the above message, regarding the emergency situation to the MEDIA. Refer them to the Information Officer.

Be courteous but firm.

If the questioning persists, just keep politely repeating word for word the statement above.

Record Information

Record information on the following forms located within this section:

- ☐ Roadblock Log
- □ Resident Contact Log ICS 214 Activity Log
- ICS | B3 | B4



Possible Scenarios for Roadblock Personnel:

- Motorist obeys request and drives away from the hazard area.
- Motorist is leaving the hazard area and agrees not to return until further notice.
- Emergency responders (service companies, fire, ambulance, etc.) are entering the hazard area to help respond to the incident.
- ♦ Motorist disobeys request to leave the area and enters the hazard area

In all cases, notify the **Safety Group Supervisor** and log all information.



Rover Personnel Roles

□ Confirm	resident	contact	lists	are	available.

☐ Confirm communication links.

☐ Know safe routes in and out of the hazard area.

☐ Search for transients in the hazard area.

☐ Check all buildings including barns, shops, sheds, etc.

☐ Assist, as required, with the notification, evacuation or sheltering of persons within the hazard area. Record all contact with residents using the Resident Contact Log. В3

☐ Post Evacuation Notices as required.

☐ Follow the scripts and procedures in the MERP.

□ Report all reading changes / increases to the Public B5 Safety Group Supervisor.

□ Report any suspicious behaviour to the Safety Group Supervisor who will notify the police as required.

☐ Document all activities using the ICS 214 Activity Log. ☐ Maintain communication with the Safety Group

Supervisor. ☐ Assist with post-incident activities.

Media Statement

If a media representative approaches you, company personnel may give the following statement:

"We are currently dealing with the situation at hand to ensure the safety of the public, our personnel, and the environment. A statement will breleased by the company once the facts have been determined. If you would like to leave your business card or phone number, a company representative will provide you with more information as it becomes available."

Contact the Safety Group Supervisor if a media representative approaches you.

NEVER offer your opinion of what is happening at the location to a media person or stranger. This can be interpreted as the company's position. DO NOT give statements, other than the above message, regarding the emergency situation to the MEDIA. Refer them to the Information Officer.

Be courteous but firm.

If the questioning persists, just keep politely repeating word for word the statement above.

Reporting and Contacts

Rovers report to the Safety Group Supervisor.				
Name:				
Phone Number:				
Reception Centre				
Location:				
Phone Number:				
Wind Direction:				

Evacuation Notice - Example



EVACUATION NOTICE

[Insert Company Name] has an emergency at its nearby location.

As a safety precaution, please leave the area in a (north / east / south / west) direction and proceed to the **Reception Centre located at**

[Insert Company Name] representatives will be available at the Reception Centre to address your questions or concerns.

For assistance, call [Insert Company Name] at

Thank you

Tips

Remember to

☐ Remain calm

☐ Be courteous

□ Document all actions and comments

☐ Notify the Safety Group Supervisor

Response personnel cannot force an evacuation or restrict access to the area unless proper authority has been granted. The authority for forced evacuation is gained only through the declaration of a State of Local Emergency by the local authority.

Before Departure

□ Protect vourself

☐ Ensure you are equipped with all necessary equipment:

☐ Mobile communications or other form of communication

☐ Forms

□ Vehicle (4x4) with full tank of fuel

☐ Confirm that you have enough copies of the Evacuation Notice.

☐ Confirm your assignments with the Public Safety Group Supervisor and make sure you have a safe route to the assigned location that does not cross the hazardous area.

Notifying Residents / Transients

The Safety Group Supervisor may request you to patrol the hazard area in search of transients (people passing through the area) and / or residents that couldn't be reached by phone. Make contact with transients and after providing an explanation record their names, contact information, purpose for being in the area (travelling through, live in the area, etc.), current condition, timing of your arrival, and whether or not they require evacuation assistance.

"Hi, I am [Insert Name] representing [Insert Company Name]. The company is presently experiencing control problems at a nearby location. The situation is serious enough that we are evacuating the public in the area. For your own safety I must ask you to leave the area immediately and check in with a company representative at the Reception Centre. Representatives at the Reception Centre will address any questions you may have and will make arrangements for your temporary accommodations."

☐ Ask if they will require evacuation assistance and arrange additional transportation assistance if necessary.

☐ Make sure they are all accounted for.

☐ Ensure they gather any supplies they will need for the next 24 hours (medicines, baby food, diapers,

☐ If they are able to transport themselves to the Reception Centre provide them with directions that will keep them away from the hazard.

☐ Ask them if they have any questions.

☐ Provide them with your name and contact information in case they need assistance later.

☐ Report to the Safety Group Supervisor.

Requested Evacuation Assistance

The Safety Group Supervisor may request you to provide evacuation assistance for residents that have requested it. Ensure you obtain the number of residents requiring assistance, resident's names. location (legal and address), and the reason evacuation assistance is required (medical issue, children home alone, etc). A Telephoner should have already contacted and explained the situation to the residents; however, it is a good idea to confirm with the Public Safety Group Supervisor that they know you are coming to assist them. If they have not already been informed, contact the resident to tell them you are on your way and provide an estimated time of arrival.

"Hi, I am [Insert Name] representing [Insert Company Name]. I am here to help you evacuate out of the hazard area and make sure you arrive safely at the Reception Centre. A company representative at the Reception Centre will address any questions you may have and will make arrangements for your temporary accommodations.

☐ Try not to scare them. They are aware you might be coming but don't know what to expect.

☐ Make sure they are all accounted for.

☐ Ensure they gather any supplies they will need for the next 24 hours (medicines, baby food, diapers,

☐ Ask them if they have any questions.

☐ Once you are satisfied that all people are accounted for, deliver them to the Reception Centre.

figspace On the way to the Reception Centre, notify the **Safety Group Supervisor** of your progress and estimated time of arrival at the Reception Centre.

☐ Ensure that the people check in at the Reception Centre with the Reception Centre Representative before you leave for your next assignment.

Record Information

Record information on the following forms located within this section:

■ Resident Contact Log

☐ ICS 214 Activity Log

■ Evacuation Notice









Overview

In the event of an emergency in which residents and area users need to be sheltered and / or evacuated, a team of Telephoners will be established to contact people in the area and provide instructions to ensure their safety. The Safety Group Supervisor must be continuously updated with the Telephoners progress so that unsuccessful contact attempts and requests for evacuation assistance can be followed up on immediately.

Telephone Personnel Roles

☐ Confirm	resident	contact	lists	are	available

☐ Confirm communication links.

☐ In conjunction with the Safety Group Supervisor, determine who Form needs to be notified (residents, businesses, area users, etc.).

☐ Review with the **Safety Group Supervisor** the telephoner scripts to be used: Early Notification / Voluntary Evacuation Message, Shelter-in-Place Phone Message, Evacuation Phone Message. ☐ Contact special needs residents at a Level 1 Emergency and provide

them with the option to evacuate. ☐ Contact the other surface devlopments and area users in the hazard

area and advise them to evacuate or shelter. ☐ Contact the schools / school buses to make arrangements for school age children (if applicable)

☐ Advise that buses in the affected area leave immediately and that buses should not enter the area.

Request a school administrator for the reception centre to assist in managing the children and releasing them to their guardians.

□ Document all resident interactions using the Resident Contact Log Form and report this information to the Safety Group Supervisor Immediately advise the Safety Group Supervisor about В3 unsuccessful contacts and any residents requiring assistance

☐ Document all activities using the ICS 214 Individual Activity Log.

■ Assist with post-incident activities.

В7

В8

Shelter-In-Place Instructions

Form ICS 214

☐ Immediately gather everyone indoors and stay there. Do not leave even if you see people outside.

Close and lock all outside doors and windows. Tape gaps around doors and windows. Leave all inside doors open. ☐ Turn off appliances or equipment that blows out indoor air or sucks in

☐ Turn down furnace thermostats to the minimum setting and turn off air

☐ Extinguish all potential sources of ignition (do not smoke or attempt to start your vehicle).

lacksquare Stay off of the phone so that you can be contacted by emergency

☐ Stay tuned to local radio and television for possible updates.

Note: For the full Shelter-In-Place instructions see page 2 of the Shelter-In-Place Telephoner Text form located in SECTION 6.0: FORMS.

Who to Contact

☐ Residents

☐ Schools / School Bus Transportation

Businesses

■ Public Facilities ☐ Recreation Areas

☐ Urban Centres (contact local authority to coordinate)

☐ Area Users (other oil and gas operators, rail, logging, etc.)

□ Trappers

☐ Guides / Outfitters

☐ Grazing Lease / Allotment Holders

Priority is given to:

☐ Those closest to the hazard

☐ Those downwind of the hazard

☐ Those with sensitivity issues (health issues, require assistance, etc.)

Tips

☐ Ensure you have enough personnel to quickly and efficiently shelter / evacuate the required residents / area users.

☐ A general guideline is to have one **Telephoner** for every seven residences that need to be contacted and one Telephoners Leader for every ten Telephoners

Response personnel cannot force an evacuation or restrict access to the area unless proper authority has been granted. The authority for forced evacuation is gained only hrough the declaration of a Local State of Emergency by the local authority.

Shelter-In-Place	Phone Message
------------------	----------------------

(company name)	is responding to a (p	otential) emergency at_	(location)	in your
s this the	(name)	residence at	(telephone number)	?
Hello, this is	(your name)	of	(company nam	e)

For your safety, it is extremely important that you, and those with you, stay indoors until the potential hazard no longer exists, or you are advised to evacuate

To help us understand your immediate needs, we need to know:

How many people are at your location now?

Adults Children

Is there anyone in your household that you cannot contact to inform them of the situation and advise them to get in doors or stay out of the area?

☐ Yes ☐ No

Whom?

Location of the person(s)

We will send someone to find them as soon as possible.

Do you have the "Shelter-in-Place" instructions previously provided to you by _____(company name)

☐ Yes

Please follow the Shelter-in-Place instructions located inside the resident pamphlet.

Verbally walk the resident through the Shelter-in-Place instructions on the next page.

Do you understand what I have told you?

Is there an alternate number we can contact you at?

If you have any urgent questions, please contact (company name) at ____ (telephone number) Thank you for your cooperation.

(Pass on all information regarding this call to the Safety Group Supervisor immediately)

Note: Refer to Shelter-in-Place instructions on page 2 of the Shelter-in-Place Phone Message located in this section.

Telephoner Communication Flow

		→	Shelter-in-Place Message	- →	Provide Safety Group Supervisor with a list of unsuccessful contacts.		
Telephoners receive a list of residents / area users from — — ► he Safety Group Supervisor.	Provide appropriate message	 - •	Evacuation Message	- →	Provide Safety Group Supervisor with a list of unsuccessful contacts and those requiring evacuation assistance.	 	Group Supervisor to dispatch Rovers
		 -	Voluntary Evacuation	- →	Provide Safety Group Supervisor with a list of unsuccessful contacts, those choosing to evacuate, and	<u></u>	

assistance.

Evacuation Phone Message

Hello, this is	(your nar	ne) of	(company name)	
Is this the	(name)	residence at	(telephone number)	_?
(company name)	is responding to	a (potential) emergency at	(location) in your are	a.

For your safety, it is extremely important that you and your family leave your residence immediately and travel in a north / east / south / west direction to our reception centre located at:

To help us understand your immediate needs, we need to know:

How many people are at your location now?

Adults Children___

Is there anyone in your household that you cannot contact to inform them of the situation and advise them to evacuate away from the area?

□ Yes □ No

IF YES Whom?

> Location of the person(s) We will send someone to find them as soon as possible.

Do you require evacuation / transportation assistance?

☐ Yes ☐ No

We are sending someone to assist you. Please stay indoors and close all doors and windows until a Rover or the local police arrive to evacuate you.

Provide the resident with: IF NO

☐ Directions to safely travel to the reception centre

☐ A list of items to bring with them to the reception centre (medications, cell phone, etc.)

 \square An idea of how long they may be expected to stay at the reception centre

☐ The option to bring their house pets to the reception centre

Please contact (company name) if you are unable to make it to the reception centre for any reason. Please keep your phone line free so that we can contact you if necessary.

Is there an alternate number we can contact you at?

A company representative at the reception centre will address any questions you may have and will make arrangements for your temporary accommodations. Do you understand everything I have told you? Are you leaving immediately?

If you have any urgent questions, please contact (company name) at (telephone number).

Thank you for your cooperation.

(Pass on all information regarding this call to the Safety Group Supervisor immediately)

Record Information

Record information on the following forms located within this section: ■ Resident Contact Log

☐ ICS 214 Individual Activity Log Form Form Form Form Form ☐ Voluntary Evac Message ☐ Shelter-in-Place Message

■ Evacuation Message

ICS 214	В3	В6	В7	В8	

Reporting and Contacts

Telephoners report to the Safety Group Supervisor
Name:

Phone Number:

Reception Centre

Location:

Phone Number:

Wind Direction:

lephone



Ongoing Response

Planning "P"

Initial Response

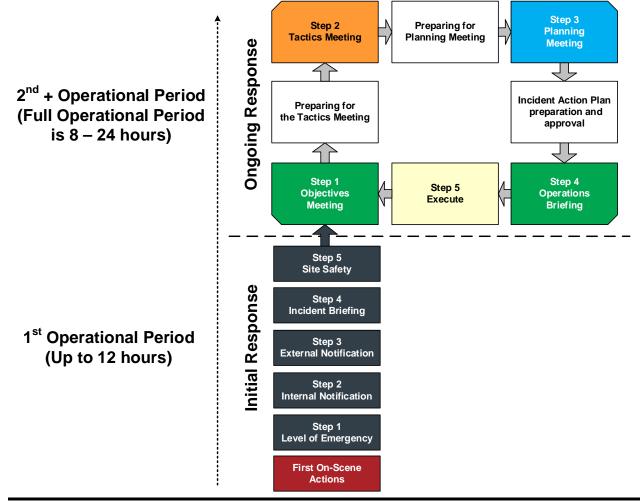
All incidents begin with the initial response (reactive phase) during the first operational period. At the onset of an emergency response a Mine Incident Preliminary Reporting Form (A1) is completed to determine the severity of the emergency and extent of the response. 95% of emergency responses begin and end in the first operational period.

After response personnel ensure their own personal safety by following the First On-Scene Actions, the Five Step Initial Response Guide, and associated tools, provide a structure for the Incident Commander to formulate a response and outlines the steps (key considerations) that need to be addressed and re-addressed when evaluating the incident and associated emergency response.

Ongoing Response

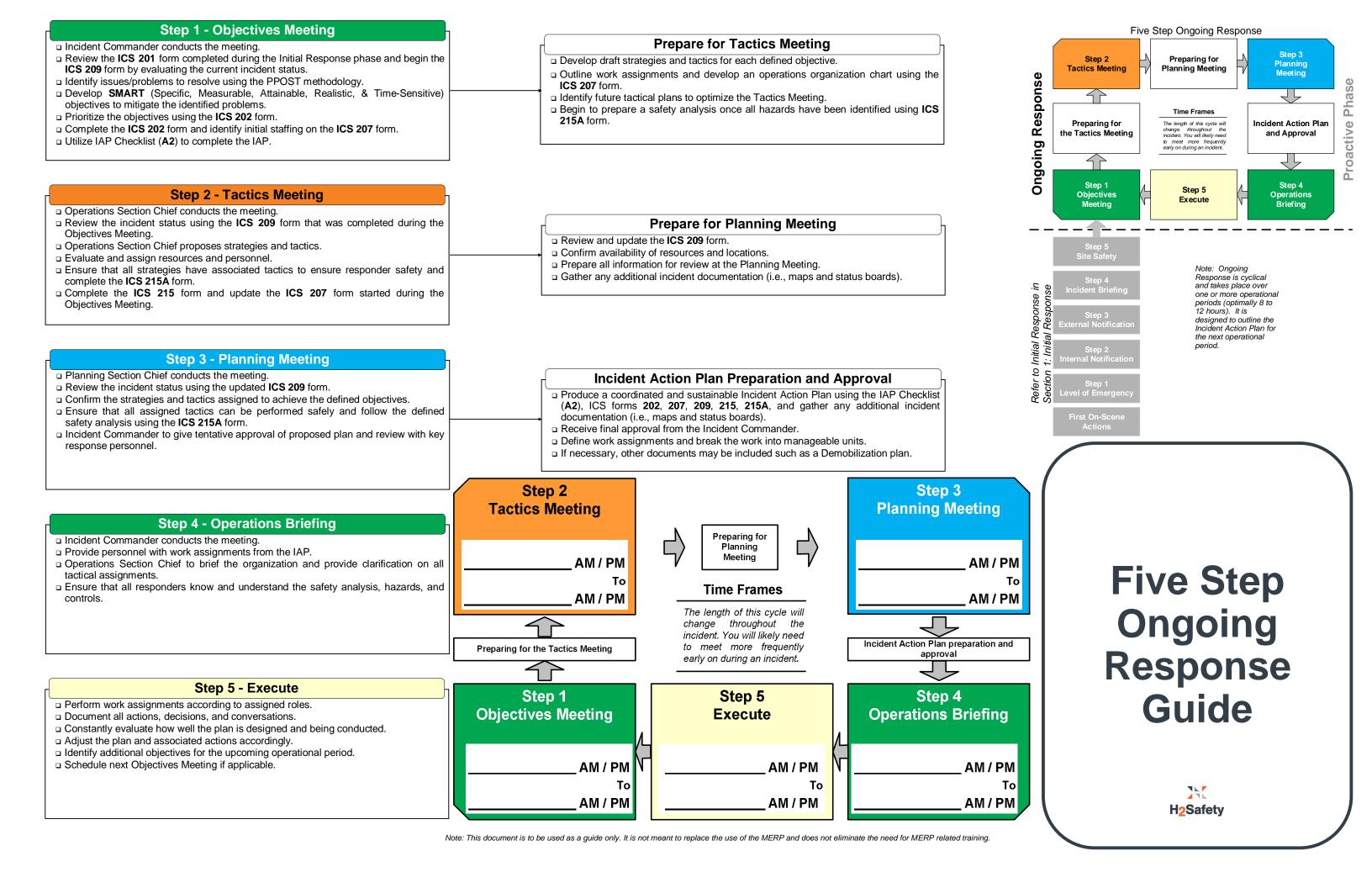
An ongoing response (proactive phase) is required for an extended emergency response that spans over multiple operational periods and revolves around establishing the objectives, strategies, and tactics for the next upcoming operational period. 5% of incidents require an ongoing response, but once engaged emergency responders will circulate through this cycle multiple times.

After the initial response has been completed, the Five Step Ongoing Response Guide and associated tools provide a cycle to plan the next steps of the emergency response. This continual cycle provides a structure for the Command Staff and General Staff to complete the Incident Action Plan (IAP) and associated documents. The ongoing response cycle and an associated IAP must be completed for each operational period until the incident is stood down.



Section 2: Roles and Responsibilities









Objectives Meeting

Owner: Incident Commander	Date:	Time:
Roles belo	w will attend only if	designated and available
Attendees:	www.accona omy n	assignated and available
☐ Incident Commander:		Planning Section Chief:
□ Deputy Incident Commander:		Logistics Section Chief:
☐ Operations Section Chief:		Finance/Admin. Section Chief:
☐ Planning Section Chief:		1 Safety Officer:
☐ Liaison Officer:		1 Other:
☐ Information Officer:		1 Other:
Summary:		
 Have a completed ICS 202 for Establish objectives and priori Begin an ICS 209 Incident Sta Begin identifying all required ro Begin addressing the Incident Schedule and prepare for the 	ties for the upcoming tus Summary report. ples on the ICS 207 fo Action Plan Checklist	orm.
Resources: ICS 202, 207,	209 forms, and the I	AP Checklist (A2)
Agenda Items:		
☐ Status Update and review the		
☐ Determine incident priorities. R Life Safety (2) Incident Stabiliz		Initial Response - Step 4 – Incident Briefing ((1) t & Property
Establish an incident organiza to mitigate the incident.	tion that is capable of	meeting initial and long-term challenges required
☐ Determine the incident respons be (Specific, Measurable, Atta		plete ICS 202 Incident Objectives form. They must me Sensitive).
☐ Identify initial staffing requirem	ents and begin filling	out the ICS 207 Incident Organizational Chart.
☐ Identify and select incident sup	port facilities.	
☐ Review the incident objectives work on the IAP.	s for the next operation	onal period so your management team can begin
☐ Document the incident status t	o relay to all respondi	ing personnel.
Key Points:		
		(Utilize the back side of this page.)
Define the hours of work and of the hours of work and of the hours of work and of the hours		
Utilize Incident Action Plan Ch	· ,	
Identify constraints and limitati		
Clarify any staff roles and resp		
Determine expectations of the		
Discuss and agree on process security, and sensitive information		urce ordering, cost accounting, operations
Continue to develop tasks for	Command and Gener	al Staff.
Agree on division of command	l workload, such as pr	ress and agency briefings.



Notes:	



Tactics Meeting

Owner: Operations Section Chief	Date:	Time:		
Roles below w	ill attend o	nly if designated and available		
Attendees:		ning in decignation and artundate		
☐ Incident Commander:		☐ Planning Section Chief:		
☐ Deputy Incident Commander:		□ Logistics Section Chief:		
☐ Operations Section Chief:		☐ Finance/Admin. Section Chief:		
☐ Planning Section Chief:		☐ Safety Officer:		
☐ Liaison Officer:		Other:		
☐ Information Officer:		Other:		
Summary:				
The objectives of this meeting are to):			
 Define tactics, work assignment Meeting. Have completed ICS 215 and 2 Staff). Update the ICS 207 Incident Or. Refer to Incident Action Plan Ch. Schedule and prepare for the Plan 	s, and resourd 15A forms ago ganization Ch lecklist (A2) a anning Meetin	nd continue to add to items accomplished. ng.		
Resources: ICS 209, 215, 21	5A, and IAP	Checklist (A2)		
Agenda Items:				
☐ Review ICS 209 Incident Status	Summary.			
☐ Review incident objectives.				
☐ Define tactics to complete object		, ,		
☐ Provide an operational update and identify tactics to deal with incident.				
☐ Identify roles and responsibilities		·		
☐ Build on already established IC: up with ICS 215 assignments.	S 207 Inciden	t Organization Chart, check span-of-control, and match		
Complete the Operational Planning	Worksheet, IC	S 215 (Utilize one form for every established objective).		
☐ Identify work assignments				
☐ Identify resources requirements	to achieve ea	ch work assignment		
☐ Identify overhead staffing needs	to support ea	ch work assignment		
☐ Identify specialized equipment a	nd supply nee	eds for each work assignment		
☐ Specify reporting times and loca	tion for perso	nnel		
Complete the Incident Action Plan S	afety Analysis	s, ICS 215A.		
☐ Identify potential hazard types				
☐ Identify mitigations for associate	d hazard type	S		
☐ Identify support facilities and loca	tions.			
Key Points:				
•	umented / re	corded. (Utilize the back side of this page.)		
Review planned actions against i				
·				
Discuss any applicable open action items.				
Consider contingencies and secondary options.				
201101401 COTTAIN GOTTOIOG AND GOOD	aar j optione	•		



Notes:	



Planning Meeting

Owner: Planning Section Chief	Date:	Time:	
Roles below w	vill attend onl	y if designated and available	
Attendees:		, in according to the control of the	
☐ Incident Commander:		☐ Planning Section Chief:	
☐ Deputy Incident Commander:		□ Logistics Section Chief:	
☐ Operations Section Chief:		☐ Finance/Admin. Section Chief:	
☐ Planning Section Chief:		□ Safety Officer:	
☐ Liaison Officer:		□ Other:	
☐ Information Officer:		□ Other:	
Summary:			
strategies outlined from the pre Schedule and prepare for the C	n with the necess vious command Operations Briefin		
Agenda Items:			
☐ Review Incident Action Plan for	ms (ICS 202, 20	7, 209, 215 , and 215A).	
☐ Review Command's incident ob	☐ Review Command's incident objectives, priorities, decisions, and direction.		
☐ Provide briefing on current situa	☐ Provide briefing on current situation, resources at risk, weather forecast, and incident projections.		
 □ Operations Section Chief provides briefing on: □ Current operations. □ An overview on the proposed plan including strategy, tactics or work assignments, resource commitment, contingencies, organization structure, and needed support facilities. 			
met.	sure that Comma	and direction, priorities, and operational objectives are	
Delegate assignments and dea development.	dlines to appropr	iate staff members to assure timely and effective IAP	
Key Points:			
Ensure that the meeting is do	ocumented / rec	orded. (Utilize the back side of this page.)	
Review IAP Checklist (A2) to each of the company of the compa	nsure that all criti	cal materials have been accounted for in the IAP.	
Planning Section Chief brings n	neeting to order,	cover ground rules, and review agenda.	
Planning Section Chief requests	s tacit Command	approval of the plan as presented.	
objectives.	Planning Section Chief reviews and validates responsibility for any open actions and management		
 Planning Section Chief conducts round table of Command and General Staff to solicit their final input and commitment to the proposed plan. 			



Notes:	



Operations Briefing

Owner: Incident Commander	Date:	Time:			
Roles below w	vill attend only	if designated and available			
Attendees:	,				
☐ Incident Commander:		☐ Safety Officer:			
☐ Deputy Incident Commander:		☐ Staging Area Manager:			
☐ Operations Section Chief:		☐ On-Site Group Supervisor			
□ Planning Section Chief:		☐ Safety Group Supervisor			
☐ Liaison Officer:		□ Roadblock Team Lead			
☐ Information Officer:		□ Rover Team Lead			
☐ Planning Section Chief:		☐ Telephoner Team Lead			
□ Logistics Section Chief:		Other:			
☐ Finance/Admin. Section Chief:		Other:			
Summary:					
The objectives of this meeting are t					
Review a summary of the incide		responders.			
Relay objectives, tactics, and sReinforce/relay the safety mess	_				
 Assign roles & responsibilities a 		sponders to accomplish.			
• Execute the response.		openidere to decempioni			
•	ctives Meeting and	d identify potential problems/issues to address in the			
next operational period.					
Resources: IAP Checklist (A2) and all assoc	ciated ICS forms			
Agenda Items:					
		AP components and makes changes as needed.			
 Operations Section Chief cond briefing on emergency response 		he Operation Section Supervisors and provides a			
 Operations Section Chief briefs any of their issues and concern 		onnel on their assignments along with clarification on			
☐ Safety Officer covers major safe	ety issues.				
☐ Logistics Section Chief covers logistical, etc.).	ogistical support of	operations (communications, supply, transportation,			
☐ Finance / Admin. Section Chief	covers time & cos	t tracking, procurement, and compensation process.			
☐ General Staff to cover issues ap					
Key Points:					
☐ Ensure that the meeting is do	cumented / reco	rded. (Utilize the back side of this page.)			
☐ Planning Section Chief opens Command	☐ Planning Section Chief opens briefing, covers ground rules, agenda, and conducts roll call of Command				
□ and General Staff members.					
☐ Establish a briefing and message	☐ Establish a briefing and message for all responders.				
☐ Review pre-determined public and media statements.					
☐ Planning Section Chief solicits f	inal comments an	d adjourns briefing.			



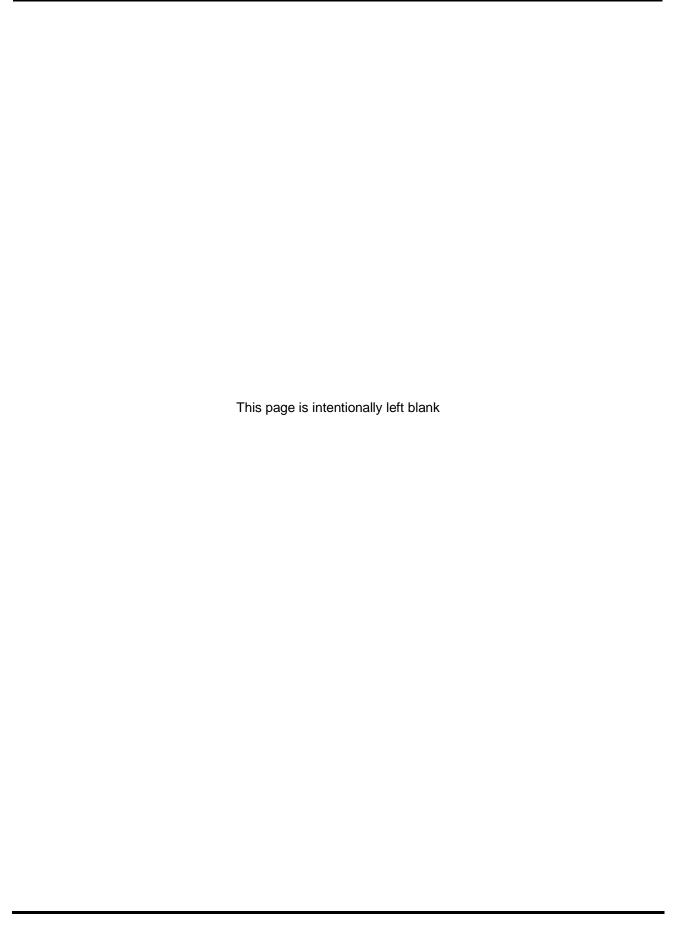
Notes:	



Section 3: Communications & Media

Media Relations and Generic Media Statement	'
Generic Media Statement	
Media Management	···· ´
On-Site Media Spokesperson	2
Managing the Media On-Site	2
Internal Communication	\$
Communicating with the Public	;
Information Disseminated to the Public	(
Preparing a Preliminary Media Statement	4
Media Interview Guidelines	
News Conference Guidelines	
Approval Processes and Guidelines	
. LL	







Media Relations and Generic Media Statement

Any incident that affects the environment, the health and safety of individuals, or causes extensive property damage could be a news "item". When such an incident occurs, the media should not be avoided. The key is to establish good rapport with the media early in the life of the emergency. Open and honest communication will help to create favourable public opinion and could help to prevent the public from overreacting to the incident.

Media releases are generated and released as significant developments occur. The company is expected to coordinate media releases with the relevant government agencies prior to release to provide consistency and accuracy of information. Information is communicated through written news releases, news conferences, and any other effective means that the company chooses to use. The company must identify a spokesperson to carry out this role and to interact with applicable government agencies.

Media releases will be developed by the Crisis Management Team (CMT) in conjunction with the applicable regulatory agency. The CMT will assign a Corporate Media Spokesperson to deliver the approved messages.

Media at the field level will be coordinated by the Information Officer with the Support of Communications / Media from the CMT. If media has arrived at the emergency site and the designated Information Officer is not yet available, only the Incident Commander or their designate can act as the company spokesperson and will issue only the information below.

Future statements will be prepared by the CMT and should be issued only by the designated Corporate Media Spokesperson. All media statements will be reviewed with the regulatory agency's Media Coordinator.

All information that is given to the media should be recorded. See **Section 6: Forms** for the C2 Media Contact Log.

Generic Media Statement

"We are currently dealing with the situation at hand to ensure the safety of the public, our personnel, and the environment. A statement will be released by the company once the facts have been determined. If you would like to leave your business card or phone number, a company representative will provide you with more information as it becomes available."

Media Management

- Do not wait until you are contacted by the media to react to their inquiries. By preparing in advance, the company will appear to be organized, aware, and actively responding to the situation. The essence of effective media management is preparation in advance of any media contact.
- It is important when contacting the media with a news release that you do not favour one media
 organization or agency over another. To minimize the chances of creating a prejudicial situation, deal
 solely with major umbrella press agencies.
- If media representatives are not provided with the basic information, it can be assumed that they will fill the gap with material from less reliable sources.

Be aware at all times that it is possible for the media or others to be monitoring your radio, cellular phone, or telephone conversations.



Media Relations and Generic Media Statement, continued

On-Site Media Spokesperson

Depending on the specific emergency an on-site spokesperson may be required to handle all on-camera activities requested by the media. Only approved and trained spokespeople will be allowed to provide comment to the media. The CMT will identify any and all media spokespersons. The Information Officer or Incident Commander may serve as the on-site Media Spokesperson, or the CMT may send the Corporate Media Spokesperson to the site. This representative will endeavor to maintain a favourable public image on behalf of the company. It is important that they keep in mind the following:

- The Dos and Don'ts of conducting yourself on camera; 75% of information comes from non-verbal actions (gestures, tone, posture, etc.)
- Public appearance, ensuring appropriate and approved wardrobe
- Preparation in communicating the media release in advance so the message feels natural
- How to handle impromptu or "off the record" inquiries from the media

Managing the Media On-Site

Depending upon the size and/or scope of the emergency to the incident site, the media will likely travel to site and attempt to secure coverage of the situation. Usually the size and nature of an emergency will determine the amount of media attention garnered. It is important everyone on-site understands how to properly manage the media and that only designated individuals are to speak to the media. It is recommended that only individuals with adequate media training have even casual interactions with the media.

Media Briefing Areas are to be designated by the Incident Commander if advised by the Communication & Media position. The Information Officer will, if required by the CMT and Incident Commander, determine the need for media management at the incident site.

As appropriate, the Information Officer should be designated to oversee local news media management. In order to address the needs of the media at the incident site, the following guidelines should be considered:

- If practical, an information centre will be set up nearby the incident site. All on-site media will be informed that this will be the only place where information is to be released.
- During an emergency situation, media access to company property is strictly prohibited unless prior approval has been given by the CMT. If the Incident Commander deems the situation safe and access is granted to company property, media personnel must be accompanied at all times and wearing appropriate personal protective equipment (PPE).
- Ensure that if any media personnel are granted access on-site all potential hazards are identified and handled appropriately prior to their arrival (i.e. all on-site personnel are wearing proper PPE, operating equipment safely, etc.).
- With the exception of providing the initial prepared company statement, any requests by the media for information or interviews should be referred to the Information Officer.
- For an emergency that lasts more than 24 hours, consideration will be given to establishing a newsroom for all required personnel.
 - Ensure it is located a safe distance away from the incident.
 - Ensure proper internet and telephone access is made available.
 - Large enough to accommodate all of the potential media personnel.

Internal Communication

Internal communication plans for company personnel must include:

- Identification of primary and secondary communication methods during an incident.
- Procedures to control flow of information*:
 - Ensure facts and relevant information are distributed to key responders
 - Proper management of sensitive information
 - Camera and cellphone photo restrictions
 - Social media protocol

Communicating with the Public

Communication plans for contacting affected parties must be in place:

- When affected parties are within the hazard zone.
- The incident has or has the potential to move off-site.
- At the onset of a Level 2 Emergency.
- At the beginning and upon completion of operations that may affect off-site parties.

Information Disseminated to the Public

The company must make the following information available to the public, while maintaining documentation, as soon as possible during an incident:

To the affected public at the onset of the incident:

- Type and status of the incident.
- o 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.

• To the affected public during the incident:

- Description of the incident and the potential short-term and long-term effects.
- Effects the incident may have on people in the vicinity.
- o Areas impacted by the incident.
- Actions the affected public should take.
- An explanation of the steps taken to address concerns.
- o An explanation of the steps to be taken to prevent similar emergencies in the future.

To the general public during the incident:

o Type and status of the incident.

^{*} Note: These procedures are developed by the Information Officer during the incident and may be communicated internally by a different spokesperson than external messages. However; it is critical that the internal and external messages align.

Communicating with the Public, continued

- Location of the incident.
- Areas impacted by the incident.
- Description of the incident.
- Contacts for additional information.
- Actions being taken to respond to the situation, including anticipated time period.
- To the evacuated or sheltered public post-incident:
 - Status of recovery.
 - Financial reimbursement information.
 - Contacts for additional information.

Preparing a Preliminary Media Statement

This verbal or written statement is the initial information given only to the media by the Information Officer, Incident Commander (or alternate) when the company's designated Corporate Media Spokesperson is unavailable or authorizes a press release at the local level. See **Section 6: Forms** for the C1 Preliminary Media Statement form.

The preliminary statement shall contain:

- What, when, and where the incident occurred:
 - State the general nature and description of the incident.
 - Associate the incident location to the nearest major centre and the exact time the incident began or was discovered.
 - For example: At 11:00 am, today, September 13th, 2012, a warehouse at our battery location northeast of Wainwright caught on fire.
- Injuries / fatalities / damages:
 - Clearly distinguish the severity of the injuries sustained and if any fatalities occurred.
 - State the number of people currently receiving treatment.
 - Ensure no names are released to the media; it is important to keep this information private until all families and next-of-kin notifications are made.
 - For example: We have confirmed that three employees sustained injuries, two minor and one major. All of the injured casualties have been transported to the nearest care facilities and are receiving treatment.
- The current status of the emergency:
 - o Indicate the nature of the situation; i.e. what is being done by whom.
 - For example: Emergency crews currently have the fire under control and local authorities are investigating the cause. We are actively notifying the employee's families of the incident.
- When to expect more information:
 - For example: Our designated spokesperson will be issuing a formal statement once we have more information confirmed. Thank you for your cooperation and we will not be accepting any questions at this time.



Communicating with the Public, continued

What not to do:

- Don't downplay the seriousness of the event or speculate on volumes, damage, or timelines.
- Don't point fingers; liability will be determined later by appropriate authorities.
- Primary focus must remain on the company's commitment to addressing the response and recovery effort.
- Attempt to avoid any questions, if possible, as designated media personnel should handle all media questions.
- Avoid saying "no comment." It sounds like you're hiding something. If necessary, explain why it is not appropriate or possible for you to answer the question.

Media Interview Guidelines

Media Interview Requests

All media interview requests should be directed to the Corporate Media Spokesperson to:

- Track who is speaking on what subject and to whom
- Ensure consistent messages from all spokespeople
- Structure the logistics of interview in a way that minimizes risk

News Conference Guidelines

To control messaging, one-on-one phone interviews are recommended over news conferences. The same key message and Q&A preparation is required.

A news conference will offer all news outlets the same information as the same time. A news conference should be held when:

- The situation is complex and time consuming and would be too arduous to explain to individual reporters.
- The issue is so large, and the number of media interested is so vast that a news conference is the only economical way to address the media.
- Holding a news conference will satisfy the media and buy you time, at least temporarily.
- You have enough time to practice and prepare for left-wing, negative, or cynical lines of questioning.

The CMT will determine whether a news conference should be assembled. In that event, they will:

- Assign and brief company spokesperson.
- Determine if there is a need for a panel (tech support, specific expertise) and assign if necessary.
- Develop opening statement (150 words/1 min speaking time) keeping in mind to:
 - o Be brief
 - Be bundled into three key messages with facts to support each lead statement
 - Create a positive perception to the company's response
 - Be relevant to the journalist
 - Make it stand on its own, with the who, what, when, where, how, and why

Communicating with the Public, continued

- Develop Q&A, keeping in mind to:
 - Pose difficult questions
 - Get approvals
 - o Practice out loud and to a group, on tape or video, or in writing
- Prepare venue, keeping in mind to:
 - Use props and background displays for professionalism
 - Keep location away from the emergency centre and other day to day business
 - Seat spokespeople and use a solid podium or tablecloth to hide fidgeting hands or feet
 - o Ensure enough room and chairs, temperature and sound control, coat racks and lighting

The news conference host will:

- Open the conference with the prepared statement and introduce the spokesperson or panel.
- Help keep questions brief by reminding journalists that the spokesperson has to get back to incident management.
- Ensure that as many journalists as possible are able to ask their questions, including those who have joined by phone.
- Close the news conference after a set amount of time and see that all the journalists leave the building.

Approval Processes and Guidelines

All communications both internal and external must be approved before distribution can occur. Approvals will be coordinated by the Corporate Media Spokesperson or their designate.

Level 1-2

 Corporate Media Spokesperson drafts key messaging which is approved by the CMT and on-site subject matter experts.

Note: Level 1-2 incidents are rarely communicated externally.

Level 3

- Corporate Media Spokesperson drafts key messaging which is approved by the CMT and on-site subject matter experts.
 - Corporate Legal if necessary
- Approved messaging circulated to site IMT and other internal members as appropriate.

Level 4-5

- Corporate Media Spokesperson will send a draft copy to each of the following, with a strict deadline for the return of draft material and sign-off signatures:
 - GM and site subject matter experts
 - Corporate, Legal and if appropriate:
 - Human Resources (if the incident involves a loss of life)
 - E&S (if there are regulatory implications)

Approved external and employee communications are posted at the same time following standard communications posting/media release procedures and distribution. The Corporate Media Spokesperson is responsible to distribute documents internally.



Communicating with the Public, continued

The following information will NOT be discussed:

- Speculation as to the cause and extent of damage in dollars.
- Speculation as to timelines regarding resumption of production or the impact to production.
- Any reference to blame or negligence.
- Any details of the background, family, or work record of any parties involved.
- Any facts relating to insurance, such as the type of coverage, name of carrier or settlements.
- Names of any fatalities until advised by the RCMP or Human Resources that Next-of-Kin have been properly notified.
- Hypothetical questions/answers regarding long-term affects to human health and/or the environment.



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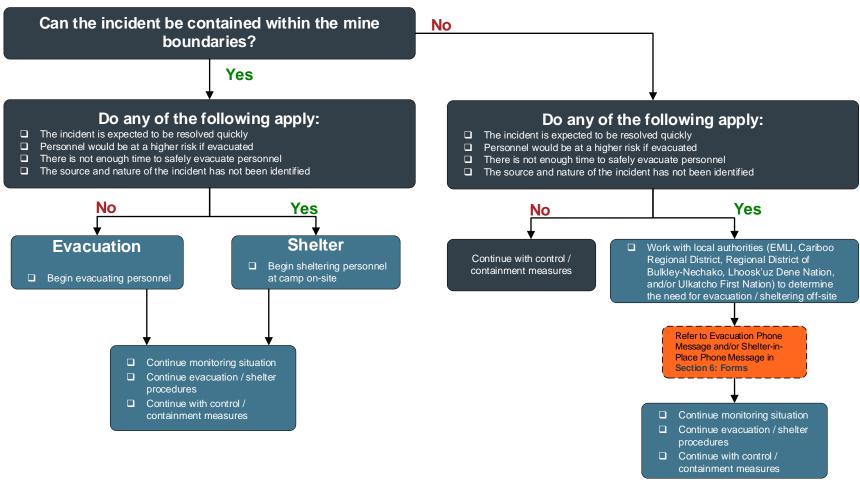
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Protection Measures

Protection Measures Flowchart





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Protection Measures, continued

There are two primary protection measures that are used to ensure the safety of personnel in the event of an incident: evacuation and shelter-in-place.

Evacuation

For long-term releases, evacuation is preferred to sheltering if site safety can be assured during the evacuation process.

Evacuation is a viable protection measure in circumstances when:

- The location of the incident is known, and safe egress routes can be assured
- The incident will not likely be contained in the near future
- Visibility and road conditions are good
- · Personnel clearly understand their directions

Tactical Evacuation: A measure to immediately move people to a safe area as part of emergency response and operations. Does not require approval from local authority but the local authority may enact an evacuation order, if required. The local authority must be advised if a tactical evacuation has occurred. Appropriate methods must be utilized to ensure transients (hunters, trappers, recreational users, non-resident landowners, etc.) within the hazard area are located and evacuated. Refer to Section 6: Forms for Evacuation Scripts for information that should be communicated as part of the evacuation process.

Planned Evacuation: An evacuation coordinated by local government authority that can authorize evacuation alerts and orders.

Special procedures may be required for evacuating large industrial operations and/or public facilities. If large numbers of people are involved, the permit holder must address assistance with transportation. Refer to the Area Specific Information Section for information regarding transportation (e.g., providing school buses) or other changes in the normal notification procedures.

The permit holder must continuously assess and act on the need to expand the evacuation area, based on the specifics of the incident, including harmful levels of hazardous substances.

The permit holder is expected to monitor the air quality to determine if sheltering or evacuation criteria have been met. Evacuation outside of the hazard area must be coordinated with the Local Authority.

Appropriate methods must be utilized to ensure transients (hunters, trappers, recreational users, non-resident landowners, etc.) within the hazard area are located and evacuated. When a tactical evacuation has taken place, the appropriate local authority must be notified.

Shelter-In-Place

Shelter-in-place is considered the primary safety measure when the hazard is of a limited duration or personnel would be at a higher risk if evacuated. Sheltering within a building creates an indoor buffer to protect affected individuals from higher (more toxic) concentrations that may exist outdoors. The goal is to reduce the movement of air into and out of the building until either the hazard has passed, or other appropriate emergency actions can be taken (such as evacuation).

Sheltering indoors is a viable public protection measure in circumstances when:

- There is insufficient time or warning to safely evacuate personnel
- Personnel are waiting for evacuation assistance
- The incident will be of a limited size and /or duration
- The location of the incident has not been identified
- Personnel would be at a higher risk if evacuated
- Escape routes traverse the hazards



Protection Measures, continued

Refer to Section 6: Forms for the Shelter-in-Place Phone Message script to be used when contacting area users. Area users advised to shelter-in-place will be notified if additional measures are required, and when it is "all-clear".

Road and Airspace Closures

The company should receive authorization from local authorities or the RCMP before establishing roadblocks on public roads. The company must contact the RCMP and the transportation authority to have one-, two- or three-digit highways closed. However, if the safety of the public is in jeopardy, the company must be prepared to quickly restrict access to the area before contacting these agencies.

If warranted, the regulatory agency can issue a Closure Order that provides legal authority to close the area. The local authority may, if warranted, declare a Local State of Emergency. This grants the local authority special powers to do such things as road closures or declare mandatory evacuation.

There may be a need to prevent aircraft from flying into the airspace above an incident. If so, it may be necessary to issue a Notice to Airmen (NOTAM) to advise pilots of restrictions in the airspace above the incident or to close the airspace for a certain radius from the release (a no-fly zone). NOTAMs are issued by NAV Canada and airspace closures are issued by Transport Canada's Aviation Operations Centre (AVOPS). NOTAMs or airspace closures may be requested by the permit holder for level 2-5 emergencies.

Establishing and Isolating a Perimeter

Roadblocks

During an incident, off-site roadblocks shall be established to protect the safety of individuals in the area.

Personnel, in association with local authorities shall establish roadblocks as part of initial response efforts on affected roadways, to protect the safety of individuals driving in the incident area.

Approach to the area affected by the incident shall be undertaken as safely as possible and from an upwind direction, if possible, to ensure the safety of personnel establishing the roadblock. In situations where upwind approach is not possible, roadblocks shall be established in areas which are at sufficient distance from the incident to protect the safety of both roadblock personnel and the other individuals in the area.

Wind conditions shall be monitored on an on-going basis, and any anticipated changes shall be communicated to roadblock personnel, to allow roadblock positions to be changed as required throughout the incident.

In longer duration incidents, which require blockage of public roads for a significant period of time, personnel shall communicate with appropriate authorities, to ensure that necessary procedures are implemented in a legal, manner, to maintain site safety.

Security Fence

A security fence is present around the facility. During an emergency, security gates which are not used for access by emergency personnel shall be closed and secured to maintain site security.

Any emergency egress gates present in the security fence line around the facility shall remain operational throughout the incident, to allow emergency personnel to exit the secured area if required in an emergency.



Protection Measures, continued

Security Checkpoints

In emergencies which require site security, routes into the affected site shall be sealed to prevent unauthorized access and to protect the safety of personnel.

If an evacuation alarm is sounded or in situations where no alarm has sounded, but the Incident Commander requests that the facility be secured, security personnel shall:

- Close and secure the main gate and any other appropriate gates, allowing no passage in or out of the site, unless requested to do otherwise.
- Return to the guardhouse and await further instruction from the Incident Commander.
- Make a written record of all people and vehicles present at the gate, including those on or off-site.
- Ensure that the guardhouse telephone lines are kept clear, to receive incoming messages. Outgoing
 communication from the guardhouse to other locations should be undertaken on an as needed basis
 only and should remain as brief as possible.
- Ensure access is kept clear for emergency equipment at all times.
- Ensure priority access is allowed for all emergency response vehicles and personnel.
- Ensure a record is kept of all emergency vehicles and emergency personnel entering the site, as well
 as their source.
- Keep gates closed to unauthorized access until notified otherwise when the "All Clear" is given by the Incident Commander



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Spill Response

The spill response section can be used as a quick reference by first-on-scene responders to select and implement containment and recovery tactics with spill response equipment during the first 48-72 hours of the response. This section contains a collection of inland spill tactics that can be applied using obtainable resources to a liquid product release until additional resources and personnel arrive on site. This section is a reference tool and supplement to prior training, field experience, technical instruction, and equipment operation knowledge. The licensee will rely on the training and judgment of its first-on-scene responders to select only those tactics that can be accomplished safely.

Refer to the Petroleum Industry Release Reporting Requirements chart at the end of this section to determine the TDG and Provincial Reporting Requirements for each class of chemicals (as classified by the TDG Hazard Classification System).

Spill Response Objectives and Strategies

Objectives establish the desired outcomes of an incident and are statements of intent related directly to response priorities. Priorities are situational and influenced by many factors, with life safety always being the highest priority followed by incident stabilization and property and environment. The Incident Commander comes to a consensus on a collective set of objectives with response strategies. The following table contains some standard objectives with example strategies that can be utilized to assist in the first four to six hours of a spill response.

Objectives	Strategies		
	Identify hazard(s) of spilled material.		
	Establish work zones (hot, warm, and cold zones).		
	Establish site perimeter and access controls.		
Ensure the safety of	Consider evacuation or shelter-in-place, as needed.		
citizens and response personnel	Monitor air quality in impacted areas to ensure responders select appropriate Personal Protective Equipment (PPE).		
	Establish aircraft restrictions.		
	Develop a Health and Safety Plan for response personnel.		
	Run air dispersion model to determine potential evacuation zones.		
	Complete emergency shut-down procedures.		
On stool the annual of the	Eliminate potential flammable vapour ignition sources.		
Control the source of the spill	Initiate temporary repairs to stop the leak.		
Sp	Transfer product to an approved container or facility.		
	Construct barriers to prevent spill from reaching a waterbody.		
	Implement Control Points and pre-designated response strategies.		
	Identify and prioritize the environmentally sensitive areas.		
Maximize protection of	Identify Resources at Risk (RAR) in spill vicinity.		
environmentally sensitive	Track oil movement and develop spill trajectories.		
areas	Conduct visual assessments (e.g., aerial overflights, ground-truthing).		
	Identify, prioritize, and flag areas used as habitat by endangered species.		
	Develop/implement appropriate protection strategies.		



Objectives	Strategies		
	Complete or confirm notifications.		
	Establish Incident Command Post.		
	Ensure local government and Indigenous officials are included in response organization.		
Manage a coordinated response effort	Initiate spill response Incident Action Plan.		
response enon	Ensure mobilization and tracking of response resources.		
	Account for personnel and equipment		
	Maintain, complete, and log all documentation related to the incident.		
	Evaluate planned response objectives vs. actual response.		
	Deploy containment boom at the spill source.		
Contain and recover	Deploy containment boom at appropriate recovery areas.		
spilled material	Conduct open water skimming.		
	Develop disposal plan.		
	Establish oiled wildlife reporting hotline.		
Recover and rehabilitate	Conduct injured wildlife search and rescue operations.		
injured wildlife	Operate wildlife rehabilitation center.		
	Establish team for injured wildlife.		
	Conduct appropriate shoreline cleanup efforts.		
Remove oil from impacted areas	Clean oiled structures.		
impactod drodo	Clean oiled equipment.		
	Provide forum to obtain stakeholder input and concerns.		
Keep stakeholders informed of response	Provide stakeholders with details of response actions.		
activities	Identify stakeholder concerns and issues and address as practical.		
	Provide regulatory bodies details of response actions.		
	Provide timely safety announcements.		
Keep the public informed	Conduct public meeting, as appropriate.		
of response activities	Conduct regular news briefings.		
	Manage news media access to spill response activities.		

Control Points

The objective of control points is to identify pre-planned locations where spill responders can safely and effectively deploy oil spill response equipment to intercept and limit downstream movement of oil on a watercourse. Depending on the specific conditions at the time of a spill, one or more control points may be implemented as part of a response. Control points are intended to:

- 1. Protect sensitive areas downstream.
- 2. Provide locations for oil removal and collection.



Typically, oil spill response entails multiple parallel and simultaneous activities including:

- 1. Source control (valve closures, clamping and pipeline drain-down)
- 2. Near source response (containment using berms and recovery using pumping and skimming) Downstream response (control points)

Control points are pre-identified points along watercourses and lakes that provide responders with key tactical information and can greatly reduce planning and implementation of containment, recovery, public protection, and wildlife protection measures during a response to a spill. Control points are typically grouped in the following categories:

- 1. Critical Control Points are established based on the company's asset locations and are based on the following criteria:
 - a. River crossing with easy access and staging areas.
 - b. Upstream of environmentally sensitive areas.
 - c. Upstream or proximity to communities and public infrastructure such as drinking water intakes.
 - d. Downstream of major infrastructure such as pipelines, storage, or facilities.
 - e. In areas of high-volume transportation corridors.
- Non-Critical Control Points may include the following:
 - a. Recreational areas
 - b. Private or public land
 - c. Boat launches

When assessing the location of a control point the following factors should be considered:

- 1. Sites should be located downstream of the watercourse crossing and at distances that can be reached in a two- to four-hour-response time.
- 2. Sites should have reasonable land access.
- 3. Sites should have available working space for staging equipment and personnel.
- Ideally, river flow should be slow or pooled, and/or with back eddies rather than turbulent flow conditions.
- 5. Ideally, sites should have public access, low banks, and should not be heavily vegetated.

Designated site-specific control points need to be reviewed at least annually. Each control point site should be visited periodically to evaluate suitability and to ensure information is accurate and complete. Old unsuitable control points should be removed, and new control points added, as a part of revisions to site specific information, as required. Control point listings should include a site description, site diagram, access description, landowner/occupant phone number, site suitability and any other information related to the site.



Health and Safety

Committed to the protection of the health and safety of all spill response personnel and third parties whether members of the public or contractor personnel. The Site Safety Plan is intended to protect all personnel against potential health and safety hazards by providing information in identifying, evaluating, controlling risks, and explaining procedures to be followed during emergencies.

Provisions have been made to ensure that the health and safety of third parties, particularly members of the general public, is also protected. Third party protection procedures include evacuations, the monitoring of wind direction at the site of the release to determine the direction and spread of hazardous vapours and, if considered appropriate, conducting air monitoring in other areas where responders or third parties could be threatened.

Initial Site Assessment

The initial site assessment, hazard identification, and characterization will normally be performed by a minimum of two qualified persons outfitted in appropriate personal protective equipment. Where possible, a backup team should be immediately available. The information gained during the initial site assessment will be used to determine the site work zones (hot, warm, and cold zones) and in the development of the Site Safety Plan. The Site Safety Plan must be monitored on an ongoing basis and revised to reflect changing conditions. Personnel entering or already on site must be immediately advised of changes. The person responsible for the Site Safety Plan will ensure compliance is monitored whenever any person is within the spill response zones or any area that may be threatened as a result of the spill.

Safety Briefing

Response personnel and others authorized to enter the response area must be briefed on the content of the Site Safety Plan prior to entering the site. The person assigned to be responsible for site safety or their delegate will conduct this briefing. A copy of the Site Safety Plan must be available for reference at the spill site. Responders must also have access to the Safety Data Sheet (SDS) for the spilled product if the SDS does not form part of the Site Safety Plan.

- 1. SDS provide detailed hazard, precautionary, protection, and emergency information on hazardous products and may be obtained from the manufacturer or supplier of the product. Copies of SDS shall be available for all products used or handled at spill sites.
- A copy of the appropriate SDS should be attached to the Site Safety Plan.
- 3. Contractors are required to have SDSs available for all products that they bring to spill sites.
- 4. The appropriate SDS or Emergency Response Guidebook should be referred to for spills or leaks of substances not specifically covered by this plan.

Initial Site Safety and Hazard Control Plan

An Initial Site Safety and Hazard Control Plan should be completed as soon as possible by one of the initial responders and updated as required. When completing the Initial Site Safety and Hazard Control Plan, some of the information may not apply during the initial stages of the response but may change within a short period, thereby altering the PPE and/or other requirements.



The Initial Site Safety and Hazard Control Plan

- 1. Aids the initial first responders in assessing hazards related to the incident.
- 2. States the required PPE to be used.
- 3. Documents important health and safety information.
- 4. Serves as an interim "Plan" until a Site Safety Plan is developed.
- 5. Assigns responsibilities.
- 6. Identifies "site set-up" features that may be required.
- 7. Upon the completion and delivery of the Site Safety Plan, the Initial Site Safety and Hazard Control Plan becomes "void".



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British Columbia Industry Release Reporting Requirements

All spills exceeding the spill/release quotas listed in the table on the following page MUST be reported immediately to the appropriate regulatory agency.

appropriate regulatory agency.			
Agency	Reportable Spills	Report Type	Report to
		Verbal	As soon as possible 24 Hour Number 800-663-3456
Emergency Management BC (EMBC)	 Report when: If a spill/release occurs or is at imminent risk of occurring. If a spill enters, or is likely to enter, a body of water All spills or releases of hazardous substances which are not provincially regulated (such as radioactive substances). All Substances spilled/released, or likely to be spilled/released when quantities are equal to or exceed the quantities listed in the Environment Reporting Requirements column in the Release Reporting Thresholds table on the following page. 	Written	Minister of Environment Initial Report - as soon as possible on request of the minister Follow-up Report - at least once every 30 days after the spill began (if continuing) and any time the previously reported information has become inaccurate or incomplete End of Spill Report - 30 days after spillage has been contained and
	Environmental emergencies if: 1) The emergency involves any of the substances identified in Environment & Climate Change Canada's E2 List of regulated substances. See the website	Verbal	EMBC 24 Hour Number 800-663-3456
Canadian Environmental Protection Agency (CEPA)	link at the bottom of the following page for more information. Note: CEPA has not identified specific reporting thresholds; however, CEPA has suggested that existing provincial reporting thresholds or TDG reporting thresholds are acceptable for use. A Schedule 8 written report through SWIM must be completed in the case of: 1) An environmental emergency involving the release of a hazardous substance that: a) Has or may have an immediate or long-term harmful effect on the environment b) Constitutes or may constitute a danger to the environment on which human life depends c) Constitutes or may constitute a danger in Canada to human life or health 2) The reasonable likelihood of an occurrence of an environmental emergency	Written	As soon as possible, submit a Schedule 8 through the SWIM (Single Window Information Manager) system
Transportation of Dangerous Goods (TDG)	Substances regulated by Transportation of Dangerous Goods if: 1) A release is anticipated, or the release meets or exceeds the reporting threshold in the TDG Reporting Requirements column in the Release Reporting Thresholds table on the following page.	Verbal	911 Local Authority Dangerous Goods EMBC 800-663-3456
Canadian Transport	Loss and theft reporting:	Written	Within 30 days 1) 888-226-8832 or 613-996-6666
Canadian Transport Emergency Centre (CANUTEC)	CANUTEC - all loss or theft of dangerous goods materials Natural Resources Canada Inspector - Class 1 explosive materials only	Verbal	2) 613-995-5555 3) 613-995-0479
Department of Fisheries	3) Canadian Nuclear Safety Commission - Class 7 radioactive materials only	Written	Within 30 days OGC / EMBC 24 Hour Number
and Oceans (DFO)	1) A release of any substance deleterious to fish into a fish bearing water body.	Verbal	800-663-3456

Note: Spills must be reported promptly to avoid possible prosecution.

Lead Agency Contact Numbers			
British Columbia			
Emergency Management BC (EMBC) 800-663-3456			
Canada			
CANUTEC			
All Provinces	888-CAN-UTEC (888-226-8832) 613-996-6666		

Please refer to the BC Environmental Management Act; <u>Spill Reporting Regulation</u>, Schedule "Reporting Levels for Certain Substances" for determining reportable spillage amounts of other substances not listed here.

Even though some spills are not reportable, the requirement to clean up the spill is still mandatory. Spills of reportable amounts which occur in a secondary containment are still a reportable incident.

British Columbia Industry Release Reporting Requirements

All spills exceeding the spill/release quotas listed in the table on the following page MUST be reported immediately to the appropriate regulatory agency.

		appropriate regulat		
Chemical Class	Substance / Example	T.D.G. R Road, Rail or Marine	eporting Requirements Loss or Theft	B.C. (EMBC) Reporting Requirements
	Hydrogen Sulphide (H ₂ S)	Any quantity	Any quantity	10 ppm or greater
	Hydraulic Oil	No TDG I	Reporting Requirements	100 L on-site
Other Released Substances	Methanol	S	See Class 3 & 6.1	Any release off-site
	Crude Oil / Emulsion		See Class 3	100 L on-site / Any release off-site
	Glycol	No TDG	Reporting Requirements	200 kg or 200 L
Class 1 Explosives	Ammunition Nitro-glycerine	Any quantity of Packing Group II	Any quantity in Class 1.1, 1.2, and 1,3 Total quantity of 450 kg or more in Class 1.4 (except 1.4S), 1.5, or 1.6	50 kg, or less if the substance poses danger to public safety
Class 2.1 Flammable Gases	Methane Propane Butane Natural Gas (see line 25 below)		Total quantity of 450 kg or more	10 kg
Class 2.2 Non-Flammable Gases	Compressed Air O ₂ N ₂ CO ₂	Any quantity	No TDG Reporting Requirements	10 kg
Class 2.3 Toxic Gases (poisonous or corrosive)	SO ₂ Hydrogen Cyanide Nitric Acid Anhydrous Ammonia		Any quantity	5 kg
Class 3 Flammable Liquids	Gasoline Diesel Methanol Demulsifiers Scale Inhibitors		Total quantity of 450 kg or more of desensitized explosives Any quantity of UN1261, Nitromethane	100 L
	Lube Oil			100 L
Class 4.1 Flammable Solids	Calcium Resinate Naphthalene Crude		Total quantity of 450 kg or more of desensitized explosives Any quantity of UN1357, Urea Nitrate, with not less than 20% water, by mass; UN3370, Urea Nitrate, Wetted, with not less than 10% water by mass	
Class 4.2 Spontaneously Combustible	Activated Carbon Potassium Sulphide Phosphorus		Total quantity of 450 kg or more in Packing Groups I or II	25 kg
Class 4.3 Dangerous when Wet	Molten Sulphur Calcium Carbide Sodium Activated Carbon		Total quantity of 450 kg or more in Packing Groups I or II	
Class 5.1 Oxidizing Substances	Calcium Nitrate Ammonium Nitrate Bleaches	Any quantity of Packing Group I or II More than 30 L or 30 kg of Packing Group III	Total quantity of 450 kg or more in Packing Groups I or II Any quantity of UN1485, Potassium Chlorate; UN1486, Potassium Nitrate; UN 1487, Potassium Nitrate and Sodium Nitrate Mixture; UN1489, Potassium Perchlorate; UN1495, Sodium Chlorate; UN1498, Sodium Nitrate; UN1499 Sodium Nitrate and Potassium Nitrate Mixture; UN1511, Urea Hydrogen Peroxide; UN1942 Ammonia Nitrate, with not more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substances; UN2014 Hydrogen Peroxide, Aqueous Solution with not less than 20% but not less than 60% hydrogen peroxide (stabilized as necessary); UN2015, Hydrogen Peroxide, Stabilized; UN2031, Nitric Acid, other than red fuming; UN3149, Hydrogen Peroxide and Peroxyacetic Acid Mixture with acid(s), water and not more than 5% peroxyacetic acid, stabilized	50 kg or 50 L
Class 5.2 Organic Peroxides	Methyl Ethyl Ketone Peroxide Succinic Acid Peroxide		Any quantity in Class 5.2, Type B, liquid or solid, temperature controlled	1 kg or 1 L
Class 6.1 Poisonous Toxic Substances	Arsenic Cyanide Lead Acetate Mercuric Oxide Methanol Toxic Pesticides		Any quantity of Packing Group I	5 kg or 5 L
Class 6.2 nfectious Substances	Infectious Substances affecting Humans / Animals	Any quantity of Category A or B	Any quantity	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
Class 7 Radioactive Substances	Uranium Plutonium Naturally Occurring Radioactive Materials (N.O.R.M.)	For packages being transported under exclusive use: (i) 10 mSv/h on the external surface (ii) 2 mSv/h on the surface of the conveyance, and (iii) 0.1 mSv/h at a distance of 2 m from the surface For packages not being transported under exclusive use: (i) 2 mSv/h on the external surface (ii) 0.1 mSv/h at a distance of 1 m from the package, (iii) 2 mSv/h on the surface of the conveyance, and (iv) 0.1 mSv/h at a distance of 2 m from the surface of the conveyance.	Any quantity	Any quantity that could pose a dange to public safety and an emission leve greater than the emission level established in section 20 of the "Packaging and Transport of Nuclear Substance Regulations"
Class 8 Corrosives	Acids Bases Batteries Caustic Amine	Any quantity of Packing Group I or II 30 L or 30 kg of Packing Group III	Total quantity of 450 kg or more in Packing Group I or II Any quantity of UN1796, Nitrating Acid Mixture with more than 50% nitric acid; UN1826, Nitrating Acid Mixture, Spent, with more than 50% nitric acid; UN2032, Nitric Acid, Red Fuming	5 kg or 5 L
Class 9 Miscellaneous Products, Substances & Organisms, Environmentally Hazardous Substances	P.C.B. Asbestos Substances not regulated by the Transportation of Dangerous Goods Act	30 L or 30 kg of Packing Group II or III, or without Packing Group	No TDG Reporting Requirements	25 kg or 25 L of Packing Group II or III, or without Packing Group

	Other items in the BC Spill Reporting Regulation that are applicable to the petroleum industry but do not fit in the above table format.				
Item	Substance Spilled	Specified Amount			
14	Waste containing dioxin as defined in Section 1 of the Hazardous Waste Regulation	1 k or 1 L, or less if the waste poses a danger to public safety or the environment			
15	Leachable toxic waste as defined in Section 1 of the Hazardous Waste Regulation	25 kg or 25 L			
16	Waste containing polycyclic aromatic hydrocarbons as defined in Section 1 of the Hazardous Waste Regulation	5 kg or 5 L			
17	Waste asbestos as defined in Section 1 of the Hazardous Waste Regulation	50 kg			
18	Waste oil as defined in Section 1 of the Hazardous Waste Regulation	100 L			
20	PCB wastes as defined in Section 1 of the Hazardous Waste Regulation	25 kg or 25 L			
23	A hazardous waste as defined in Section 1 of the Hazardous Waste Regulation and not covered under items 1 to 22 (built into above table)	25 kg or 25 L			
24	A substance, not covered by items 1 to 23 (built into above table) that can cause pollution	200 kg or 200 L			
25	Natural Gas	10 kg, if there is a breakage in a pipeline or fitting operated above 100 psi that results in a sudden and uncontrolled release of natural gas			



Berms

Berms can be constructed using any non-porous material using mechanical or hand equipment. They can be used to prevent migration of released product as well as used to divert surface flow from areas that have been impacted by a spill. They are used in conjunction with other containment and recovery methods such as trenches, bell holes and inverted weirs.

Objectives

- To halt the advance of spilled product and allow for the recovery of the spilled product.
- Contain and prevent further migration of released products by channeling the spill in a particular direction
- Create a pooled area for recovery of released product.
- Diversion of surface flows from impacted area.

Safety

- Identify hazards and complete a site safety plan.
- Consider toxic and flammable vapours.
- Adjacent infrastructure such as powerlines, pipelines, and underground services.
- Establish communications in remote areas.
- Be cautious of wildlife.

Environmental Consideration

- Utilize existing access and routes to minimize disturbance of soils. Consider environmental sensitivities such as vegetation soil types and wildlife/fish habitat.
- If possible, remove and conserve topsoil for reclamation activities. Avoid constructing berms with topsoil material.

FLOW

- Ensure decontamination areas have been established to minimize transfer of released product during construction of berm.
- Handle and dispose of contaminated wastes in an approved manner.



KEY

EARTHEN WITH KEY

BELL

HOLE



Procedure

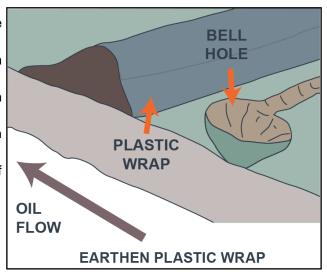
- Lay plastic on ground, across expected route of spill travel.
- Pile non-porous materials on downstream side of plastic (away from approaching oil).
- Flip upstream side of plastic sheet over berm to prevent contamination of berm contents.
- Hand dig small bell hole upstream of berm recovery.
- Ensure waste disposal bags and tags if sorbents are to be used.

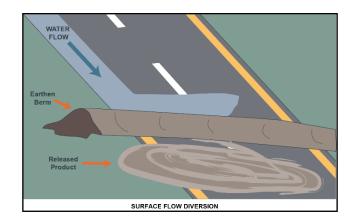
Personnel

- Supervisor / lead
- Site safety
- Labourers
- Vacuum truck operator

Equipment / Resources

- Shovels and/or earth moving equipment
- Plastic sheeting
- Sorbents
- Vacuum truck / portable vacuum unit







Containment and Recovery Understanding Environments – Ground and Water

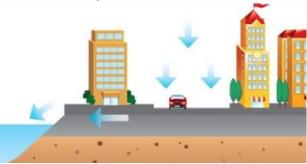
A spill can occur in several different environments. The type of environment will influence the most appropriate technique to be used for the response strategy, while the fate of oil will be influenced by many other situational and local factors. The response can be complicated due to geophysical and environmental factors that can affect the oil spill's behavior.

	Ground			
	Permeable Ground	Impermeable Ground		
Understand oil behavior:	Oil on permeable ground will flow in both horizontal and vertical directions. Penetration of ground will depend on the oil type and the porosity and permeability of the surface materials.	Oil on impermeable ground will either remain relatively static on the terrain or follow the path of least resistance if a slope is present. It is likely to collect in depressions and watercourses.		
Identify resources at risk:	Examples of resources needing protection include: • Non-vegetated: mud/silt; sand;	Examples of resources needing protection include: • Drainage systems		
	pebble/boulders.	Watercourses		
	 Vegetated: grassland; forest; wetland. 	Utilities		
Response Considerations:	 Penetration of soil below the uppermost layer must be minimized. 	Oil should be contained as soon as possible.		
	Prevent oil from entering areas with ground water.	Any flowing oil should be intercepted quickly to prevent further contamination of the surface.		
	Drains and inlets should be blocked.	 Drains and inlets should be blocked. 		

Permeable Ground



Impermeable Ground





	Water			
	Static Water	Moving Water		
Understand oil behavior:	Oil on static water will float, spreading to form a thin surface layer. Water is rarely truly "static", with wind-induced waves causing spilled oil to drift.	Oil can be rapidly transported by moving water, following the direction of both wind and currents. The oil generally spreads to form a thin surface layer and will also be subjected to significant weathering processes.		
Identify resources at risk:	Examples of resources needing protection include: • Ponds • Lakes • Reservoirs	Examples of resources needing protection include: • Rivers • Streams • Water intakes • Fishing areas		
Response Considerations:	 Prevent oil from spreading beyond the water body and contaminating further surfaces. Consider impact of oil moving into vegetated areas such, as reed beds. This will act to trap oil making it more difficult to recover. 	 Oil should be contained as soon as possible and collected. Intercept oil flowing downstream to prevent further contamination, while protecting resources at risk. 		





Moving Water





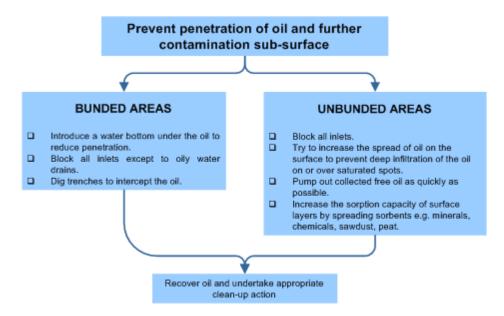
Containment of Spilled Product

On Permeable Ground

Permeable ground will pose challenges to the containment of oil as it flows in both a horizontal and vertical direction and will travel with the direction of groundwater flow once it is reached.

1. Response Priorities

When responding to a spill on permeable surfaces, it is important to minimize the amount of oil that can penetrate below the surface; this should require the oil to be spread over a large surface area in the attempt to reduce head pressure on the surface to prevent penetration. This may well be the preferable option compared to long-term operations of subsoil and groundwater clean-up.



2. Retention Capacities in Permeable Surfaces

Each type of permeable surface will allow oil to permeate at different rates and will retain oil at varying capacities. Although the pore spaces in coarser soils are larger, oil will flow through more readily (due to gravity) thus giving a lower retention capacity.

Finely packed sediments retain the oil in two ways; first, the oil molecules cannot pass so easily between the particles due to their size and secondly because the forces associated with capillary action hold the oil in the pore spaces.

Surface area is also a factor in retention capacities; small grain sediments have a higher surface area and therefore hold more oil on the surface of the grains than larger grained sediments.

Surface Type	Capacity (ltrs/m³)	
Stones / Coarse Gravel	5	
Gravel / Coarse Sand	8	
Coarse Sand / Medium Sand	15	
Medium Sand / Fine Sand	25	
Fine Sand / Silt	40	

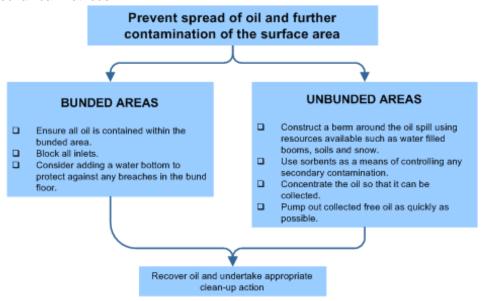
Note: Groundwater movement is very slow, usually between 0.5 m and 1.5 m per day. If oil reaches below subsurface layers, a study of the underlying hydrogeology to identify the most optimal location for the recovery of oil. Different recovery methods can then be put in place, preventing both the further spread of the oil, and flushing from the groundwater system.

On Impermeable Ground

Spill on impermeable ground will remain static until it is recovered, unless a gradient is present that may cause it to spread.

Response Priorities

If spills on impermeable ground, the response should first prevent the oil from further spreading and potentially contaminating other surface areas. Once contained, the oil will then need to be recovered through either manual or mechanical methods.





Spills in Urban Areas

Urban and built-up areas will contain a vast amount of man-made surface areas sitting alongside natural environments. These man-made surface areas will often be impermeable in nature, so prevention of spread and containment remains the main priority, however, urban areas also pose a significant health and safety risk.

Urban areas are likely to feature intricate drainage and sewage systems, therefore important to prevent the spread of oil to these highly sensitive areas where there is a risk of either contamination with sewage treatment plants and/or watercourses by:

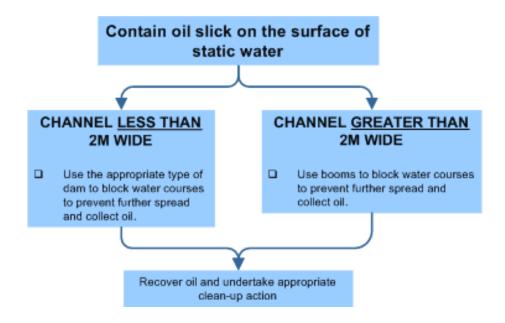
- Using dams formed from soil, sandbags, or sorbents to protect inlets.
- Seal drain gratings with plastic bags filled with water and sand.

Oil and the associated fumes can also be highly volatile. As the vapours are heavier than air, it will gather in underground lines, wells, and troughs. This leads to an increased explosion risk; therefore, it is essential to minimize the potential of ignition, ensuring that:

- Traffic is stopped and other ignition sources are extinguished.
- Any affected system operators such as utilities, telephone and railways are informed.

On Static Water

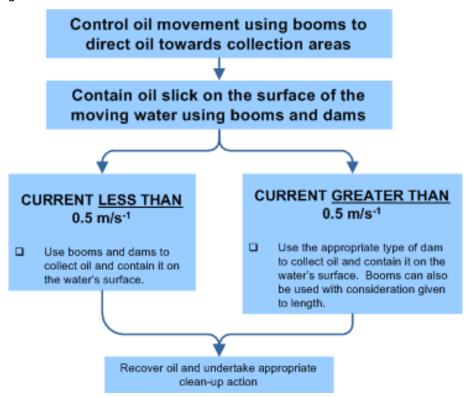
On larger areas of static water, boom can be used to contain the floating oil. The water bodies can be subject to wind-induced wave action, causing the oil to drift, therefore making it necessary to prioritize the containment to prevent further spreading. Where lakes etc. are fed and drained by watercourses, their inlets and outlets need to be protected, methods described in oil on moving water can be utilized.





On Moving Water

For spills that occur in rivers with currents more than 0.5 m/s, various techniques, and equipment, including booms and dams, have been developed to suit the relevant environmental conditions. In currents faster than 1 m/s, it is advisable to use techniques that allows water to flow freely subsurface while containing the oil solely on the surface of the water, such as a sorbent fence, inverted weir, culvert block, water gate or turner valley gate.





Containment to Recovery Process for Moving Water

Booms can be used to direct the flow of oil, limit any further spread, and then contain it on the water's surface ready for recovery. Different techniques can be employed depending on the quantity of oil spilled and the surrounding operational and environmental conditions, such as the width and windings in the channel of a river, stream, or other watercourse.

If there are pre-determined control point tactical plans this will also guide the location, personnel and equipment required to implement the containment to recovery process.

1. CHOOSE AN ACCESSIBLE AREA TO CARRY 2. IDENTIFY AND ANTICIPATE OPERATIONAL **OUT RECOVERY** AND ENVIRONMENTAL CONDITIONS Position collection areas where there are natural ☐ Estimate river speed and plan to deploy boom out at the collection points, or where water movement is slowest, correct angle. such as the inside of the river bend, or where access Use weather forecasts to predict future conditions. allows Ensure there is safe access for personnel and vehicles, DO NOT EXCEED THE MAXIMUM including temporary storage areas. ANGLE FOR THE CURRENT. SEE **GRAPH ON BOOMING TECHNIQUE** CONDUCT RECOVERY PLAN BOOM **OPERATIONS DEPLOYMENT METHOD** 4. DEPLOY BOOM AND ANCILLARY 3. PREPARE BOOM CONTAINMENT **EQUIPMENT EQUIPMENT** Deploy booms to deflect oil from the fast side to the slow Draw out booming plans side of the river and into the collection areas. Lay out booms ready to deploy upstream of the planned Deploy booms to deflect oil from the fast side to the slow side of the river and into the collection areas. In currents of more than 1 m/s⁻¹, shorter lengths of booms Deploy backup deflector and containment booms to should be used to provide more anchor points at the ensure all oil is collected. connections. Ensure distance between booms are sufficient to allow for Identify anchorage points in the river or on the banks. oil resurfacing. Prepare boom ancillaries and moorings.

Recovery of Spilled Product

A range of response strategies are available to the responder, dependent on resources accessibility. Each strategy will require a level of expertise, coordination and is likely to generate waste. These factors should also be considered when deciding on the most appropriate clean-up method to use.

Natural Recovery

In some areas, it may be less environmentally damaging to allow the area to recover naturally. Natural recovery is a slow process; however, it may be the only course of action from a safety and operational perspective.



Manual Clean Up

Manual recovery is a labor-intensive strategy that utilizes large numbers of people collecting stranded oil with the necessary tools; shovels, buckets, etc.



Mechanical Recovery

Oil can be removed from the surface using a multitude of machinery, including pumps and vacuum equipment, scrapers, graders, and oil skimmers.



Use of Water

Flooding can cause the oil to float on the water, this allows it to be recovered later by pumps and skimmers. Flushing can be used to remobilize the oil from the soil and/or wash it from the surface. Both techniques should be used carefully, and containment boom in place to prevent further spread.



Sorbents

Sorbents, made of oleophilic materials; natural (straw) and synthetic (polypropene), can be introduced to the area to selectively absorb the oil while repelling water.



In-Situ Burn

In-situ burning may be considered when physical recovery is not feasible. It is best used in remote areas, especially where roots are protected by high water levels. Some environments may recover from burning more readily than if left oiled without treatment.





Recovery Techniques

Technique	Description	Equipment / Resources	Applicability	Environmental Impacts
Manual Clean Up	Hand tool (scrapers, wire brushes, shovels, cutting tools, wheelbarrows, etc.) are used to scrape oil off surfaces or recover oiled sediments, vegetation, or debris where oil conditions are light or sporadic and/ or access is limited.	ShovelsBucketsSorbents(10-20) labourers	Can be used on all habitat types Light to moderate oiling conditions for stranded oil or heavy oils that have formed semi-solid to solid masses In areas where roosting or birthing animals cannot or should not be disturbed.	Sediment disturbance and erosion potential.
Mechanical Removal	Mechanical earthmoving equipment is used to remove oiled sediments and debris from heavily impacted areas with suitable access.	 Motor grader, Backhoe Dump truck Elevating scrapers (2-4) labourers Equipment operators 	On land, wherever surface sediments are accessible to heavy equipment Large amounts of oiled materials.	Removes upper 5 to 30 cm of sediments.
Sorbent Use	Sorbents are applied manually to oil accumulations, coatings, sheens, etc. to remove and recover the oil.	 Hand tools Sorbents (2-10) labourers	Can be used on all habitat types Free-floating oil close to shore or stranded on shore, secondary treatment method after gross oil removal Sensitive areas where access is restricted.	Sediment disturbance and erosion potential Trampling of vegetation and organisms Foot traffic can work oil deeper into soft sediments.
Vacuum / Pumps / Skimmers	Pumps, vacuum trucks, skimmers are used to remove oil accumulations from land or relatively thick floating layers from the water.	(1-2) - 50 to 100 bbl vacuum trucks w/ hoses (1-2) nozzle screens or skimmer heads (2-6) labourers truck operators	Can be used on all habitat types Stranded oil on the substrate Shoreline access points.	Typically, does not remove all oil Can remove some surface organisms, sediments, and vegetation.
Flooding	High volumes of water at low pressure are used to flood the oiled area to float oil off and out of sediments and back into the water or to a containment area where it can be recovered. Frequently used with flushing.	(1-5) - 380 to 750 lpm pumping systems (1) – 100 ft perforated header hose per system (1-2) – 200 ft containment booms per system (1) oil recovery device per system (6-8) labourers per system	All shoreline types except steep intertidal areas Heavily oiled areas where the oil is still fluid and adheres loosely to the substrate Where oil has penetrated gravel sediments Used with other washing techniques.	 Can impact clean down gradient areas Can displace some surface organisms if present Sediments transported into water can affect water quality.



Technique	Description	Equipment / Resources	Applicability	Environmental Impacts
Flushing	Water streams at low to moderate pressure, and possibly elevated temperatures, are used to remove oil from surface or near-surface sediments through agitation and direct contact. Oil is flushed back into the water or a collection point for subsequent recovery. May also be used to flush out oil trapped by shoreline or aquatic vegetation.	(1-5) - 189 to 380 lpm / 689 kpa pumping systems with manifold (1-4) - 30 m hoses and nozzles per system (1-2) - 60 m containment booms per system (1) oil recovery device per system (8-10) labourers per system	Substrates, riprap, and solid man-made structures Oil stranded onshore Floating oil in shallow areas.	Can impact clean down gradient areas Will displace many surface organisms if present Sediments transported into water can affect water quality Hot water can be lethal to many organisms Can increase oil penetration depth.
High Pressure Washing	High pressure water streams are used to remove oil coatings from hard surfaces in small areas where flushing is ineffective. Oil is directed back into water or collection point for subsequent recovery.	(1-5) - 1,200 to 4,000 psi units with hose and spray wand (1-2) - 30 m containment booms per unit (1) oil recovery device per unit (2-4) labourers per unit	Bedrock, man-made structures, and gravel substrates When low-pressure flushing is not effective Directed water jet can remove oil from hard-to-reach sites.	Will remove most organisms if present Can damage surface being cleaned Can affect clean down gradient or nearby areas.
Sediment Tilling	Mechanical equipment or hand tools are used to till lightly to moderately oiled surface sediments to maximize natural degradation processes.	(1) tractor fitted with tines, dicer, ripper blades, etc., or (1-4) rototillers hand tools (2-10) labourers	Any sedimentary substrate that can support heavy equipment Sand and gravel beaches with subsurface oil Where sediment is stained or lightly oiled Were oil is stranded above normal high waterline.	Significant amounts of oil can remain on the shoreline for extended periods of time Disturbs surface sediments and organisms.
Log / Debris Burning	Oiled logs, driftwood, vegetation, and debris are burned to minimize material handling and disposal requirements. Material should be stacked in tall piles and fans used to ensure a hot, clean burn.	(1) set of fire control equipment (2-4) fans (1) supply of combustion promoter (2-4) labourers	On most habitats except dry muddy substrates where heat may impact the biological productivity of the habitat Where heavily oiled items are difficult or impossible to move Many potential applications on ice.	Heat may impact local near-surface organisms Substantial smoke may be generated Heat may impact adjacent vegetation.
Natural Recovery	No action is taken, and oil is allowed to degrade naturally	None required	All habitat types When natural removal rates are fast Oiling is light Access is severely restricted or dangerous to cleanup crews When cleanup actions will do more harm than natural removal.	Oil may persist for significant periods of time Remobilized oil or sheens may impact other areas Higher probability of impacting wildlife.



Post-Incident

Ensure all statements, event logs, forms and documentation on the incident remain securely stored following the incident. All documentation must be held throughout construction, operation, and for 25 years following the end of decommissioning of the project.

Call Down Notification

After consultation with a senior company representative or the appropriate Regulatory Agency, Provincial Emergency Management or local County / Municipality, the Incident Commander will:

- 1. Give the "all clear" signal. Prior to the "all-clear" signal, the Incident Commander will confirm that all evacuated areas are safe to re-enter. This may involve such activities as:
 - Ensuring all equipment and locations are free of any pockets of fire, smoke and / or toxic gases.
 - o Ensuring all equipment and debris are removed from offices and / or common areas.
 - o Cordoning off the incident area to isolate any remaining hazards.
 - Checking low-lying areas and basements for contamination if a toxic leak has occurred.

After the "all-clear" message has been given, the Incident Commander will be responsible for:

- o Ensuring all evacuees are promptly notified once the call down is given.
- o Coordinating the return of any evacuees to the area. Ensure the public and employees receive any assistance they may require.
- o Maintaining security in any evacuated areas until the evacuees have returned and the businesses in the area have again become occupied.
- 2. Coordinate the deactivation of all emergency response operations, personnel, equipment, and incident areas.
- 3. Ensure all previous contacts, including other companies; government agencies, etc. are notified of the emergency status call down.
- 4. Advise all response team members to document their call down notification calls.
- 5. Prepare and release an "all clear" statement to the media in conjunction with the Regulatory Agency.
- 6. Organize debriefing meetings for advisory personnel involved. In the case of incidents that have involved a death or serious injury, consult with Human Resources personnel about arranging critical incident counselling.
- 7. Notify and debrief Joint Interest Partners and Insurance company representatives.

Note: Ensure all statements, event logs, forms and documentation on the incident remain securely stored following the incident.

Public Care and Assistance

The decision to recall evacuees will be coordinated by the regulatory agency in consultation with other applicable government agencies and the licensee. Ensure the following tasks are completed as required:

- 1. Ensure all evacuees are promptly notified once the call down is given.
- 2. Coordinate the return of any evacuees to the area. Ensure the public and employees receive any assistance they may require.
- 3. Maintain security in any evacuated areas until the evacuees have returned and the businesses in the area have again become occupied.



Post-Incident, continued

Public Care and Assistance, continued

- 4. Ensure homes and businesses are ventilated and checked for gas pockets before allowing the occupants to enter. Rovers must check each room, office, and public area.
- 5. Ensure members of the Response Teams and other key participants in the emergency are debriefed as soon as possible.
- 6. Designate a senior company representative to act as the company Liaison with the public and other companies.
- 7. Ensure the affected employees and public are provided with post-incident company contact names and telephone numbers. If the emergency has impacted a large number of the public or has caused significant damage to private property or the environment, a temporary Public Relations Office should be established in the affected area.
- 8. Schedule a follow-up meeting with the public to clearly explain the cause of the incident and to address their concerns. Organize critical incident counselling as required.
- 9. Ensure public expense / damage claims have been collected and are processed in a timely manner.

Clean-up and Repair

If a serious injury or death has occurred, the scene must be left undisturbed, as much as possible, until an investigation of the site can be completed by the appropriate authorities.

Ensure the following tasks are completed as required:

- Ensure the incident site is not disturbed if there has been a fatality or a serious injury until police, regulatory officials, and company representatives' complete necessary investigations.
- Ensure that site clean-up continues.
- Ensure that the correct procedures are developed and implemented for the decontamination of equipment.
- Ensure the On-Site Group Supervisor disposes of all hazardous waste according to applicable regulations (confer with the safety support personnel, the Response Team or other company safety personnel).

Note: The position of On-Site Group Supervisor during the remediation phase may be best filled by an Environmental Specialist.

- Ensure that priority is given to clearing debris and restoring the site to normal operating conditions after the government and company investigations are complete.
- Ensure that all safety equipment is demobilized, cleaned, and inspected for contamination.
- Ensure all roadblocks, staging area and detour equipment is demobilized.
- Ensure that all clean-up and repair actions follow the company's safety and environment policies and safe-work procedures.

Third Party Investigations

The Incident Commander will coordinate and observe all site investigations. Third party investigators such as police, government agencies and insurance companies may be required to investigate an incident site. It is important to co-operate with third party investigators. However, company personnel should be aware of the corresponding corporate guidelines.

• Obtain the name, title, address, and telephone number of all inspectors and immediately inform the Incident Commander before proceeding with the investigation.



Post-Incident, continued

- Ensure a company representative accompanies the inspector at all times. Never leave an inspector unattended.
- Give the inspectors the information they request, the facts only, no speculative information. Always tell the truth.

Document all items of evidence that the inspector has retained. Where possible, keep copies of the evidence provided to the Inspectors.

Wait until legal counsel is present before answering questions where the inspector indicates that any statements may be used as evidence or indicates that you have the right to counsel.

Review and Debriefing

The effectiveness of the MERP shall be reviewed after the end of the emergency. In some situations, a formal debriefing may be held. The objective of the debriefing should be to improve emergency preparedness and response by identifying areas of success and areas requiring improvement (a debriefing should not be a fault-finding mission). If one is held, all groups that responded to the emergency should be represented. The representatives should come prepared with complete details of their activities during the emergency and, where possible, provide supporting documentation. Common elements of an effective debriefing include:

- a. A facilitator;
- b. A secretary to record the proceedings;
- c. A review of the sequence of events, including timing and actions taken; and
- d. Identification of those portions of the MERP that were effective and those that require improvement.

Action items identified during the debriefing should be documented and assigned with completion timelines, key lessons learned from emergency outcome should be shared with the appropriate parties, and the MERP should be revised as necessary. Separate debriefings may be held with different groups that participated in the emergency (e.g., emergency services organizations, the media, etc.).

Critical Incident Stress Debriefing (CISD)

Responders are often under a great deal of stress. They must act quickly, often in the face of pain and fear, to assess the situation, determine priorities and begin rescuing others who are in danger. They may have experienced a serious injury themselves or witnessed the death of co-workers or the public.

If necessary, the Incident Commander will request that the company's Human Resource personnel dispatch specially trained counselors to meet with responders, preferably within 24 to 48 hours, to provide support and reassurance to those affected by an emergency. Team members should include a mental health professional and trained peer support personnel (fire-fighters, paramedics, police, military, etc.).

CISDs allow individuals to express the circumstances they were confronted with, how they felt at the incident and what their reactions were after the incident. The participants must understand that the meetings are strictly confidential and are not intended to judge or lay blame on an individual's actions. Recording devices and note taking should be prohibited. Meetings should be limited to a maximum of 20 individuals. Individuals who are perceived to be responsible for the incident should be excluded from group meetings and met on a one-on-one basis.

These sessions provide the responders with a supportive environment that helps them deal with their emotions. It also provides them with information about stress and its effects (severe agitation, emotional upset, inability to sleep, etc.) and it educates them about stress management techniques.



Post-Incident, continued

Post-Incident / Accident Investigation

Once the emergency status has been removed, a senior company representative will appoint a subcommittee to investigate the event. This subcommittee will consist of appropriate management and technical specialists as required.

The objective of the investigation will be to analyze and evaluate the event in order to establish a cause, to provide advice on how to prevent a reoccurrence of the event, and to make recommendations on procedures that will improve the company's emergency response efforts in the future.

The post-incident / accident investigation should include:

- A review of the events leading up to the incident / accident.
- An analysis of the on-site remedial procedures, including an evaluation of the safety standards that were applied.
- An appraisal of the company's shelter-in-place / evacuation response for the affected public.
- An evaluation of the effectiveness of the notification and communication systems between the incident site and the head office, as well as within the company.
- An appraisal of the effectiveness of any media or public relations efforts.
- An assessment of any potential legal or environmental issues that may be raised as a result of the event or as a result of the company's response efforts.
- A summary of current and future costs.
- Completed appropriate event report forms and applicable attachments.
- An assessment of the strengths and weaknesses of the company's response.

This report will be directed to the attention of a senior company representative. It will be his / her responsibility to ensure all recommendations for improvements to the Corporate and Field Emergency Response Plans are incorporated where applicable and promptly communicated to the appropriate company personnel.

All documentation recorded during and following an emergency must be retained for up to five years in the event the Regulatory Agency requests it.



Medical Emergencies

Medical emergencies can occur as a result of a pre-existing medical condition affecting an individual, an accident or injury occurring as a result of activities being conducted at a facility, or as a secondary impact of another emergency.

Conditions which cause severe distress or trauma can be life threatening, requiring immediate treatment. Minor injuries may still represent a medical emergency if unusual circumstances are observed or have occurred.

Hazards related to medical emergencies can include but not be limited to:

- A victim has stopped breathing.
- A victim's heart has stopped.
- A victim has suffered major blood loss and has gone into shock.
- A victim is suffering from internal bleeding.
- A victim has suffered a spinal break or injury.
- A victim has suffered from other broken bones.
- A victim has suffered from severe physical burns of all or portions of their body.
- A victim has suffered from chemical burns or other chemical exposure
- A victim has suffered from a combination of conditions noted above, or other life-threatening conditions.
- A responder may suffer injuries from responding to the emergency, or from being in contact with the affected individual.

Initial Response

For injuries of a minor, non-emergency nature, or for medical related conditions where the patient can be moved safely to another location without assistance, provide ambulatory assistance to the first aid facilities at the facility and request medical assistance from AFA trained or nursing staff as required. Alternately, transport the injured person to a hospital as required.

In the event of an emergency requiring on-site advanced medical aid, provide basic First Aid and/or Cardiopulmonary Resuscitation (CPR) to the patient, as appropriate and report the emergency as soon as possible.

Give the following information:

- Identify yourself.
- Describe the location of the emergency.
- Indicate than an injury, sickness or other medical emergency has occurred.
- Indicate the number of people who may require medical treatment.
- Describe the nature of the medical emergency, and provide details as to the patient's condition, as known. Important information can include but not be limited to:
 - o Is the patient breathing?
 - o Has the patient's heart stopped?
 - Has the patient experienced trauma (wounds, broken bones, broken neck, spinal, or other injuries)
 - o Is there external bleeding? Is it extensive?
 - o Is the patient in shock? Is the patient conscious or unconscious?



Indicate if any other emergency conditions have occurred as a result of the medical emergency or other conditions at the site.

Note: If the medical emergency has occurred outside the facility, and you are using an external telephone, contact the appropriate external emergency notification number for the affected facility.

After reporting the medical emergency:

- Shutdown and isolate any equipment that may cause further injury, if safe to do so.
- Do what is necessary to prevent further injury to the person or persons involved
- Do nothing that could injure yourself or others.
- Try to secure the site to prevent entry by unauthorized personnel and prevent further injury or loss.
- Remain on-scene at or near the site of the injury, if safe to do so, until trained responders arrive onsite to take charge.
- Continue to treat and identify any additional injuries, using first aid, and administer CPR as appropriate.
- Provide additional information to medical response personnel, related to the patient's condition, and contribute information related to the event, to assist in subsequent incident investigation as required.

Upon receiving an emergency call for the affected, the answering party is responsible for undertaking the appropriate notification procedures based on the severity of the incident.

General Response Actions

The Emergency Response Team (ERT) shall assume primary medical response responsibilities at the affected facility. If members of the ERT are unavailable, secondary response may be provided by any Operations Group operator trained in advance first aid.

Upon report of a medical emergency, they shall:

- Use the Mine Incident Preliminary Reporting Form (A1) to record appropriate information received related to reported medical emergency.
- Notify the General Manager (GM) of the report.
- Contact members of the ERT using radio communications channel and report a "CODE 1" to an ERT Team Leader, or any other ERT member who responds to the call.
- Provide details of the medical emergency to the ERT.
- Ensure the Trauma Kit, Stretcher and Oxygen Inhalator are transported from the medical room or other appropriate location in the facility to the location of the medical emergency.
- Mobilize ambulance services or other appropriate vehicles to the site, if requested to do so, providing verbal directions to the site and to the nearest emergency access door or area.

Mobilize S.T.A.R.S. air ambulance to respond to the site, if requested to do so.

Relinquish control of the appropriate units to another operator and remain available to provide additional communications assistance to the Incident Commander and site responders throughout the incident.

Note: Security for the affected facility should also be informed of a medical emergency, if external support is required, to ensure any ambulance or other vehicles have clear access through the security gates when they arrive on-site.



Upon receipt of a report of a medical emergency:

- The ERT personnel shall stabilize their immediate job function, if required.
- ERT personnel shall gather any required equipment and shall report to the site of the reported medical emergency. Personnel shall take further instruction from the designated ERT team leader for the incident upon arrival.
- The most senior team leader who arrives on-site shall assume the role of designated Incident Commander for the emergency.
- If an ERT Team Leader is not present on-site, the most senior team member who responds to the incident shall assume the role of Incident Commander for the emergency.
- ERT personnel with Advanced First Aid (AFA) training shall assume direct authority for patient stabilization, care, and packaging for off-site transport, as required.
- Once assembled, team organization will commence, related to leadership, manpower, medical assessment and stabilization and deployment of appropriate resources.

During a medical emergency, the Incident Commander shall ensure that:

- Appropriate medical supplies have been dispatched to the location of the medical emergency, and that it arrives on-site.
- Ground and/or air ambulance has been notified, as required for transport of injured personnel from the site
- Additional resources are requested through the appropriate Control
- Injured personnel receive proper medical attention and proper internal and external medical aid procedures have been initiated, for severe or life-threatening injuries.
- ERT personnel secure the site and undertake crowd control, as required, to prevent unauthorized access during emergency medical response to the incident.
- Any equipment has been shut down and isolated in a controlled manner to minimize further possibility of injury related to the incident.
- Medical evacuation routes have been clearly identified for transport of injured personnel from the site, and these routes are kept clear of obstructions throughout the emergency.
- ERT responder or other personnel are sent to meet the ambulance, or any other vehicle and direct them to the appropriate site.
- An incident assessment is conducted if other emergency conditions have occurred in addition to the medical emergency, to assess issues, define objectives, and implement appropriate strategies to control any other effects of the emergency.
- Emergency agencies are notified and respond to the site if outside assistance is required to control the incident.
- Company assistance is provided to external response agencies, as requested, or required.
- Appropriate internal company personnel and departments are notified of the emergency and updated throughout the incident.
- Appropriate external reports to outside agencies have been made, if other personnel are not already making these reports.
- Appropriate First Aid Records and other required documentation are completed and submitted for processing.



- An emergency organization is created on-site which effectively manages all company issues and resources related to the emergency and effectively coordinates with external emergency or government agencies.
- Follow-up investigation of the medical emergency is undertaken, based on the nature and severity of the incident, using appropriate company procedures.
- Other necessary actions are undertaken to control the incident, or effects of the incident.

Emergency Medical Transport - Ground

Medical transport services via ground access roads may not be available due to remoteness of facility.

If the medical patient has a condition where transport to a hospital facility may be safely undertaken without advanced life support assistance, any ground vehicle transport methods may be used, as available, at the discretion of the Incident Commander for the medical response.

If the patient may be moved safely using a mine contractor vehicle, and time may be saved in attending to the medical condition, request for outside ambulance should be initiated, and the patient may be transported to an agreed upon location, using the mine contractor vehicle, for patient transfer to the local ambulance authority.

Emergency Medical Transport - Air

If a medical emergency results in a very serious, life threatening injury, requiring priority transport to a medical facility, medical responders may request the services of the Shock Trauma Air Rescue Society (S.T.A.R.S.), a helicopter-based air ambulance service or through the BC Ambulance Service.

Request for air ambulance from the 9-1-1 Operator, as requested by the Incident Commander or medical responders for the incident.

Medical Aid for Flammable Liquid Spills

For injuries or skin contact which occur as a result of a flammable liquid spill, all response personnel shall ensure that:

- Victims are moved to fresh air.
- Victims are kept warm and dry.
- if required, medical personnel and an ambulance are summoned to the site for critical medical injuries using company plan activation procedures.
- Medical personnel responding to the site are made aware of the flammable chemical or product involved and take all necessary precautions to protect themselves.
- Artificial respiration is given to victims who are not breathing.
- Oxygen is administered to victims who are having difficulty breathing.
- The flammable liquid is not allowed to enter open wounds during treatment.
- Contaminated clothing and equipment which came in contact with the flammable liquid are removed from the victim and isolated.
- Skin or eyes which came into contact with a flammable liquid are flushed with running water.

Medical Aid for Corrosive Spills

For injuries or skin contact which occur as a result of a corrosives spill, all response personnel shall ensure that:

- Victims are moved to fresh air.
- Victims are kept warm and dry.



Medical Aid for Corrosive Spills, continued

- If required, medical personnel and an ambulance are summoned to the site for critical medical injuries using company plan activation procedures.
- Medical personnel responding to the site are made aware of the acidic or alkali chemical or product involved and take all necessary precautions to protect themselves.
- Artificial respiration is given to victims who are not breathing.
- Oxygen is administered to victims who are having difficulty breathing.
- The corrosive material is not allowed to enter open wounds during treatment.
- Contaminated clothing and equipment which came in contact with the corrosive spill is removed from the victim and isolated, using gloves to protect workers administering first aid from chemical burns.
- Skin or eyes which came into contact with the corrosive spill are immediately flushed with running water for at least 20 minutes.
- Skin which feels irritated or exhibits redness or soreness after minor skin contact with a corrosive spill or handling of corrosive contaminated clothing or equipment is immediately flushed with running water. (Note: a "slippery" feel to skin may be indicative that an alkali material is still present).

Note: Do not use mouth to mouth resuscitation if victim has ingested or inhaled a corrosive material. Use a proper medical respiratory device

Medical Aid for Gas Releases

For injuries or skin contact which occur as a result of a gas release, all response personnel shall ensure that:

- · Victims are moved to fresh air.
- Victims are kept warm and dry.
- Medical personnel and an ambulance are summoned to the site for critical medical injuries, using company plan activation procedures, as required.
- Medical personnel responding to the site are made aware of the gas release and the product or chemical involved and take all necessary precautions to protect themselves.
- Artificial respiration is given to victims who are not breathing.
- Oxygen is administered to victims who are having difficulty breathing.
- Skin which has come in contact with a liquefied gas and has been frozen is thawed with lukewarm water as part of medical treatment.
- Clothing which has been frozen to skin on exposure to a liquefied gas is thawed prior to removal.
- Contaminated clothing and equipment which came in contact with the toxic or corrosive gas is removed from the victim and isolated, using gloves to protect workers administering first aid from chemical burns.
- Skin or eyes which came into contact with a corrosive gas are immediately flushed with running water for at least 20 minutes.
- Skin which feels irritated or exhibits redness or soreness after minor skin contact with a corrosive gas
 or handling of corrosive contaminated clothing or equipment is immediately flushed with running
 water
- Proper treatment is undertaken for a toxic or corrosive gas which victims have been exposed to, through dermal contact or inhalation.

Note: Do not use mouth to mouth resuscitation if a victim has inhaled a toxic or corrosive gas. Use a proper medical respiratory device.

First Aid Information

DISCLAIMER: The information contained in this section does not replace formal First Aid, CPR & AED training. The company makes no guarantee as to, and assumes no responsibility for, the correctness, sufficiency or completeness of such information or recommendations. A First Aid provider is someone who has completed formal first aid training from a recognized provider. Training can be obtained from the Canadian Red Cross (www.redcross.ca) or St. John Ambulance (www.sja.ca).

The 3 basic steps to follow in any emergency:

Remember: stay calm, look for dangers, never risk your own safety

CHECK the person

- Does the person want your help? If the person is unable to answer, assume you have consent to give first aid.
- Check the person's ABCs (Airway, Breathing, and Circulation).



CALL EMS/9-1-1

- If the person responds, find out if there is a need to call EMS/9-1-1.
- If the person does not respond, call for help and EMS/9-1-1.



CARE for life-threatening conditions first

 Reduce the risk of disease transmission by using protective equipment, such as disposable gloves and a barrier device.



Canadian Red Cross Check, Call, Care First Aid Poster. Retrieved March 2021, from Canadian Red Cross Web site: https://www.redcross.ca/crc/documents/fa_poster_checkcallcare_web.pdf



CPR

The simplified Adult Basic Life Support algorithm includes five steps. The algorithm diagram provided by the American Heart Association emphasizes the following:

- 1. Assess the victim's responsiveness. If a victim is not breathing, or is not breathing normally (i.e., gasping), initiate CPR. Health care professionals should be trained to recognize cardiac arrest that presents as seizure-like activity or with agonal respirations.
- Activate EMS (Emergency Medical Response) by calling 911.
- 3. Retrieve a defibrillator, usually an automatic external defibrillator (AED).
- 4. The algorithm proceeds in a loop of CPR and rhythm checks with defibrillation.
- 5. Check PULSE before chest compressions for at least five seconds and no more than ten seconds. If in doubt, begin compressions
- 6. CPR: push hard and fast. Begin chest compressions before ventilation. Chest compressions allow blood flow to the heart and brain. Delays in chest compressions result in diminished survival. Be sure to allow the chest to recoil between compressions. The chest should be compressed 100-120/min to a depth of 2"-2.4" (5-6cm)
- 7. For effective breathing, watch for chest rise and avoid excessive ventilation. 10 BREATHS should be delivered each minute, or one breath every six seconds. Each breath should be delivered over 1 second. Observe visible chest rise.
- 8. Avoid gastric inflation, as it may result in aspiration, pneumonia or vomiting.
- 9. The ratio of chest compressions to breaths is 30 to 2.
- 10. After the defibrillator becomes available, check rhythm. Use the AED when indicated and available. The victim should receive a shock that is repeated every two minutes or 5 cycles.

Burns

The American Red Cross recommends these steps to care for minor burns.

- Stop the burning. Put out the flames or remove the victim from the source of the burn.
- Cool the burn. Use large amounts of water to cool the burned area. DO NOT use ice or ice water
 other than on small superficial burns. Ice causes body heat loss. Use whatever resources are
 available: tub, shower, or garden hose. You can apply soaked towels, sheets or other wet cloths to
 a burned face or other areas that cannot be immersed. Be sure to keep cloths cool by adding more
 water.
- Cover the burn. Use dry, sterile dressings or a clean cloth to cover a burn. Loosely bandage them in place. Covering the burn helps keep air out and reduces pain. Covering the burn also prevents infection. If the burn covers a large area of the body, cover it with clean, dry sheets or other cloth.

For minor burns and burns with open blisters that are not serious enough to need medical care, wash the areas with soap and water. Keep it clean. Put on an antibiotic ointment. Watch for signals of infection.

Critical burns will need immediate medical attention. Call 911 or your emergency number if any one of the following instances occurs:

- Victim is having difficulty breathing.
- More than one part of the body is burned.
- There are burns to the head, neck, hands, feet, or genitals.
- A child or an elderly person has been burned.
- Chemicals, electricity, or explosions have caused the burns.



Chemical Exposure Guidelines

- In the event of chemical exposure, emergency services or poison control centre should be contacted as soon as possible.
- The eye may be irrigated using copious amounts of clean water, preferably using an eyewash bottle, eyewash station or shower.
- First aid providers may use continuous, large volumes of clean water for irrigation of chemical injuries where chemical exposure has occurred to other parts of the body.

Wounds & Abrasions Guidelines

- Superficial wounds and abrasions should be irrigated with clean water, preferably tap water because
 of the benefit of pressure.
- First aid providers may apply antibiotic ointment to skin abrasions and wounds to promote faster healing with less risk of infection.
- First aid providers may apply an occlusive dressing to wounds and abrasions with or without antibiotic ointment.
- The use of triple antibiotic ointment may be preferable to double- or single agent antibiotic ointment or cream.
- If antibiotic is not used, antiseptic could be used.
- There is some evidence that traditional approaches, including applying honey, are beneficial and may be used on wounds by first aid providers.
- People with wounds that develop redness, warmth or become painful or with wounds where the person develops fever should seek assessment from a healthcare provider.

Bleeding Guidelines

- First aid providers must control external bleeding by applying direct pressure.
- The use of pressure points and elevation is NOT recommended.
- When direct pressure fails to control life-threatening external limb bleeding or is not possible (e.g.
 multiple injuries, inaccessible wounds, multiple casualties), tourniquets could be considered in
 special circumstances (such as disaster, war-like conditions, remote locations or in instances where
 specially trained first aid providers are providing care).
- Localized cold therapy with or without pressure may be beneficial in haemostasis for closed bleeding
 in extremities. Caution is advised when applying this recommendation to children due to a potential
 for hypothermia.
- The out-of-hospital application of a topical haemostatic agent to control life threatening bleeding not controlled by standard techniques and in situations where standard techniques could not be applied could be considered with appropriate training.

Source: www.redcross.ca/crc/documents/1303501 FirstAid-2016 Guidelines LR-PDF.pdf



Pandemic Response

Guidelines for Response

For pandemic responses, Artemis Gold has aligned with the World Health Organizations (WHO) six-phase approach given its universal application in the countries in which we operate. The WHO uses a six-phased approach for easy incorporation of new recommendations and approaches into existing national preparedness and response plans. Phases 1–3 correlate with preparedness, including capacity development and response planning activities. Phases 4–6 signal the need for response and mitigation efforts. Periods after the first pandemic wave are elaborated to facilitate post pandemic recovery activities.

Phase 1

No viruses among animals have been reported to cause infections in humans.

Phase 2

An animal influenza virus among domesticated or wild animals is known to have caused infection in humans and is therefore considered a potential pandemic threat.

Phase 3

An animal or human-animal influenza has caused sporadic cases or small clusters of disease in people but has not resulted in human-to-human transmission sufficient to sustain community outbreaks. Limited human-to-human transmission.

Phase 4

Verified human-to-human transmission of an animal or human-animal influenza virus able to cause "community-level outbreaks." The ability to cause sustained disease outbreaks in a community marks an upwards shift in the risk for a pandemic. Phase 4 indicates an increase in risk of a pandemic but does not necessarily mean that a pandemic is a forgone conclusion.

Phase 5

Human-to-human spread of the virus into at least two countries in one WHO region. While most countries will not be affected at this stage, the declaration of Phase 5 is a strong signal that a pandemic is imminent and that the time to finalize the organization, communication, and implementation of the planned mitigation measures is short.

Phase 6

The pandemic phase is characterized by community level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in Phase 5. Designation of this phase will indicate that a global pandemic is under way.

Post-peak Period

Pandemic disease levels in most countries with adequate surveillance will have dropped below peak observed levels. The post-peak period signifies that pandemic activity appears to be decreasing; however, it is uncertain if additional waves will occur, and countries will need to be prepared for a second wave. Previous pandemics have been characterized by waves of activity spread over months.

Once the level of disease activity drops, a critical communications task will be to balance this information with the possibility of another wave.

Post-pandemic period

Influenza disease activity will have returned to levels normally seen for seasonal influenza. It is expected that the pandemic virus will behave as a seasonal influenza A virus. At this stage, it is important to maintain surveillance and update pandemic preparedness and response plans accordingly. An intensive phase of recovery and evaluation may be required.

Potential Response Actions

Artemis Gold will respond to World Health Organization (WHO) Phase of Pandemic Alert (Phase 1 through to 6) and local health authority direction.



General Manager (GM) Incident Management Team (IMT)	Chief Operating Officer (COO) Crisis Management Team (CMT)			
Phase 1				
No action.	No action.			
Phase 2				
 Monitor situation. Depending on media coverage and internal requests/anxiety – companywide notification may be required to ease concerns. Phase 3 Monitor local and international Health Authority communications (Northern Health Authority, Health Canada, Center for Disease Control (CDC), World Health Organization (WHO). Monitor media daily. Notify Chief Operating Officer (COO) of increased threat of pandemic. Determine if management/leadership group requires briefing. Review upcoming travel plans for staff: International business travel International personal travel. Contemplate travel restrictions. Prepare fact sheet on specific influenza virus identified if required. Communicate to staff regarding status of pandemic preparedness. 	Review annual influenza plan with HSE Manager prior to typical influenza season. Review the status of all planned activities for the upcoming influenza season, brief management committee as required and, in good time, direct activities as necessary to prepare for the potential conditions such as: High percentage of work force absence. Coordinate access to medical team as required. Review applicability of travel restriction guidance with Executive Team. Review applicability of personnel quarantine guidelines with Executive Team. Monitor media daily. Have Mine Manager review upcoming travel plans for staff: International business travel.			
 Begin preparation of additional communication materials (PowerPoint, bulletins, Intranet) specific to potential pandemic influenza strain. Ensure adequate supply of personal hygiene materials (hand wash gel, masks for sending people home, paper towels). 	 International personal travel. Contemplate travel restrictions. Communicate to staff regarding status of pandemic preparedness. Provide review of additional communication materials (bulletins, Intranet) specific to potential pandemic influenza strain. 			
Review quarantine requirements.				
Phase 4				
 Increase surveillance and activate Pandemic Preparedness Plan. Alert international operations of impending pandemic and that Artemis Gold has initiated response plans. Brief Global (Finance, Accounting, BD, Operations; domestic and international) management/leadership team: 	 Increase surveillance and activate Pandemic Preparedness Plan in coordination with HSE Manager. In coordination with HSE Manager, brief Global (Finance, Accounting, BD, Operations; domestic and international) management/leadership team on: Business continuity plan. 			
Business continuity plan.Preventative measures.	Preventative measures.Staff communications.			

methods.

Expectations.

Staff communications.

methods.

Expectations.

Reinforce personal hygiene and prevention

Expectations for managing travel.

Reinforce personal hygiene and prevention

Expectations for managing travel.



General Manager (GM) Incident Management Team (IMT)

Phase 4, continued

- Monitor number and severity of confirmed pandemic virus cases in countries in which we operate.
- Prepare regularly scheduled meeting with COO and VP People for updates, estimate 2 to 3 times per week or if significant change occurs.
- Review Critical Staff lists to ensure accurate and up to date.
- Ensure adequate resources are in place for back up of critical roles.
- Ensure Emergency Preparedness is not
- compromised.
- Ensure IT is prepared for potential remote access for critical business functions.
- Hardware is functioning as designed.
- Licenses are in place for anticipated user numbers. Laptops are assigned, as required, additional devices sourced for rental.
- Release hygiene communications and fact sheets to staff, develop frequency of communications.
- Contact building Management to confirm building operations parameters.
- Develop and communicate travel restriction policy based on location of outbreaks and severity of illness.
- Develop quarantine requirements with COO and VP People and communicate to
- management/leadership team.
- Source alternate locations in Calgary for Executive team to meet in event access to building is denied.
- Review and evaluate opportunities for global awareness of Pandemic Preparedness (i.e.
- Previously scheduled town hall meetings, topic specific venue).
- Review planned shutdown procedures with GMs should a large percentage of staff not be able to report to work (either due to illness or support of family members).
- Review with GMs critical business supplies/services and back-up plans to ensure business continuity.
- Review with GMs those companies that rely on Vermilion to continue operations.

Chief Operating Officer (COO) Crisis Management Team (CMT)

- Prepare regularly scheduled meeting with COO and HSE Manager for updates, estimate 2 to 3 times per week or if significant change occurs.
- Review in coordination with HSE Manager critical
- Staff lists to ensure accurate and up to date.
- Ensure adequate resources are in place for back up of critical roles.
- Ensure Emergency Preparedness is not compromised.
- Release hygiene communications and fact sheets to staff, develop frequency of communications.
- Develop and communicate travel restriction policy based on location of outbreaks and severity of illness.
- Develop guarantine requirements with HSE
- Manager and Executive. Communicate to management/leadership team.
- Review and evaluate opportunities for global awareness of Pandemic Preparedness (i.e. Previously scheduled town hall meetings, topic specific venue).
- Ensure critical HR systems (i.e. Payroll) will function throughout pandemic.



Maintain surveillance and update pandemic

response

and

preparedness

accordingly.

General Manager (GM) Chief Operating Officer (COO)			
Chief Operating Officer (COO)			
anagement Team (CMT)			
coordination with HSE Manager, nunicate to staff via bulletins and net regarding risks, procedures and ctations, frequency will depend on level aff anxiety and virus severity. se global travel restrictions if required. se quarantine measures if required. force personal hygiene practices to all globally on a regular basis. Indule daily updates with COO and HSE ager to review status of pandemic, pay tion to: It ber of cases in regions of operations. In intecism. In it in the service of the servic			
re all critical and vital business function Evaluate all measure used to mitigate ct and adjust as required. inue monitoring and determine if aredness for a second wave is required. inue communications campaign for onal hygiene and social distancing – not me to send "All Clear" signal. In a review of Phase 4 and Phase 5 is has been completed to ensure lies and services are being adequately ered in the event a second wave hits.			

plans

Maintain surveillance and update pandemic

accordingly in conjunction with the HSE

response

and

preparedness

Manager.



Travel Restrictions

The decision to invoke travel restrictions will be made by the CMT. Consideration of location, severity and country of origin will be taken into account as it relates to Business Continuity, not the prevention of the spread of the disease.

Health Canada has the following three-tiered approach to travel alerts. Artemis Gold has adopted Health Canada's system to be used as a guideline.

Travel Advisory	Travel Warning	Travel Restriction
Involves health risks posed by known infectious diseases or conditions within a particular geographic location. The advice deals with risks that are restricted entirely to the traveller and have no potential implications for the non-travelling Canadian population. Advisories are issued to encourage healthy travel abroad through the provision of vaccination, preventative medication and personal protective measures that may be taken to reduce identified health risks.	Issued when there are elements of uncertainty concerning the risk of an identified illness at a particular destination or when the health risk to travelers is high. Travel Warnings are issued to protect health of travellers by providing recommendations on vaccination, preventative medication, personal protective measures, and where necessary the postponement of non-essential travel.	Issued when a risk involving a dangerous contagious disease that would have serious implications for both the traveler and the general population has been identified. A Travel Restriction could recommend the suspension of all travel to or from a particular region and/or mandatory quarantine for travelers arriving from a particular region. Travel Restrictions are issued to protect the health of travelers and the general public by limiting travel in order to prevent the importation of a highly pathogenic infectious disease into the country.

Pandemic Quarantine Measures

The purpose of quarantining is to:

- 1. Immediately remove potentially infected personnel from the workplace; or
- 2. Ensure that personnel do not report to work if experiencing flu like symptoms to reduce the spread of a virus.

Time frames for quarantine periods will be determined by the severity of the pandemic and communicated to all personnel. Company representatives will determine locations of all business and personal travel over the pandemic period. Evaluation of mandatory quarantine for those returning to their home country (regardless of if flu symptoms present) will be made in each and every case. If personnel exhibit flu like symptoms, they are to immediately don a surgical mask and leave the premises and the area of the worker experiencing flu like symptoms will be cleaned and posted. If able, quarantined personnel are expected to work from home during the quarantine period.

Duration of this preventative measure will be determined by the executive. For quarantined personnel in non-critical or vital business functions, remote access requirements may be reviewed to assess the ability of the worker to continue remotely performing regular duties. Quarantined personnel can return to work after notification from their supervisor.



Next-of-Kin (NOK) Management

When an employee, contractor or member of the public is seriously injured, missing, or pronounced dead, the next-of-kin (NOK) must be notified as promptly as possible. Keep in mind the following policies before notifying any NOK:

- Death is never presumed, and first aid must be administered until relieved by a paramedic.
- No telephone or radio discussion is to take place regarding the name(s) of the injured.
- Notification of a death is not to occur until the victim has been pronounced dead by a medical doctor or medical examiner.

If a NOK is being enquired about, the HR Advisor will take the enquirer's name and details, then advise that a company representative will contact them as soon as possible. The HR Advisor will then ensure that the notification process is followed, coordinating the involvement of senior managers and the police as needed.

Notifying the NOK of a missing or injured employee

When an injury occurs, or an employee is missing in a work-related incident, the HR Manager will coordinate their NOK's notification. The priority is to ensure that support and accurate information is provided to concerned relatives and friends.

The ERT or Medical personnel responding to an incident in which a person is injured or requires evacuation are to contact:

- Supervisor
- Response Manager or Incident Commander
- The HR Advisor

Although NOK notification will be coordinated by the HR Manager the Incident Commander is responsible for making notifications. It is also important to ensure that the consent of the injured employee has been gained, if possible, prior to notification. If the employee is unable to provide consent due to the nature of their injuries, then consent will be considered to have been implied.

If possible, two people, including the victim's most senior supervisor, should visit the NOK. Counselling support should be offered, and contact maintained. The same procedure applies when an employee is unaccounted for

The person(s) notifying any NOK should observe the following guidelines:

- You must be in an emotionally fit state to do so
- Timing is important. It is best to visit / notify immediately after the incident
- If possible, notification of a serious injury should be conducted in person if possible.

In the event of a serious injury the General Manager is responsible for ensuring that the members of the family are offered transport by the company to the hospital and that professional arrangements are offered to care for any children remaining at home.

If the injury results in a lengthy period away from work or hospitalization, then the General Manager is responsible for arranging company representatives to visit the injured person(s) and be aware of his / her progress and should assist with any problems relating to the injury.



Guidelines for Notifying NOK of Injury

Before making the notification

Gather as much information as possible about the nature of the injury and the victim's condition

- If possible, arrange for two people to make the notification in person.
- Make the notification in-person (where possible).
- Take two vehicles if possible.
- Identify yourself and ask to come into the house.
- Be certain you are talking to the correct person.
- Plan to stay long enough to provide information and support.

Making the notification

- Begin by saying, "There has been an incident at the site and unfortunately..."
- Deliver the message directly.
- Speak carefully and give any available details. Try presenting the information in chronological order
- Answer questions calmly. Write down any questions you can't answer and arrange to get them answered promptly.
- Provide information such as the injured employee's location, how they were transported to hospital
 and their condition.
- Say, "I'm sorry this happened".
- Provide assistance or seek medical help if the person you are notifying suffers from a shock reaction
- Offer to contact others who must be notified or may come to support them, writing down who you contact.
- Offer transportation to visit the injured employee.
- Advice that counselling is available.

After making the notification

- Inform injured employee's supervisor of the notification.
- Ensure that regular contact is maintained with NOK.
- Confirm that support offered to NOK has been delivered.
- If required, a senior company representative will ensure that a trained psychologist conducts critical incident stress debriefing sessions with next-of-kin, friends and company employees involved or affected by the tragedy.
- Advise the employee's family that a senior company representative will be contacting them to discuss
 any immediate needs and to provide information on insurance coverage and benefits support. Follow
 up on this commitment.



Notifying the NOK of a Death

Death notifications should be made by the police. However, the most senior person available and the victim's immediate supervisor should accompany the police to visit the employee's NOK. If this is not possible, then every attempt should be made for a follow-up visit to be made after the official notification.

Similarly, to the notification of NOK of an injured employee, the person(s) notifying any NOK should observe the following guidelines:

- You must be in an emotionally fit state to do so
- Timing is important. It is best to visit / notify with the Police immediately after the notification
- If possible, follow up of Police notification of a fatality should be conducted in person.

Contact with the NOK in these circumstances must be maintained to ensure that support is offered. In case of a prolonged period of formal identification and death declaration, the General Manager will manage ongoing communication with the NOK.

Guidelines for Notifying NOK of Death

Notification of death should be made by the police. However, if possible, the Incident Commander and the victim's immediate supervisor should coordinate with the police to be present. Otherwise, a follow-up visit should be arranged.

Before making the notification

- Never release the names of the injured, missing, or persons pronounced dead before the next-of-kin are notified.
- Triple-check the identity of any casualty.
- If the casualty is conscious, document concerns. Do not make promises that cannot be kept.
- Confirm the casualty's relationship with the people being notified.
- Be prepared to support the next-of-kin. Provide assistance such as transportation, childcare, alternative accommodation, reimbursements for daily expenses, and the temporary care of the family home if required.
- Gather as much information as possible about the incident, if possible, arrange for two people to visit the NOK.
- Be certain that the police have made the notification Take two vehicles if possible.
- Identify yourself and ask to come into the house Be certain you are talking to the correct person.
- Plan to stay long enough to provide information, support, and direction.

Making the visit

- Provide the relatives with as much information as possible; too few details can cause excessive worry. Present only the facts; do not speculate.
- Do not discuss personal views of liability or fault.
- Document the details of anyone who appears to be having trouble coping with the incident so that he / she can be given prompt psychological support.
- Do not leave the next-of-kin alone.
- Listen and be compassionate and supportive.
- Speak carefully, giving any other details that are available.
- Reassure them that an investigation is underway to determine causes and to prevent recurrence.



- Answer questions calmly. Write down any questions you can't answer and arrange to get them answered promptly.
- Say, "I'm sorry this happened".
- Accept the emotions of the person you are notifying and your own.
- Provide assistance or seek medical help if the person suffers an emotional shock reaction Offer to call a friend or family member who could come and offer support.
- Leave your name and telephone number with family members.
- Provide assistance with their next steps.
- Advise that counselling is available.

After Making the Notification

- Inform the deceased employee's supervisor of the visit.
- Ensure that regular contact is maintained with the NOK.
- Confirm that support offered to NOK has been delivered.
- The HR Advisor will be contacting them to discuss any immediate needs and to provide information on insurance coverage and benefits support. Follow up on this commitment.

NOK Room

In an emergency, the HR Advisor will coordinate a NOK room to be set up if required in the location desired by the General Manager. This will be set up at an appropriate location dependent on the location of affected NOK. The purpose of the NOK room is to give direct family members of employees a place where they can receive support and information.

It is essential that the HR Advisor remains updated on the facts of the emergency by liaising with the Incident Commander and Communications Advisor. They must track the status of employees.

Establishing a NOK room

NOK Room Equipment / Requirements		
A quiet room away from traffic and the media		
NOK are not visible to the media and are not able to overhear conversations from employees or senior management		
Located near amenities such as bathrooms		
At least two dedicated phone lines and a fax machine		
Sufficient and comfortable seating		
Tissues		
Garbage bin(s)		
Computer (laptops) with internet and a printer		
Stationary		
TV, radio, and current newspaper		
List of appropriate company contacts		
Tea and coffee making facilities (or close access to these)		
Access to a counsellor		
Regular updates (in person) on the situation and what information is being released to the		



Critical Incident Counselling

A critical incident is a traumatic event that causes people to experience strong emotional reactions. Examples of critical incidents are:

- Witnessing death or serious physical injury caused by traffic and machinery accidents, burns, rock falls etc.
- The unexpected death or suicide of a relative, friend or co-worker.

The HR Advisor would need to source assistance of an appropriately qualified counsellor or refer to the Employee Assistance Program (EAP) should the need arise.

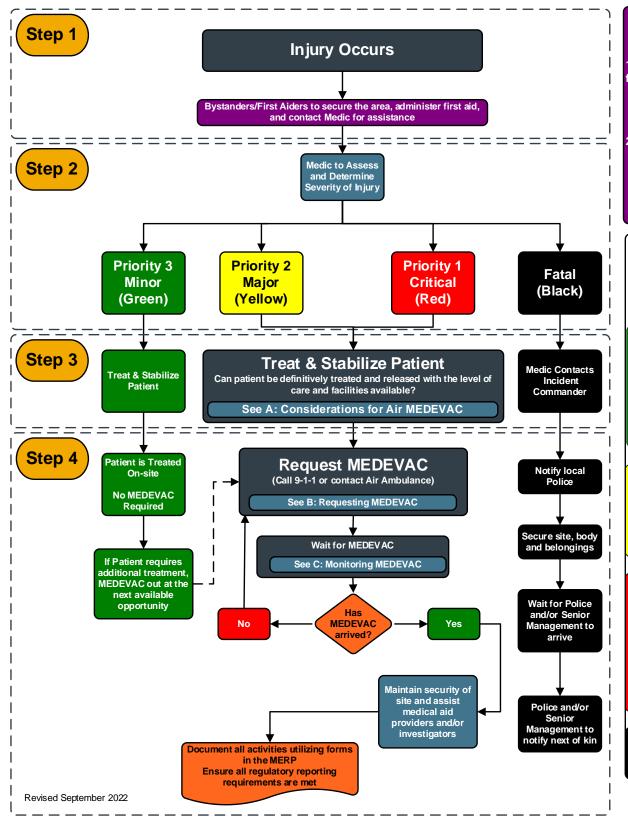
When contacting the EAP provider for critical incident response, the following information must be given:

- The organization's name
- A brief description of the critical incident
- Where and when the critical incident occurred
- The number of people involved
- Flight or road travel arrangements Accommodation
- · The involvement of other emergency services; and
- The availability of an area where debriefing can be conducted privately and without interruption.

The counsellor will then proceed to the site to initiate counselling procedures.

Note: Refer to the Post-Incident (red tab) section for information on Critical Incident Stress Debriefing (CISD) for first responders.

Medical Evacuation (MEDEVAC) Procedure



In the event of any injury or illness the following steps shall be followed:

1) Survey the scene and ask yourself the following questions:

- Is it safe for me to help?
- What happened?
- How many people are injured?

2) Call for help:

- 1) Activate Emergency Responders and/or call 9-1-1
- 2) Identify your location
- 3) Follow the direction of the Medic and administer First Aid if required and you are trained to do so
- 4) Review Step 1

Patient Priority Colour Code (Triage)

The practice of colour coding patients is a useful tool to prioritize patients into categories depending on their medical condition. This colour code system allows ease of communicating the condition of the patient to those involved in the care and transportation of the patient.

<u>Green</u> – Patients with minor injuries or illnesses who are usually walking. Medical care can be delayed beyond 2 hours.

For example:

- Minor burns
- > Sprains and strains
- > Colds and flu symptoms

Yellow - Patients with major injuries or illnesses that should be treated within 20 minutes to 2 hours.

For example:

- Open fractures
- Large lacerations

Red - Patients with critical, life threatening injuries or illnesses that require treatment as soon as possible.

For example:

- Airway problems
- Severe hemorrhage
- > Severe burns
- Failing vital signs

Black - Death is obvious. Note: resuscitation / treatment must continue until directed otherwise by a qualified medical provider. Await Police.

A: Considerations for Air MEDEVAC

Consider air transport when:

- Patient requires critical care life support during transport that is not available
- Patient's condition requires that time spent in transport be as short as possible
- Potential delays associated with ground transport (road obstacles or conditions, traffic, distance) are likely to worsen the patient's condition.
- Patient is located in an area inaccessible to regular ground transport.
- The use of medical transportation resources would leave the local area or worksite without adequate medical coverage.

B: Requesting MEDEVAC

When requesting MEDEVAC, be prepared to supply the following information:

- Location of patient pickup (facility, airport, road intersection, GPS)?
- Who will be meeting MEDEVAC crew (radio callsign / frequency, cell number)?
- Will the patient meet the MEDEVAC crew at the pickup location or will the
- MEDEVAC crew need to be transported to the patient?

 Any special equipment required (ventilator, bariatric transport equipment, etc.)?
- Will any additional personnel be necessary (physician, nurse)?
- Is there an intended destination (major hospital, community)?
 Has any consultation with medical providers at the intended destination been

Do not delay launch / dispatch of MEDEVAC, provide the following information once available:

- Mechanism of injury (and time of injury if known)
- Injury or illness sustained Symptoms and vital signs
- Treatment given

C: Monitoring MEDEVAC

When requesting MEDEVAC, ensure that you are monitoring the transport and are aware of who to contact for updates and in case changes to plan are required.

When is MEDEVAC transport scheduled to arrive?:

What number should be contacted if something in the plan needs to be changed?

If transport doesn't arrive, or if no updates are heard, what time will we contact MEDEVAC for an update?

Emergency MEDEVAC Phone Numbers

BRITISH COLUMBIA AIR AMBULANCE - 911 Cell / Satellite / Outside BC: 250-374-5937

No 911 service available:

800-461-9911

STARS AIR AMBULANCE 24 Hour Emergency:

888-888-4567

Note: When a medical evacuation is complete all personnel must report to the Incident Commander for a debriefing session.

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Responder Safety Site Safety

Response personnel must stay out of the hazard area until the hazards are identified and assessed. All responders must evaluate potential site hazards including ignition sources or vapours gathering in low-lying areas such as ditches, trenches, and forested areas. The nature of a hazard will influence the responses. Therefore, the following characteristics about the hazard **must** be considered:

- The quantity and type of product involved.
- The potential for the situation to escalate.
- The location of the incident, the time of day and the weather conditions.
- Actual and perceived danger to responders, the public and the environment.
- The number of responders and their training.
- The availability of response equipment.
- The availability of external support, e.g. ambulances, police, fire fighters and mutual aid.

Responders **must** approach an incident site that may have gases or explosive vapours from an upwind or crosswind direction. They should inspect the site from a distance (using binoculars if possible) if hazards have not been assessed. When on-site, responders must take the following precautions:

- Identify safe escape routes away from hazardous areas.
- Continue to assess the related hazards, e.g. toxic vapours, fire, or explosion hazards.
- Protect themselves and others (responders and public) before initiating control and containment operations.
- Do not allow anyone, including first responders such as police, fire fighters or ambulance attendants to enter the hazard area unless they are properly trained and equipped with personal protective equipment.
- Avoid extinguishing an ignited hydrocarbon release if the supply cannot be stopped.
- Only attempt fire control on small fires. Extensive fires or uncontrolled facility fires must be dealt with by external firefighting professionals. Responders must not attempt to battle a fire without adequate firefighting equipment, training, and backup personnel.
- Advise fire authorities when a company facility is threatened by an external fire. They should also be made aware of dangerous products or flammable hazards at the facility, such as pressurized NGL vessels, chemical and fuel storage.

Consider an outside expert when necessary. Well control, for example, is a specialty requiring specific experience, equipment, and procedures.

Site Safety Assessment

As part of response to every emergency, the Incident Commander or designate, shall conduct a site safety assessment, as part of site activities, to identify potential site safety concerns and hazards. Site safety concerns can include but not be limited to:

- Emergency access and egress routes from the site.
- Potential hazards related chemicals or other substances involved in the incident.
- Potential for fire or explosion occurring (if ignition has not already occurred).



- Potential for toxic gas release.
- Potential for confined space entry.
- Potential hazards related to a rescue or medical treatment of an injured individual.
- Potentially hazardous conditions related to the location of a site, or site topography.
- Need for use of specialized personal protective equipment to respond to the emergency.
- Location of medical facilities, firefighting equipment, or other resources, in relation to the incident site.

Based on the findings of the incident assessment, the Incident Commander shall brief response personnel as to site concerns, implement appropriate protective measures, and ensure appropriate safety equipment is used or brought to the site, to protect the safety of emergency personnel.

Site Precautions

Throughout the incident, all emergency response personnel shall monitor site conditions and ensure that:

- Potentially hazardous situations or locations are identified, and hazardous areas are clearly marked.
- Potential safety hazards are evaluated before undertaking any site activity.
- Any hazardous conditions discovered at the site are communicated to the Incident Commander or site designate.
- Site debris is kept to a minimum and the site is kept as orderly as possible, within the bounds of practicality.
- Contact with contaminated material is avoided or kept to a minimum if possible.
- Vehicles are driven at an outside incident site in a safe manner and that a safe travel speed is maintained at all times based on weather, posted speeds and other site conditions.
- Appropriate on-site security or other personnel are informed of any travel to other locations before individuals leave the site, and that they are informed of when individuals plan to return (as required).

Throughout the incident, the Incident Commander shall monitor site conditions and ensure that:

- Site security is maintained at all times to ensure the safety of the public.
- Hazardous areas are identified using red ribbon, to prevent through traffic and to indicate an area where unauthorized access is prohibited'
- Unobstructed evacuation routes for emergency personnel are maintained at all times, to allow personnel to leave the site quickly if a hazardous condition threatens their safety.
- Sufficient supplies for the personal comfort of emergency personnel are provided, for work areas away from a facility (e.g., water supplies, toilet facilities, personal hygiene facilities, shelter from the elements).
- Sufficient first aid facilities and firefighting equipment are provided at a facility or at a work site away from a facility and that workers are aware of the location of this equipment.
- All temporary equipment or portable storage vessels or tanks are placed on stable ground at the emergency site.
- All hazardous areas or open excavations are identified and clearly marked with barricades, and / or signs.
- All isolated work locations are checked periodically during the day and all emergency personnel are accounted for at the end of each shift.



Hazardous Vapours

To protect again hazardous vapours, as required, all emergency response personnel shall ensure that:

- Gas monitoring equipment is functioning properly prior to use and is properly calibrated. Any
 malfunctioning equipment should be replaced before continuing work activities.
- All buildings, confined spaces or low-lying areas are monitored for hazardous vapours, before and during entry into the area.
- Monitoring is undertaken at the emergency site for flammable vapours, toxic vapours, oxygen levels, or other vapours as required, based on the hazards related to the emergency and site conditions.
- No personnel enter the site, or all personnel are evacuated from the site immediately, as appropriate, if levels of hazardous vapours exceed air monitoring guidelines.

Air Monitoring Guidelines

Hazard	Gas Concentration	Recommended Action
Flammable or Explosive Atmosphere	< 10 % Lower Explosive Limit (LEL)	Continue investigation
	> 10% Lower Explosive Limit (LEL)	Fire or explosion hazard. Withdraw from area immediately
Oxygen Deficiency	< 19.5%	Use SCBA.
		Note: Combustible Gas readings are not valid in atmospheres <19.5% oxygen
	19.5-23%	Continue investigation. SCBA not required based on oxygen content alone.
	>23%	Oxygen rich atmosphere Potential for spontaneous combustion, fire, or explosion. Withdraw from area immediately
Other Hazardous materials	Consult OSHA or other appropriate guidelines	Withdraw from area immediately if guidelines are exceeded

To protect against hazardous vapours at the site, as required, the Incident Commander shall ensure that:

- Adequate, appropriate monitoring equipment is available at the site for worker protection.
- Workers are trained in the proper use of monitoring equipment.
- Wind monitoring devices (e.g., windsocks) are present at all required locations throughout the emergency.
- Vehicles are not parked at the site in such a way that exhaust fumes can enter buildings or shelters and cause accumulations of hazardous vapours (e.g., carbon monoxide, diesel, or gasoline fumes).



On-Site Work Areas

The On-Site Group Supervisor may choose to separate the site into three distinct areas to clearly identify the high-risk areas and to reduce the hazards to the on-site responders. The three areas could be defined as the safe area, the hazardous area, and the decontamination area.

Hazardous Area (Hot Zone)

Extreme caution and planning must be undertaken when entering the hazardous area. Access to and from the hazardous area will be controlled. Only personnel with appropriate personal protective equipment, training and an understanding of the specific response and control procedures will be allowed into the hazardous area. An example is confined space entry and rescue. Prior to entry into the hazardous area, all personnel should fully understand the goals, the method of on-site responder communication and the rescue plan.

The following guidelines help the On-Site Group Supervisor to determine the hazardous area. An area is considered hazardous if any of the following conditions exist:

- Combustible gas reading of 10% LEL or greater
- H₂S gas reading of 15 ppm or greater for 15 minutes
- SO₂ readings of 5 ppm or greater for 15 minutes
- Oxygen content of less than 19.5% or greater than 22%
- Presence of organic and inorganic vapours / gases and liquids (consult Safety Data Sheets (SDS) for toxicity data)
- An area the On-Site Group Supervisor deems to be hazardous, such as the area surrounding a fire or spill

The On-Site Group Supervisor will consider the following on-site conditions when determining the size of the hazardous area:

- The location of access routes, power lines, pipelines, fire, and explosion hazards
- Areas where vapours are likely to accumulate such as downwind areas, low areas, confined spaces
- Site stability, e.g. steep slopes, overhanging banks, unstable soil, thin ice
- Weather conditions
- The toxicity and evacuation data for the product involved (Refer to SDS)

Decontamination Area (Warm Zone)

Personnel responding to hazardous substance emergencies may become contaminated in several ways:

- Contacting vapours, gases, mists, or particulate in the air.
- Being splashed by materials while sampling or opening a container.
- Walking through puddles of liquids or on contaminated soil.
- Using contaminated instruments or equipment.



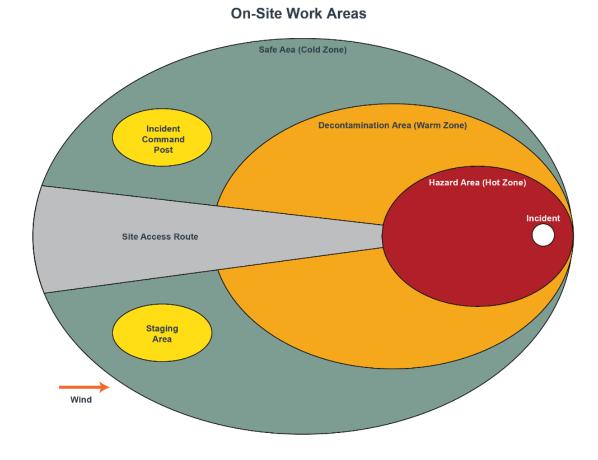
Decontamination is the complete or partial removal or neutralization of the harmful contamination chemicals. Some equipment will not withstand a proper decontamination process and therefore must be destroyed. Site safety personnel will recommend to the On-Site Group Supervisor whether clothing, instruments and equipment should be decontaminated or destroyed.

The decontamination area is usually set up in response to a hazardous material spill and when decontamination of personnel and equipment is required. The decontamination area buffers the designated hazardous and safe areas. Decontamination areas should be set up in areas that are not affected by the on-site hazard. Any contaminated personnel and equipment leaving the hazardous area must be decontaminated in the decontamination area before continuing to the safe area.

Equipment, solutions, and procedures required for decontamination depend on the type and degree of contamination. All hazardous waste must be disposed of according to applicable waste management regulations.

Safe Area (Cold Zone)

The safe area is an area verified by the On-Site Group Supervisor to be safe. The On-site Command Post (OSCP) is located in the safe area. The safe area must be continually monitored and evaluated to confirm its safety. If there is any concern about the area's safety, the On-site Command Post will relocate to an area proven to be safe.



Section 4: Emergency Response Guidelines



Worker Protection

All personnel working at an emergency site shall ensure that:

- They are aware of safety and health issues related to the jobs they are undertaking at the site.
- All appropriate safety measures are identified and implemented before undertaking work activities.
- They request assistance from other personnel, as required, for tasks which require more than one person.
- They incorporate short, frequent rest breaks into their work activities.

The Incident Commander at the site of the emergency shall ensure that:

- Personnel assigned to undertake specific work activities at the site have sufficient training about jobrelated safety and health issues to enable them to identify and implement appropriate safety measures.
- Workloads are distributed evenly among available personnel to allow tasks to be undertaken safely and efficiently.
- No worker is required to work alone at an emergency site.
- Sufficient rest periods are provided for workers, and that all workers take breaks to ensure they are sufficiently rested.
- Work shifts in an emergency do not exceed 16 hours in length, and that sufficient extra personnel is available to allow continuous 24-hour operations, if required.

Safety Clothing and Equipment

All personnel working at the site of the emergency shall ensure that:

- They use appropriate personal protective clothing based on the nature of the site hazards and the emergency activity undertaken (e.g. turnout gear, fire retardant clothing, safety boots and hardhats, as appropriate).
- They use appropriate hearing protection at all times in high noise areas.
- They use appropriate eye protection in areas where hazards to eyes exist.
- They understand the appropriate use and limitations of any specialized safety equipment used during work activities (e.g., flammable gas monitors, toxic gas monitors).
- They replace heavily contaminated or damaged clothing and malfunctioning equipment.

The Incident Commander at the site of the emergency shall ensure that:

- Appropriate safety equipment for the work activity is made available to emergency personnel, and equipment not immediately available is procured before undertaking the work activity where it is required.
- Safety supplies, equipment, and clothing are available on-site to allow replacement of damaged or malfunctioning items.



Respiratory Protection

All personnel working at the site of the emergency shall ensure that:

- They identify the need for the use of any specialized respiratory equipment (e.g., respirators, self-contained breathing apparatus) for themselves or for others, based on the site activities involved.
- They ensure respiratory equipment to be used is functioning properly, and that they are familiar with its use.
- Respirators are equipped with appropriate cartridges for the identified hazard and that cartridges are replaced, as required, to allow for continued protection.
- Air bottles on SCBA to be used are completely filled, and that personnel are aware of the approximate amount of time the air bottle can be used, before air supplies will run low, and personnel must leave the work site.
- Personnel required to use specialized respiratory equipment are clean shaven (e.g., no beards) to ensure a correct fit.
- They use self-contained breathing apparatus (SCBA) in all work areas where limited oxygen is present or where respirators will not eliminate toxic vapours.

The Incident Commander at the site of the emergency shall ensure that:

- Appropriate respirators and SCBA are made available to emergency personnel, and equipment not immediately available is procured before undertaking the work activity, where it is required.
- Appropriate spare cartridges and spare respirators are available to undertake work activities safely
 at the site if they are required to replace damaged or malfunctioning equipment.
- Spare SCBA, masks and other required equipment are available, where they are required to replace damaged or malfunctioning equipment.
- Extra air bottles, appropriate for the SCBA being used, are available for change out, when air supplies run low.
- A location is identified, where a cascade air system exists to allow expended air bottles to be refilled in a timely manner.

Note: Self Contained Breathing Apparatus (SCBA) is required to be used is all emergencies where:

- An oxygen deficient atmosphere exists.
- An unventilated confined space exists and requires entry to undertake emergency activities.
- A hazardous or potentially hazardous atmosphere exists, requiring entry to undertake emergency activities.



Cold Weather Protection

In cold weather emergency operations outdoors, all personnel working at the site of the emergency shall ensure that they:

- Dress for colder working conditions, including additional protection for head, face, hands, and feet, as appropriate.
- Monitor for symptoms of hypothermia or frost bite in themselves or coworkers.
- Take frequent breaks in a warm location.

In cold weather emergency operations outdoors, the Incident Commander shall consider implementing the following procedures as required:

- Providing heated facilities near the work site during winter or cold, rainy weather.
- Providing extra winter clothing and special cold weather safety equipment on-site and ensuring it is used in an appropriate manner, as required.
- Ensuring emergency personnel are monitored regularly for symptoms of hypothermia or frost bite.
- Ensuring manual workloads for personnel are reduced in extreme cold conditions.
- Ensuring rest periods are provided and adhered to by response personnel.
- Ensuring relief workers are available for individuals who need a break, and extra workers are assigned to highly demanding tasks.
- Ensuring the coldest work is scheduled for the warmest part of the day, where possible.
- Ensuring wind or draft barriers are provided for workers, as necessary in open areas, to limit wind chill.

Hot Weather Protection

In hot weather emergency operations, inside a facility or outdoors, all emergency response personnel shall consider implementing the following measures as required:

- Drink plenty of fluids to prevent dehydration and monitor for symptoms of heat exhaustion in themselves or co-workers.
- Take frequent breaks in a cool, shaded location, indoors or outdoors.
- Consider use of sunscreen on exposed skin of protection factor 30 or greater, for outdoor activities.

In hot weather emergency operations indoors or outdoors, the Incident Commander shall ensure that:

- Take into account the extra protective clothing that personnel must wear and ensure that adequate rest periods are provided and adhered to.
- Workers are monitored for signs of heat exhaustion or heat stroke.
- Cool rest facilities and frequent scheduled breaks are provided for personnel.
- Plenty of water and other appropriate fluids are available for personnel to drink at all times.
- Manual workloads in extreme hot conditions are reduced.
- Relief workers are made available for workers who need a break.
- The hottest work is scheduled for the coolest part of the day, where possible.



Confined Space Entry

Confined spaces are potentially dangerous places to work as hazards within them are magnified. Limited access is combined with poor ventilation, hazardous surroundings, or energized equipment. When workers unknowingly enter oxygen deficient or toxic atmospheres, the results can be fatal.

All existing and potential confined space work locations will be identified so that workers can be made aware of unexpected hazards and reminded that special safety requirements apply.

A worker is considered to have entered a confined space when the worker's breathing zone (30-45 cm sphere surrounding the head) crosses the plane of the confined space access.

Responsibilities

All workers involved in confined space operations must be aware that:

- Workers entering a confined space without respiratory protective equipment (RPE), or when wearing
 a half-mask respirator, may not remain in the space for longer than an hour. A fifteen-minute break
 outside of the confined space is required before re-entry.
- Workers entering a confined space with RPE (full SCBA/SABA) are not permitted to work in the space for a period of longer than thirty minutes. Again, a fifteen-minute break outside of the confined space is required before re-entry.
- All workers entering a confined space must ensure that they remain well hydrated. Drink plenty of fluids before entry and then at subsequent breaks.

These rules must be accounted for when planning the entry and assessing worker requirements, when completing the Confined Space Entry Permit (CSE Permit) and shall be discussed at the pre-job safety meeting.

General Manager (GM)

The Mine Manager or designate is responsible for ensuring that:

- A hazard assessment has been completed to identify, communicate, and eliminate or control hazards
 to an acceptable level. Assessment must be completed by a qualified worker who has adequate
 training and experience in the recognition, evaluation, and control of confined space hazards in
 consultation with the worker assigned overall responsibility for administration of the confined space
 entry program and with the HSR/JHSC.
- Workers required to enter are properly trained, experienced, equipped, and capable of performing their expected tasks.
- Control methods are in place to ensure that only authorized workers enter a confined/restricted space.
- A competent, properly equipped safety watch/standby person trained in and capable of conducting
 evacuation procedures as outlined in the CSE Permit and Rescue Plan posted at or near the entry
 to the confined space while workers are inside.
- Required personal protective equipment (PPE), safety, first aid, and emergency response equipment
 is available and functional, while also ensuring that
- All equipment has been inspected/documented by a competent worker and inspection records have been retained.
- Workers are competent in its use or activation.
- Confined/restricted spaces to be entered or worked in/near have been properly isolated and purged, and that adequate ventilation methods have been implemented to prevent toxic/flammable conditions from re-occurring.



- Adequate testing, monitoring, and inspections have been implemented and recorded at appropriate
 frequencies by a competent worker to confirm safe levels of toxic/flammable conditions and/or
 identified hazardous contaminants prior to entry and during the duration of the timeframe to complete
 all tasks.
- An adequate Rescue Plan (including initial response, first aid, and rescue) is developed and communicated to workers, and all workers and equipment that might be required to implement the Rescue Plan are readily available on site.
- Written procedures for confined space entry have been prepared, which must include all considerations contained in this practice, including potential changes in conditions due to work processes undertaken (e.g. cleaning process, etc.).
- A pre-entry work plan has been prepared, including: isolation; ventilation; hazard elimination or control; testing and monitoring; emergency procedures and rescue plan; equipment requirements; all workers involved (along with their responsibilities); how communications will occur in order to ensure that all personnel understand the hazards and precautions to follow and are competent in use of all work; as well as safety and response equipment.
- A CSE Permit and Rescue Plan has been properly completed and issued, approved, and signed by the worksite supervisor, and reviewed with all workers at a pre-job meeting prior to commencement of work.

Permit Issuer

The permit issuer is responsible for ensuring that:

- Applicable confined space practices and procedures have been referenced and are included in the CSE Permit or Rescue Plan.
- Conditions on the CSE Permit affecting worker safety are maintained, to suspend the CSE Permit if these conditions change, and to ensure that the confined space is evacuated if the CSE Permit is suspended.
- The CSE Permit is signed by a worker's replacement (i.e., shift change) or the CSE Permit is canceled, and a new CSE Permit is issued (a change in workers always requires a re-investigation and a signature, or a new CSE Permit).
- Conditions are safe and re-testing is done before work is allowed to resume following a significant delay in work, or after a significant change in work conditions (verify and initial the CSE Permit).
- A hazard assessment has been completed and communicated to all workers and identified hazards have been eliminated or controlled.
- The confined space has been properly isolated and purged, and ventilation equipment is functioning and adequate.
- A testing and monitoring plan for toxic/flammable atmospheres/contaminants is designed and in place for all identified hazardous locations within the confined space
 - o Prior to the workers entering the space.
 - o Maintained while workers are within the confined space.
- Monitoring equipment is calibrated, and bump tested as per manufacturer requirements, prior to start
 of testing and at required intervals thereafter.
- An adequate Rescue Plan is developed, and all the required PPE, safety, rescue, and emergency
 equipment is functional and available, along with sufficient workers competent in its use.
- The number of workers within the confined space does not exceed that which could be effectively
 evacuated/rescued by the rescue workers or equipment available.



- Workers who are authorized to enter are specified on the CSE Permit and are properly trained, experienced, equipped, and capable for their expected tasks.
- Each point of access that is not secured against entry is identified by a sign or other effective means, which indicates the hazard and prohibits entry by unauthorized workers.
- A copy of the CSE Permit and Rescue Plan is available and posted at the entry point into the confined space.
- When a vessel is left open and unattended, a "Do Not Enter" sign is affixed to the entrance to the confined space.

Permit Receiver

- The permit receiver is responsible for ensuring that:
- A CSE Permit is current before any worker enters the confined space. Any delay of 30 minutes or more in starting work after issuance of the CSE Permit or interruptions of over 30 minutes in carrying out the job must be reported to the permit issuer.
- They understand the preparation, testing, hazards, and control measures in place and emergency response/rescue plan before accepting a CSE Permit. Any unclear conditions of the CSE Permit must be discussed with the issuer.
- All required isolation is in place and atmosphere test results as listed.
- All PPE and safety equipment are in good working condition.
- A list is made of all workers entering the confined space, and to account for all workers when work is completed or suspended.
- They remain on site with a copy of the CSE Permit for the duration of the work.

Workers Entering Confined Space

Workers entering the confined space are responsible for ensuring that they:

- Are familiar with this COP and the job procedures before beginning work in the confined space, are aware of the hazards associated with the work/confined space, and that measures are in place to eliminate or control these hazards.
- Ensure all required isolation is in place, as listed.
- Are competent in the use of required PPE and ensures it is functional prior to use.
- Communicate any questions or concerns to the permit issuer or worksite supervisor.
- Sign the CSE Permit after reading it and understands all requirements.
- Comply with the conditions detailed in the CSE Permit.
- Report any and all delays to the issuer of the CSE Permit.
- Report any conditions or procedures that will impede the implementation of CSE Permit requirements.
- Use only suitable tools as allowed by the CSE Permit and ensures that they are in good working condition.



Standby Persons / Tending Workers

Low and Moderate Hazard Atmosphere

If a worker enters a confined space which contains a moderate hazard atmosphere:

- Another worker must be assigned as a standby person.
- The standby person must be stationed at or near the entrance of the confined space.
- The standby person must check on the worker in the confined space as often as required, but at least every 20 minutes.
- There must be a continuous method of summoning the standby person from inside the confined space.
- The standby person must have a means of immediately summoning rescue workers.

High Hazard Atmosphere

If a worker enters a confined space which contains a high hazard atmosphere, a risk of engulfment or entrapment, or with any other recognized serious health and safety hazard:

- Another worker must be assigned as a standby person.
- The standby person must be stationed at or near the entrance of the confined space, and continuously attend to the standby duties.
- The standby person must visually observe or otherwise continuously check on the worker in the confined space.
- There must be a continuous method of summoning the standby person from inside the confined space.
- The standby person must be equipped and capable of immediately effecting rescue using lifting equipment of required, or otherwise performing the duties of rescue workers.
- The standby person must prevent the entanglement of lifelines and other equipment.



Risk Identification, Assessment and Control

In assessing the hazards that workers are likely to be exposed to, the requirements in our Hazard Management Standard must be met. The hazard assessment will be revised whenever there is evidence to indicate that it is no longer valid.

Risk Identification

A hazard assessment must be conducted for each:

- Confined space, or group of confined spaces which share similar characteristics.
- Work activity, or group of work activities which present similar hazard, to be performed inside a confined space.

The hazard assessment must consider:

- The conditions which may exist prior to entry due to the confined space's design, location, or use, or which may develop during work activity inside the space.
- The potential for oxygen enrichment and/or deficiency, flammable gas, vapor or mist, combustible dusts, other hazardous atmospheres, harmful substances requiring lockout and isolation, engulfment and entrapment and other hazardous conditions.

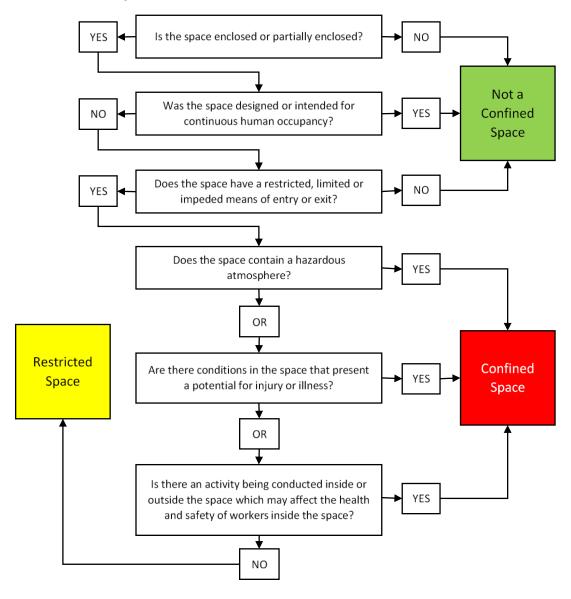
Common Hazards

Hazards of confined spaces include:

- Oxygen deficient atmospheres can cause brain damage and death. Oxygen deficiency can be caused by rusting of a steel vessel, any form of burning, including welding or brazing, absorption by grain or soils, consumption by bacteria that can use up some or all of the oxygen in the space.
- Asphyxiant gas physiologically inert gases can dilute or displace atmospheric oxygen below the level required for normal human functioning. During a process known as purging, an inert gas such as nitrogen is deliberately pumped into a confined space to purge or force out flammable or explosive atmospheres from a confined space. The inert gas is usually replaced with fresh air before the space is safe to enter.
- **Toxic atmospheres** containing gases, vapors, dusts, or fumes that have poisonous effects on the body. Cleaning, painting, or welding may produce dangerous vapors or fumes. Gases such as hydrogen sulphide may leak into the space from gas pockets underground. Carbon monoxide may be generated in the space by an internal combustion engine. Methane may be created through the fermentation of plant materials in the space.
- Flammable or explosive atmospheres containing flammable gases, vapors or dusts that could be ignited by a spark or open flame. The risk of explosion increases if the oxygen enriched atmosphere is present (if the oxygen content is greater than 23% by volume).
- **Engulfment** workers can be trapped or buried by dry bulk materials such as grain, sand, flour, fertilizer, and sawdust.
- **Operation of moving parts** being trapped or crushed by augers, mixers, agitators, conveyer belts, etc. This equipment must be locked out before anyone enters the confined space.
- Uncontrolled introduction of steam, water, or other gas or liquid.
- Other hazards these could result from the work being done (noise, extremes of temperature, radiation, manual handling, and falls).



Figure 1: Confined Space Determination Chart



Risk Assessment

All equipment required to safely perform confined or restricted space work, including PPE and rescue equipment, will be readily available and inspected to ensure it is in good working order. All workers will follow this COP and associated procedures and use the equipment as necessary to protect their health and ensure their safety.

Requirements include:

- Verify that all control devices and operating equipment are locked-out and de-energized before entry.
- Prior to entry, use kickers or probe bars to dislodge debris or material.
- Lifelines, in the event that they are required, will only be used in a manner that does not endanger a
 worker by creating another hazard.



- Workers within a space will be able to effectively communicate amongst themselves (when
 necessary) and communicate with standby persons/tending workers outside the confined or
 restricted space, using a system that is appropriate to the hazards within the confined or restricted
 space (communication equipment that functions in the presence of hazardous gases).
- Where falling objects can pose a hazard, all workers shall wear approved hard hats.
- Tools and equipment are to be lowered into the confined/restricted space before the worker enters and lifted out of the space after the worker has exited.
- Cut back and shore all excavations in accordance with appropriate regulatory requirements.
- Confined/restricted spaces that contain electrical equipment or conductors must be cleared of all standing water and fluid.
- Portable electric tools must be in good working order and approved for the type of use intended. All
 electric tools must be grounded unless double insulated and so marked with a portable ground fault
 circuit interrupter (Class A type).
- Electrical tools and equipment used in a confined space where flammable vapors of explosive gases
 or liquids are present must be CSA approved for hazardous locations as classified under the
 Canadian Electrical Code.
- Only non-sparking tools may be used in a confined space where flammable or explosive gases, vapors, or liquids are present.
- Be cautious of generating static electricity with the handling of high-pressure steam or air hoses, inert gases, or sandblasting equipment.
- Weatherproof lamps or lamp holders must be used in wet or damp environments, while trouble lamps must be equipped with a guard attached to the lamp holder or handle. Bare-bulb trouble lights should never be used inside a confined/restricted space.
- Rubber gloves, boots, and mats should be used when appropriate to reduce the shock hazard.
- Compressed gas cylinders are not permitted inside a confined space, except for:
- A cylinder of compressed air supplied to a respirator.
- Medical resuscitation equipment.
- Handheld aerosol spray containers.
- Fire extinguishers.
- When practicable, torches and hoses used for welding, brazing, or cutting must be removed from a
 confined space when not in use and when the confined space is vacated. If impracticable to remove
 hoses for some short duration breaks of 60 minutes or less, particularly where the confined space is
 large or where the removal of hoses may create some risk to workers, alternate measures adopted
 must comply with applicable regulations.

Special care will be taken to ensure that workers are protected against drowning, engulfment, entrapment, or other hazards presented by free-flowing materials that may be encountered within a confined space. In some circumstances for example and full-body harness and lifeline will be needed.



Table 1: Common Non-Atmospheric Hazards

Hazard	How it Occurs	Concerns
Engulfment	Loose material drawn from the bottoms of storage bins can suffocate or bury an entrant. Liquids or materials are suddenly released into the space.	Liquid or loose materials can trap or bury a worker in seconds.
Mechanical and Hydraulic Energy	Mechanical and hydraulic equipment may start or move expectantly.	Entrants servicing mechanical and hydraulic equipment can be seriously injured or killed if the energy isn't properly controlled.
Noise	Confined spaces can amplify sounds produced by tools and equipment.	Noise interferes with essential communication between entrants and attendants.
Falling objects	Objects fall into the space because topside openings are unguarded or improperly guarded.	
Extreme Temperatures	The space's location and the equipment it contains make it very hot or cold.	Hot environments put workers at risk for heat stress, especially if they are doing strenuous work or wearing protective clothing – cold environments make tasks more difficult to accomplish.
Slippery Surfaces	Leaks, spills, and condensation make walking surfaces slippery.	Wet surfaces are usually slippery. They increase the risk of falls.
Corrosive Chemicals	Corrosive chemicals are stored in the space, or entrants use them to do tasks.	Corrosive chemicals can cause severe eye or skin irritation of exposed workers are not wearing protective clothing.
Access Problems	Confined space is difficult to enter and exit.	In an emergency, entrants may not be able to exit quickly.
Illumination Problems	Most confined spaces are dark places.	Poor lighting makes it difficult for workers to enter, exit and work in a confined space.

Table 2: Common Atmospheric Hazards

Hazard	How it Occurs	Concerns
Oxygen Deficiency (< 19.5%)	Chemical or biological reactions consume oxygen.	Oxygen-deficient atmospheres affect heart rate, muscle coordination, and breathing. Eventually they lead to death.
Oxygen Enrichment (> 23.0%)	Results from welding tasks and from the improper use of oxygen for breathing air.	Oxygen-enriched atmospheres increase the risk of fire or explosion.
Flammable Atmospheres	Fuel, oxygen, and a source if ignition cause fires and explosions.	Flammable gases such as acetylene, butane, propane, hydrogen, and methane are often common in confined spaces. Grain, nitrated fertilizers, and ground chemicals can produce combustible dusts.
Toxic Atmospheres	Accumulates through some manufacturing, biological, or chemical reactions. Released during work or tasks such as welding or cleaning.	Many manufacturing processes, stored materials and work tasks produce toxic gases, vapours, or dusts.
Corrosive Atmospheres	Accumulates from some manufacturing processes, biological or chemical reactions.	Corrosive substances destroy living tissue. Some cause immediate damage to skin and eyes; some have no immediate effects but cause cancer with prolonged exposure.

Risk Control

Access and Egress

A safe means of access and egress for all workers and/or rescue workers, free from traffic or other hazards, must be in place and documented on the CSE Permit and Rescue Plan. This may require the installation of secured steps, ladders, temporary platforms/scaffolds, etc.

Unauthorized Entry

Only workers with a reason for being in a confined or restricted space will be permitted to enter the space. Workers who are not authorized to enter a confined or restricted space are prohibited from entering.

As identified in the hazard assessment, a method to prevent entry of unauthorized workers into the confined space must be in included on the CSE Permit and in place for each confined space. This may include any (or a combination) of the following methods as determined by the permit issuer:

- Physical barriers in conjunction with warning signs for multiple entry spaces.
- Monitoring of the single-entry point by the standby person/tending worker who checks workers entering against list of authorized workers on the CSE Permit.

Traffic Hazards

Workers within a confined or restricted space will be protected from traffic hazards such as idling vehicles situated outside the space that could contaminate the space with exhaust, lift trucks that could damage rescue equipment, or moving vehicles around manhole areas that could interfere with worker safety. Such measures may be a combination of the following:

- Physical barriers to restrict vehicle traffic or parking in areas that may result in carbon monoxide entering the workspace (due to direct flow or via air moving devices).
- Physical barriers to prevent contact with the workspace by vehicles or large equipment.
- Barriers in place to prevent vehicles or traffic from impeding any emergency egress by workers or access by rescue operations.

Tools

Only non-sparking tools may be used in a confined space where flammable or explosive gases, vapours or liquids are present. When practicable, torches and hoses used for welding, brazing, or cutting must be removed from the confined space when not in use.

Any electrical equipment used in a confined space must be ground or double-insulated (and if wet conditions exist protected by a GFCI). Any electrical tools used in a high hazard location must be identified as CSA Class 1, Division 2, Groups A, B and C.

Control of Hazardous Substances and Energy

Prior to entry and while workers are inside a confined space, proper isolation measures from adjacent piping, other systems, and equipment must be implemented to protect workers from hazards related to uncontrolled energy sources or hazardous substances. Appropriate controls may include:

- Blanking or blinding.
- Misaligning or removing and plugging sections of pipes.
- Locking out all sources of energy, including any cathodic and hydraulic systems
- De-energizing equipment.
- Immobilizing or disconnecting all mechanical linkages.



Note: All isolation devices will be installed as close as possible to the confined space and will be identified, and the locations will be documented on a log sheet.

Where we consider it impractical to isolate the confined/restricted space, we shall develop procedures that will provide equal or greater protection to workers than the isolation. Alternate procedures or measures must be approved prior to use by management and appropriate regulatory authority. All workers affected by these alternate measures must be informed of the measures taken and instructed in any applicable work procedures.

Isolating Piping Systems

- Isolating the confined/restricted space from any hazardous source requires that all lines leading to or from a vessel be isolated by blanking, blinding or double valving (i.e. having two valves with a bleedoff valve installed between them).
- Where two valves and a bleed-off valve are used to isolate the piping, the worksite supervisor shall
 ensure that the bleed-off valve is locked in the open position, and the valves in the flow line are locked
 in the closed position. Ensure the bleed-off valve is not frozen or blocked with sediment.
- Inspectors will require that all piping from the vessel be removed if entry into the vessel is required for the inspection.
- When blanking or blinding methods are used, the blanks or blinds must be installed at the closest flange to the vessel. The piping that has been blanked or blinded must be clearly marked to show that a blank or blind has been installed. It is critical that the worker who enters the vessel personally checks to ensure that adequate isolation methods have been used.
- All blanks, blinds, threaded plugs, or caps must be of the same or greater specification as the system on which they are used:
 - o Unless certified by a professional engineer to provide adequate safety for the particular conditions of anticipated pressure, temperature, and service, a blank or blind must be manufactured in accordance with the specifications of the most applicable ANSI Standard.
 - o If a blank or blind is certified by a professional engineer, the employer must keep a record of its certification, location, and conditions of service.
 - A blank or blind must be stamped with, or otherwise indicate, its pressure rating.
 - If required, an allowance for corrosion must be made in the design of a blank or a blind.
 - Visual indication that a blank or blind has been installed must be provided at the point of installation.
 - o If required to prevent leakage, gaskets must be installed on the pressure side of blanks or blinds and flanges must be tightened to make the blanks or blinds effective.
 - o If a line is to be opened for disconnection or to insert a blank or a blind, written safe work procedures must be prepared and followed to prevent hazardous exposure of workers to its contents.
 - o If threaded lines are used, threaded plugs or caps must be used to blind the lines.

Atmospheric Testing

Before entering a confined space that may contain a hazardous atmosphere (i.e., oxygen deficient, or containing toxic or explosive substances) pre-entry atmospheric testing will be done no more than 20 minutes prior to entry to ensure oxygen levels are adequate (i.e., between 19.5% and 23% by volume) and that any hazardous substance is identified. Workers will conduct the testing with suitable testing equipment that has been properly calibrated and is used in accordance with manufacturers' specifications.

After initial tests have been completed and workers are working within a confined space, periodic testing will be conducted as often as necessary to ensure the health and safety of the workers inside. The intervals at which periodic testing occur depend on the outcome of the hazard assessment, the work being performed in the space and the likelihood of the atmosphere changing substantially. If all workers have vacated the space for more than 20 minutes, pre-entry testing must be repeated.

If tests identify additional hazards that were not identified in the original hazard assessment, these will be addressed. The resulting procedures and practices will be included in the COP. All test results will be recorded.

Additional BC Requirements

When working in a confined space with a moderate or high hazard atmosphere, the atmosphere in the space must be continually monitored if a flammable or explosive atmosphere in excess of 20% of the LEL could develop.

All test results will be recorded on the CSE Permit. The documentation must show the date, time, levels of conditions found, and the tester's initials. These must be posted without delay, at all points of entry to the confined space.

Pre-entry testing is not required in a confined space with a low hazard atmosphere if:

- The confined space location and control of the space are sufficient to ensure that a more hazardous atmosphere will not develop.
- Testing is not required to verify the effectiveness of an isolation or other pre-entry control.
- Prior testing has consistently demonstrated that the space does not have a potential to develop a more hazardous atmosphere.
- Written procedures (based on above information) do not require testing.

Cleaning, Ventilation and Purging

Ventilation means the use of mechanical ventilation to force fresh air into the confined space while workers are working. Purging means the introduction of substances such as an inert gas, steam, or water into a confined space to displace or flush out contaminants prior to workers entering the space.

If atmospheric testing identifies that a hazardous atmosphere is present or is likely to be present in a confined space, the space will be ventilated, purged or both before a worker enters the confined space. If ventilating or purging is impractical or does not eliminate the atmospheric hazards, workers will be required to wear appropriate PPE. PPE is not an acceptable method of workers protection from flammable or explosive atmospheres.

If mechanical ventilation is required to maintain a safe work atmosphere within a confined space, the ventilation system will incorporate a method of alerting working if the system fails. Workers will be trained in the evacuation procedures to be used if the ventilation system fails.

Note: In BC, workers entering high hazard atmosphere confined space must carry an emergency escape cylinder.

Inerting

Inerting means the introduction of an inert (unreactive) gas such as nitrogen into a confined space to completely displace all oxygen.

For a flammable mixture to burn or explode, a source of oxygen and a source of ignition are required. Inerting is a technique that is used to remove air and the oxygen that it contains. This creates an oxygen-deficient atmosphere and workers who enter the space must be properly trained and equipped with SCBA/SABA with an emergency escape bottle. Care must be taken to ensure that the atmosphere remains inerted while workers are within the confined space. All ignition sources will be controlled so that they cannot trigger a fire or explosion.

Responder Safety, continued



Additional BC Requirements

At least 7 days prior to entering a confined space which has been inerted, we must submit a copy of the proposed work procedures to the BC Worker's Compensation Board for review and approval and follow any additional precautions that may be identified therein.

If a confined space has been inerted:

- All entry precautions for high hazard atmospheres must be followed, except for the requirement for continuous ventilation.
- Every worker must be equipped with a supplied air respirator.
- All ignition sources must be controlled.
- The atmosphere must remain inerted while workers are inside.

Ventilation

Other than when a low hazard atmosphere space greater than 1.8 m³ (64 cu. ft) volume per occupant, in which the space is occupied for less than 15 minutes, and the work will not generate any additional contaminants; or inerted, every confined space must be ventilated continuously while a worker is inside the space.

If mechanical ventilation is required to maintain a safe work atmosphere within a confined space, the ventilation system will incorporate a method of alerting working if the system fails. Workers will be trained in the evacuation procedures to be used if the ventilation system fails.

Ventilation equipment must be located and arranged so as to adequately ventilate every occupied area of the space, and if practicable maintain concentrations of airborne contaminants below applicable exposure limits.

If natural ventilation will be used, the rate of airflow through the space must be monitored and sufficient to maintain concentrations of airborne contaminants under the applicable exposure limits. Natural ventilation may not be used in the following situations:

- To ventilate a confined space that has a high hazard atmosphere.
- If natural ventilation could draw air other than clean respirable air (i.e., exhaust, etc.) into the confined space.

Temporary Heating and Cooling

To heat or cool a confined space for workers, locate the heaters outside the space and run the air into the space through ducts. Do not use direct-fired heaters/coolers that discharge exhaust gases with the heated air. To prevent redirecting any harmful or noxious exhaust gases into the confined space, vent heaters in accordance with the manufacturer's instructions. Atmosphere testing parameters are to include carbon monoxide when heated air is introduced into confined spaces.

When heating spaces that may contain toxic, explosive, or flammable materials, reassess the amount of ventilation required.

Education and Training

All workers within confined or restricted spaces and all workers with related duties (rescue workers, standby persons/tending workers) will receive training specific to confined or restricted spaces. All workers in a confined or restricted space will be able to recognize the hazards of working in the space and safely perform assigned duties. The rescue portion of this training will be part of our Corporate Emergency Response Plan.

In addition to training, workers will be adequately qualified and experienced to work safely. In cases where a worker is new to the job and does not have sufficient experience, the worker will be teamed up with and work under the direct supervision of an additional competent worker.



Records of confined space or restricted space training will be retained for as long as the worker in question is expected to perform work within confined or restricted spaces. If a worker changes responsibility and no longer enters confined or restricted spaces as part of his or her work, the confined or restricted space training records for that worker will no longer be required.

Every worker assigned rescue duties must be properly equipped and adequately trained to carry out such duties. Practice drills must be conducted at least annually, with records or training and practice drills maintained by the employer of the rescue workers. Competency in the following will be represented in the worker responding to a confined space or restricted space emergency:

- First aid.
- The use of appropriate emergency response equipment.
- Procedures appropriate to the confined or restricted space.

Safe Work Procedures

Entry Permit System

When a confined space requires entry by a worker, each point of access which is not secured against entry must be identified by a sign or other effective means which indicate the hazard and prohibits entry by unauthorized workers. A CSE Permit must be completed before a worker enters ANY confined space.

A CSE Permit is essentially a document that sets out the work to be done and the precautions to be taken. It functions as a safety checklist to make sure that nothing is overlooked.

The CSE Permit will:

- List the name of all workers who enter the confined space and the reason for their entry.
- Provide the location of the confined space.
- Specific the time period for which the entry permit is valid.
- Consider the work being done in the confined space, and therefore the safety precautions that must be taken.
- Consider the COP requirements for entering, being in and leaving the confined space.

The completed CSE Permit will be readily available, and a copy posted at each entry point into the confined space. A CSE Permit will cover a specific task or project, which may occur over a number of shifts. The time for which the CSE Permit is valid is based on the estimated time to complete the project's work activities and must be identified on the CSE Permit. A CSE permit will be treated as expired sooner than the stated expiry time of one of the following occurs:

- The confined space is returned to service.
- Continuity of responsible supervision for the confined space is broken.
- The task or project is interrupted for a significant time because of an emergency that affects the confined space (incident, rescue, or breakdown of engineering control equipment).

Once a CSE Permit has expired, a new CSE Permit will be issued before entry into the confined space is allowed. A single CSE Permit will be used for multiple identical confined spaces, when a hazard assessment of a representative sample of these is conducted.



Restricted Spaces

Restricted spaces do not require CSE Permits. However, despite being classified as a restricted space, the following requirements continue to apply to workers entering a restricted space:

- A hazard assessment will be performed prior to entry.
- Workers assigned duties related to the entry will be trained to recognize hazards and how to perform their duties in a safe and healthy manner.
- General safety requirements involving the use and availability of safety equipment, PPE, and emergency equipment, as well as communication system will be followed.
- Prevention of unauthorized workers entering a restricted space.
- Workers will not enter or remain in a restricted space unless rescue can be carried out.
- A competent standby person/tending worker will be in communication with the workers inside a restricted space.
- A safe means of entry and exit will be made available to all workers required to work in the restricted space.
- Examples of a restricted space include, but are not limited to:
- An electrical or communication utility vault.
- A building crawl space.
- A trench with a temporary protective structure.

Emergency Response

Before work in a confined or restricted space is allowed, a Rescue Plan will be in place. In the event of an emergency, workers will be able to carry out an effective rescue and will immediately evacuate a confined or restricted space if conditions warrant.

In the case of rescue involving workers in confined spaces and workers suspended in the air after a fall, calling 911 alone and awaiting the arrival of rescue workers is considered to be insufficient for emergency response. Basic levels of on-site rescue capability will be maintained.

Notification to rescue workers must be made at the following times:

- Before a worker enters the confined space.
- When all workers have completed their work and have exited the confined space.
- When work is commencing at simultaneous confined spaces.

Note: If the Rescue Plan identifies that rescue workers are available 24 hours a day and will monitor any signaling system that will be used to summon rescue workers in the event of an emergency the above notification requirements do not apply.

• All rescue, first aid and fire suppression equipment required to rescue a worker safely and efficiently shall be located as close to the site of entry as is practical.

Standby Persons / Tending Workers

A standby person/tending worker (a competent worker trained in the evacuation procedures in the Rescue Plan and who is present outside the confined space, at or near the entrance) will be required under the following four conditions:

• The oxygen content of the atmosphere inside the confined space is less than 19.5% by volume.

- The oxygen content of the atmosphere inside the confined space is greater than 23% by volume.
- The concentration of a hazardous substance inside the confined space is greater than 50% of is OEL.
- A hazard other than one listed above is identified by the hazard assessment and the hazard cannot be eliminated or effectively controlled.

Requirements:

- For all entry into a confined/restricted space, a standby person/tending worker shall be positioned at the entrance to the confined/restricted space.
- The standby person/tending worker shall be equipped with respiratory protection, rescue equipment, and a means of communication with the worker or workers located in the confined/restricted space.
- In addition to the standby person/tending worker, at least one other worker shall be onsite to monitor breathing air, assist rescue and summon additional help if necessary.
- When visual contact cannot be maintained between a worker in a confined/restricted space and the standby person/ tending worker, a pre-determined signal shall be used between the two to monitor the safety of the worker in the confined/restricted space. The worksite supervisor shall approve this signal.

Entry and Exit

A safe means of entry and exit, free from traffic hazards, will be provided for all confined or restricted space workers and rescue workers (secured steps, temporary platforms, handrails, etc.).

Documentation

Before closing a vessel, another thorough check should be made by the worksite supervisor, or designate, to ensure that no workers, tools, or equipment have been left behind. Double-check and ensure that all workers are accounted for before closing the vessel.

All records related to work in a confined space, including CSE Permits and Rescue Plans, testing records and other applicable documentation will be retained for:

One year – if no incident or unplanned event occurred during the entry.

Water Safety

All personnel working in or near the water shall ensure that they:

- Are wearing approved life jackets or flotation suits.
- Use other personal protective equipment appropriate for the work activity, including the following items, as appropriate:
 - o rubber boots
 - hip or chest waders
 - insulated flotation suits (cold weather)
 - safety harnesses and tag lines, as appropriate, based on conditions
- Avoid entering water where currents are dangerous.
- Monitor tag lines attached to workers to ensure the tag lines do not become tangled together or entangled with equipment.



The Incident Commander shall ensure that:

- Appropriate personal protective equipment to undertake water deployment activities is available onsite.
- Safety tag lines with safety harnesses are used for emergency personnel working in or near water.
- Each worker wearing a tag line is assigned one safety monitor who is responsible for holding the tag line attached to the worker and monitoring the worker's safety.

Equipment Deployment

When deploying equipment, all emergency response personnel shall ensure that:

- Equipment to be deployed onto water (boom, skimmers, rope, cable, etc.) is piled onshore in an orderly fashion to minimize tripping hazards.
- Any containment boom to be deployed is connected together on shore and deployed into the watercourse from onshore to limit the number of workers in the water.
- Skimmer hoses are connected to the skimmer onshore, and workers enter the water only to clear debris or repair equipment once the skimmer is in operation.
- Shoreline anchors are secured before fastening shoreline ropes.

Working Alone

A Working Alone Procedure and a working alone hazard assessment are legislated responsibilities of every employer. One working alone hazard assessment may fit multiple work sites providing the working conditions are the same. These assessments must be available for the workers to review. All working alone hazards shall be mitigated to a reasonable and practical level of risk. Every worker who works alone must have a designated "Working Alone Contact". Activities, dates, and times of contact shall be documented and filed. The "Working Alone Contact" may be a co-worker, a 24/7 facility control room, a third-party emergency answering service, or automated working alone tracking system.

Application

Each operating area will develop a Site-Specific Procedure (SSP) for Working Alone; the SSP will be documented, approved by management, and signed by every company employee or contract employee working in that operating area. Service suppliers will be expected to provide their own "Working Alone Programs" but due to communication limitations or emergency response capabilities they may need to utilize the company Working Alone Program, this temporary change of "Working Alone Contact" should be documented on the safe work permit.

Potential Hazards

- Loss of communication needed for requesting assistance;
- Delays in reporting times;
- Injury requiring assistance; and
- Transportation problems.

Equipment and Training Requirements

- The Working Alone Procedure and Response Plan for the overdue worker are to be a specific agenda item for safety meetings to ensure a suitable level of acceptance and involvement from all personnel is achieved, and
- Supervisors and members of the management shall discuss the plan with workers that participate in field activities, to ensure a high level of awareness and preparedness is maintained at all times.

Low Risk Working Alone Procedure

(Sweet Gas Operations, daylight hours, normal weather conditions)

- The employee should notify their "Working Alone Contact" of check-in times and locations of work;
- If multiple travel routes are an option, then the route selected will also be noted
- If an employee's arrival at a check-in location is delayed by more than one (1) hour, the employee should notify their "Working Alone Contact" of the new estimated time of arrival.

High Risk Working Alone Procedure

(Sour Gas Operations, Call-outs, Adverse Weather Conditions)

- The employee should notify their "Working Alone Contact" prior to departure, and advise them of the estimated time of arrival at location;
- The employee should notify their "Working Alone Contact" of arrival at location;
- The employee should assess the problem or job scope, notify their contact, discuss the nature of the problem or job, work procedure to be used, and any additional required safeguards, and provide an estimation of how long they will be at the location;
- The employee should notify their "Working Alone Contact" when they are finished and ready to leave the location and estimated time of arrival at next check point, base or home; and
- The employee should notify their "Working Alone Contact" of arrival at next checkpoint, base or home.
- If the employee is delayed or expects to be delayed arriving at their next check-in point by more than one (1) hour, the employee should notify their "Working Alone Contact" of amended estimated time of arrival.
- During adverse weather conditions the employee should notify their "Working Alone Contact" of the exact route to be followed; shorter check-in time intervals are recommended.

Note: Every worker has both the right and responsibility to refuse unsafe work.

Overdue Worker Response Plan

- The Overdue Worker Response Plan shall be initiated when a worker is one (1) hour overdue, (shorter grace periods may be instituted during bad weather or at high risk worksites), and
- After the one (1) hour grace period has expired, the worker's "Working Alone Contact" shall:
 - Attempt to contact the overdue worker by cell phone or radio; immediately notify the worker's supervisor of the circumstances;
- The supervisor will discuss options with the "Working Alone Contact" and together they will agree on an action plan; and
- The action plan may include any or all of the following:
 - Continue attempts to contact the overdue worker by cell phone or radio;
 - o The "Working Alone Contact" or other designated individual will drive the route taken by the overdue worker in an attempt to contact the worker. Specific PPE safety equipment may be required for rescue activities by those involved with the Overdue Worker Response Plan;
 - o The "Working Alone Contact" or the supervisor may request search assistance from industry workers in the area who have been identified in the contact list;



- o The "Working Alone Contact" or supervisor will call local hospital(s) to establish whether an injured person has been admitted; and
- The "Working Alone Contact" or supervisor may notify the local police or RCMP of circumstances with a request for assistance.

Missing Persons

In the event that an employee should go missing:

- Confirm that the person has failed to check in at the predetermined time.
- Contact the person's supervisor (or next in line for reporting) and provide details, e.g. where the person was working, length of time overdue, and if the person is alone.
- If it is deemed appropriate to initiate a search, inform a supervisor (or next in line for reporting) of any plans before any employees head out to search.
- Employees should never endanger themselves during a rescue.
- Searchers should always use the buddy system and work in teams. Each team must be fully
 equipped, names logged, and their designated search area recorded on a map before heading out.
 Searchers should carry maps and compass, GPS (Global Positioning System) unit, survival kit, first
 aid kit, communication equipment, extra batteries, and appropriate provisions.
- Search first where the missing person will most likely be found, e.g. where the person's truck is parked.
- If the missing person is not found within a specified time (e.g. two hours), notify the appropriate Search and Rescue (SAR) authority and/or local police.
- When formal SAR groups are engaged, it is imperative that only one person coordinates all operations.
- Notify ALL authorities when the missing person is found so all search participants are informed and can cease their efforts.
- Complete and submit the required accident/incident investigation form.

Source: PDAC Field Safety Pocket Guide



Rest Periods

Response members may experience a wide array of stresses which may include the death or serious injury of a co-worker, witnessing distressing sights, time pressures, responsibility overload, physical demands, mental demands, emotional demands, limited resources and high expectations from others, hazardous environments, or extreme weather conditions.

In high-stress assignments, responders should be routinely rotated. Where manpower is limited, responders should alternate from high-stress positions to lower-stress positions.

Fifteen-to-thirty-minute rest periods should be scheduled every two hours during an emergency situation for all responders; and if possible, provided with:

- Shelter from weather, dry clothes, and a place to sit or lie down away from the scene.
- Warm food, high protein snacks and juices.
- An opportunity to share their feelings with co-workers.

Decontamination Area

Personnel responding to hazardous substance emergencies may become contaminated in several ways:

- By contacting vapours, gases, mists, or particulate in the air
- By being splashed by materials while sampling or opening container
- By walking through puddles of liquids or on contaminated soil
- · By using contaminated instruments or equipment

Decontamination is the complete or partial removal or neutralization of the harmful contamination chemicals. Some equipment will not withstand a proper decontamination process and therefore must be destroyed. Site safety personnel will recommend to the On-Site Group Supervisor whether clothing, instruments and equipment should be decontaminated or destroyed.

The decontamination area is usually set up in response to a hazardous material spill and when decontamination of personnel and equipment is required. The decontamination area buffers the designated hazardous and safe areas. Decontamination areas should be set up in locations that are not affected by the on-site hazard. Any contaminated personnel and equipment leaving the hazardous area must be decontaminated (in the decontamination area) before continuing into the safe area.

Equipment, solutions, and procedures required for decontamination depend on the type and degree of contamination. All hazardous waste must be disposed of according to applicable waste management regulations.



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CONFINED SPACE ENTRY RESCUE PLAN



Rescue Team Lead: Rescue Team	Phor	ne:
Member: Rescue Team	Phor	ne:
	Phor	ne:
M = l	Phor	ne:
Member:	Phor	ne:
Rescue Team Member:	Phor	ne:
RESC	CUE EQUIPMENT ON LOCATION (PROVIDE DETAILE	D SUMMARY)
	COMMUNICATION PLAN (PROVIDE DETAILED SUMM)	ARY)
Task	RESCUE PROCEDURES (PROVIDE SCENARIOS) Hazards	Mitigation
Task	RESCUE PROCEDURES (PROVIDE SCENARIOS) Hazards	Mitigation
Task		Mitigation

CONFINED SPACE ENTRY PERMIT



Permit Issuer:		Phone:					
Permit Receiver:		Phone:					
	CONFINED SPACE						
	REASON FOR ENTRY	INTO CONFINED SPACE					
	HAZARD A	SSESSMENT					
Additional PPE	Intrinsically Safe	LOTO – Blanked	SOP/JSA Reviewed				
Barricades in Place	Equipment Lighting – Battery	LOTO – Blinded	Space Cleaned				
Communication – Cell	Operated Lighting – Electric	LOTO – Disconnected	Space Cooled				
Phone							
Communication – Radio	Lighting – Light Sticks	LOTO – Double Block / Bled	Space Depressurized				
Communication – Verbal	Lighting – Natural	LOTO – Vented	Space Emptied				
Continuous Gas Testing	LOTO - Cribbing	LOTO – Pneumatic	Space Purged				
Designated Smoking Area	LOTO – Cribbing	LOTO – Radiation	Space Taped Off / Roped Off				
Double Insulated Tools	LOTO – Electrical	LOTO – Thermal	Ventilation – Mech. Exhaust				
Entry Attendant Required	LOTO – Fluids	MSDS Reviewed	Ventilation – Mech. Fresh				
Equip. Grounded / Bonded	LOTO – Gases	Muster Area Established	Ventilation – Natural				
Fire Fighting Equip. Required	LOTO – Gravity	Rescue Equip. Required	Warning Signs in Place				
Fire Watch Required	LOTO – Hydraulic	Shoring/Sloping/Trench Box	Other – Details Below				
	SPECIAL IN	STRUCTIONS					
	DEDMIT A OKAN	OW! FROEMENT					
We have reviewed and unders		OWLEDGEMENT and will maintain the conditions of th	e Permit throughout the job.				
Any other employees or sub-c	ontractors who will, or may work	on this job shall have a complete u					
	der the conditions of this permit. O Work is there is a reason to be	lieve that an unsafe act is about to t	ake place, or an unsafe				
condition exists. Job Ci	row.	Rescue	Team				
		Team Member:					
Entry Attendant:		Team Member:					
Authorized Entrant:		Team Member:					
Authorized Entrant:		Team Member:					
Authorized Entrant:		Team Member:					
		ZATION AND ISSUE					
Permit Receiver:							
Area Left Clean and Tidy		CLOSURE Job Completed	Job Not Completed				
	<u> </u>		oob Not Completed				
Permit Receiver:							

CONFINED SPACE ENTRY LOG

A-	
	Blackwater
ARTEMIS	Mine

Date:	Time:
Location:	
Attendant:	

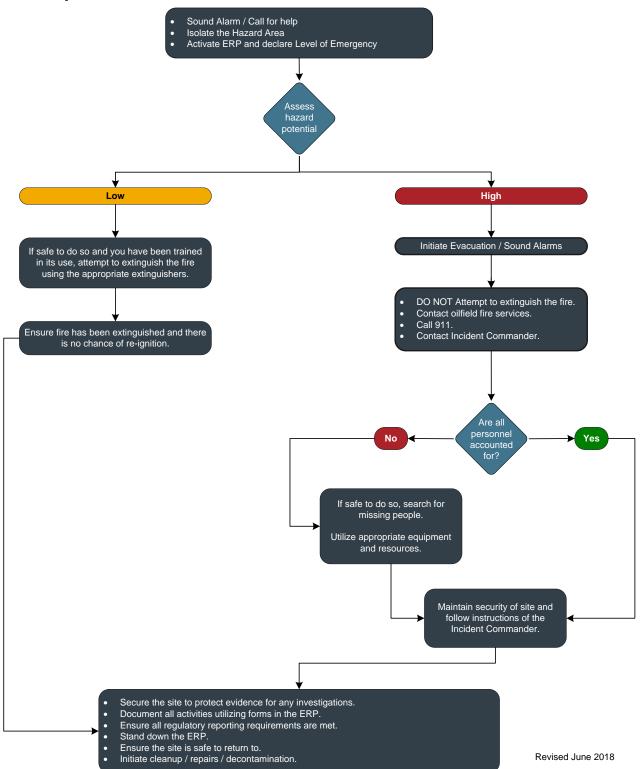
ENTRANT LOG									
Name	Time In	Time Out	Name	Time In	Time Out				

	ATMOSPHERIC MONITORING										
Time	O ₂ (%)	LEL (%)	H ₂ S (ppm)	Toxic (ppm)	Time	O ₂ (%)	LEL (%)	H ₂ S (ppm)	Toxic (ppm)		
					_						



Fire / Explosion

Fire Explosion Considerations





An explosion is a mechanical or chemical reaction that suddenly releases a large amount of energy, resulting in a shock or pressure wave that causes damage, high temperature and usually a release of gases. Explosions can be loosely categorized according to reaction time. High explosives react quickly within a millionth of a second, while low explosives react more slowly. Important general guidelines must be followed for all fires or explosions to ensure the safety of the public, employees, and environment. When encountering different types of fire, the appropriate firefighting services should always be contacted. This is especially important for fuel-related, structure-related, or forest-related fires to decrease the risk of major damage. For oil-related fires, industrial fire-fighters are the best equipped to reduce further danger in the area.

If a fire or explosion occurs, the following actions shall be taken:

Control / Containment

- If possible;
 - Isolate the source and take reasonable action to extinguish or contain the fire.
 - Shut down all known fuel sources.
 - o Shut off high voltage power supplies to equipment in fire-affected area.
 - Shut off fuel to heaters near to, or downwind of fire.
 - 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.
- Call out to industrial firefighting services.
- Notify the Incident Commander.
- Isolate hazard area or equipment as required.

External Notifications

 Follow notification procedures for fires outlined in the Government Notification Matrix in Section 5: External Agencies.



Classification of Fires

Most fires that occur will fall into one or more of the following categories:

Class / Symb	ol	Material	Extinguishing Agent			
A		Ordinary combustible materials, such as wood, paper, cloth, trash, and plastics.	Cooling, blanketing or wetting extinguishing agent is needed. Water and foam extinguishers work on this class of fire.			
В		Flammable liquids such as gasoline, thinners, oil-based paints and greases; Also includes flammable gases such as propane and butane.	Extinguishers for this type of fire include carbon dioxide, dry chemical and halogenated or clean agent types.			
©	10 E	Energized electrical equipment, such as motors transformers and appliances.	The most common type of extinguisher for this class is a carbon dioxide extinguisher. A dry chemical or clean agent extinguisher can also be used.			
*			Special dry powder extinguishing agents are required for this class of fire, and must be tailored to the specific hazardous metal.			
K		Cooking oils and greases such as animal fats and vegetable fats.	A wet chemical fire extinguisher agent is used for this class of fire.			

Source: www.femalifesafety.org

Response Actions Based on Type of Fire

Process Fire

Definition:

Process fires include those within or adjacent to: fractionation skids, compressors, exchangers, vessels (also see BLEVE / LPG), piping, tanks/bullets (also see BLEVE / LPG).

Hazards:

Process fires can be a particular hazard where flammable materials are present.

Response Actions:

Deny or restrict access to the area, shut down and depressurize any related or additional process equipment, if safe to do so. Do not attempt to extinguish a process fire if you are not properly trained.

Sulphur Fire

Definition:

Sulphur dust suspended in air ignites easily and can cause an explosion in confined areas.

Hazards:

Toxic gases will form upon combustion. Bulk/solid forms burn only at a moderate rate, whereas dust burns with explosive violence. Burning sulphur decomposes into toxic sulphur oxide gases such as sulphur dioxide (SO₂) and hydrogen sulphide (H₂S) which is toxic if inhaled.

Response Actions:

The following precautions should be taken when dealing with sulphur fires:

- Prevent human contact or inhalation. Fire may produce irritating and/or toxic gases.
- Wear full faced, self-contained breathing apparatus and full protective clothing.
- Use a water fog, NOT water, to extinguish fire.
- Cool fire, surrounding area, and containers, tanks, and trucks to below 154°C in order to diminish the fire.
- Evacuate the area, except for essential personnel.
- Isolate the area with a 1600m radius.

Trained personnel, local fire departments or contract fire services should only attempt to control a sulphur fire. To ensure public protection, evacuate 1600 meters in all directions and ensure air monitoring is set up downwind of fire and the smoke plume. Continually assess evacuation zone based on air quality readings.

Electrical System Fire

Definition:

Electrical fires are fires involving potentially energized electrical equipment. This sort of fire may be caused by, for example, short-circuiting machinery or overloaded electrical cables.

Hazard:

Electrical fires can quickly get out of control and can cause serious damage and threaten lives.



Response Actions:

Electrical fire may be fought in the same way as an ordinary combustible fire, but water, foam, and other conductive agents are not to be used. While the fire is, or could possibly be electrically energized, it can be fought with any extinguishing agent rated for electrical fire. Carbon dioxide CO₂, FM-200 and dry chemical powder extinguishers such as PKP and even baking soda are especially suited to extinguishing this sort of fire. Once electricity is shut off to the equipment involved, it will generally become an ordinary combustible fire. Water conducts electricity; throwing water on an electrical fire can cause the fire to get larger.

Grass Fire

Definition:

A grass fire is a fire that burns large amounts of grass. They mainly occur in grasslands and or Great Plains.

Hazards:

Grassfires spread rapidly, travelling at speeds of up to 25 km/hr, and can quickly threaten lives and properties.

Response Actions:

Threatening grass fires have a potential to involve the licensee's and other area operators' facilities, pipelines and well sites, therefore guidelines to minimize damage to any property need to be followed. To protect the licensee's and other area user property, it is important to follow these guidelines:

- Notify other area operators of the emergency.
- Isolate and shut in all affected facilities if safe to do so.
- For small grass fires extinguish using a shovel or ABC type fire extinguisher. If it enters coulees, along rivers, or into large areas of trees or forests, contact the local fire department and local forestry office for assistance.
- For larger grass fires do not attempt to extinguish but contact local fire department and local forestry
 office.

Forest Fire / Wildfire

Definition:

A forest fire is an uncontrolled fire in a wooded area. A forest fire is a natural disaster consisting of a fire which destroys a forested area and can be a great danger to people who live in forests as well as wildlife. Forest fires are generally started by lightning, but also by human negligence or arson, and can burn thousands of square kilometres.

Hazards:

Forest fires can quickly get out of control and can cause serious damage in agricultural and forested lands.



Response Actions:

- Notify other area operators of the emergency.
- Isolate and shut in all affected facilities if safe to do so.
- For small fires extinguish using a shovel or ABC type fire extinguisher. If it enters coulees, along rivers, or into large areas of trees or forests, contact the local fire department and local forestry office for assistance.
- For larger fires do not attempt to extinguish the fire. To report a forest fire/wildfire in British Columbia, call:

1-800-663-5555 (Prov-wide) or *5555 (from cell, Prov-wide)

Wildfire Behaviour

The following wildfire behavioural terms are affected by fuel, topography and weather and also allow for exact descriptions of the wildfire as it is occurring:

- Smouldering: A fire burning without flame and barely spreading.
- Creeping: A fire spreading slowly over the ground, generally with a low flame.
- Running: A fire rapidly spreading with a well-defined head.
- Torching: A single tree or a small clump of trees is said to "torch" when its foliage ignites and flares up, usually from bottom to top. Synonym: Candle or Candling.
- Spotting: A fire producing firebrands carried by the surface wind, a fire whirl, and / or convection column that fall beyond the main fire perimeter and result in spot fires.
- Crowning: A fire ascending into the crowns of trees and spreading from crown to crown. Such a fire is known as a crown fire.

Wildfire Assessment

During Wildfire Season (March – November), the following cycle will allow field staff to continual assess the dangers of wildfires in the area. Based on the Fire Danger rating and site location, Artemis Gold staff will review the Fire Environment they are in, develop a plan and conduct work practices accordingly. This process is to be conducted daily until the end of wildfire season or when the threat of a wildfire sparking ends.

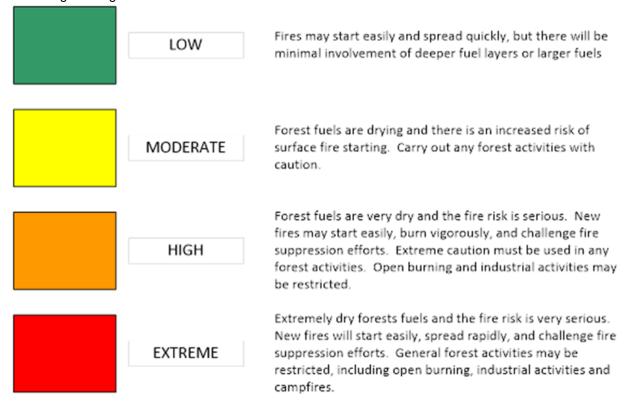
The following sections will provide some detailed information on how to determine the Fire Danger Rating as well as provide some more information on Best Practices that can be conducted on site to reduce the change of a wildfire impacting Artemis Gold assets and staff.



Determine the Level of Fire Danger

The Fire Danger Rating system provides a simple and effective tool for assessing the burning conditions in your area. Provincial authorities issue regional fire danger ratings after considering current weather and fuel conditions. Ratings are accessible on the Internet, on the wildfire information page of your local authority.

The danger ratings are assessed at four different levels:



The readiness level at a facility should be influenced by the daily fire danger rating, wildfire situation or other wildfire information.

Always be mindful of the risk level in your area and prepare accordingly. During extreme conditions wildfires can travel dozens of kilometers in a single day. Understanding the likelihood and probable locations of where the threat may originate is crucial to applying the correct mitigation measures.

Source: Canadian Association of Petroleum Producers Guide 2015-0003 – Emergency Preparedness Guide for Hazards Associated with Wildfires.

https://www.capp.ca/wp-content/uploads/2019/ 11/Emergency Preparedness Guide for Hazards Associated with Wildfir-261805.pdf



Wildfire Status and Monitoring and Notification

There are a number of resources available to monitor the wildfire status. These include local news channels, radio stations and websites, government sources including federal, provincial, and local, communication with internal sources, or other sites in the area, alerts and government advisories, and social media sources.

Some of the government and federal websites available are:

	Wildfire Status and Monitoring								
Natural Resources Canada	Link: http://cwfis.cfs.nrcan.gc.ca/home								
BC Public Safety and Emergency Services	Link: http://www2.gov.bc.ca/gov/content/safety/wildfire-status/wildfire-situation								
Smoke Forecast	Link: http://firesmoke.ca/forecasts/current/								
	Current and Forecasted Weather								
Environment Canada Weather Information	Link: https://weather.gc.ca/								

Notify Workers on Wildfire Status

All Artemis Gold personnel in the area need to be aware of the current fire environment. The Area Supervisor is in charge of communicating this to all staff / contractors / visitors on site. Additionally, the Area Supervisor is responsible for consistently monitoring the Fire Danger Rating Level. As the Danger Rating increases, the chance of a wildfire starting increases. Employees need to be aware of this in determining the work practices they should / should not be conducting. See the next section for information on best work practices to prevent the cause of wildfires.

Depending on the time of year and current Fire Danger Rating, Artemis Gold employees are required to review and assess the work safe practices that can and cannot be conducted at the time. Fuels in the forested / vegetated areas during certain times of the year can easily spark up from many activities completed on site.

Evacuation Planning Best Practice

Emergency wildfires cover large areas of land and are extremely hard to contain. It is not the responsibility of Artemis Gold personnel to contain these wildfires. With that in mind, the Company has established the following evacuation planning protocols to protect its staff and visitors on site.

It is essential to understand which direction a wildfire threat may come from, considerations for size of potential wildfires and the rate at which wildfires may travel. Planning should include consideration of trigger points to help an operation decide when to change or modify their operations. A trigger point is defined as a point of reference from which predetermined actions take place.

It is important to consider factors specific to the operational environment when developing trigger points for wildfire response planning. These may include time to evacuate, distance of the operation from the fire or smoke, physical features such as a river or road, and number of people on site to evacuate.

A wildfire situation may limit the usability of emergency evacuation routes. For example, the road out of an area may be blocked by fire, smoke, or a vehicle. Smoke may prevent helicopters from landing and slow

automobile traffic down. Moreover, an increased volume of traffic on a critical road may lead to congestion. Alternative evacuation routes should be considered.

Communication with Third Parties

Evacuation planning should be integrated with third parties to ensure that emergency response measures are well coordinated. This includes other oil and gas operators and emergency management agencies. This will reduce the chance of incidents occurring as a result of the evacuation process and traffic congestion. It is the responsibility of each Area Superintendent and Supervisor to make sure this communication has happened.

Alternative Access Routes

If there is potential for the main access to be cut off by a wildfire, alternative emergency evacuation routes (two-way access) should be identified and developed. Some of the considerations to look into are:

- Are the alternative evacuations routes navigable by car and safe to travel down?
- Is it possible to turn around on the evacuation route, if necessary?
- Potential helicopter landing pads for remote sites. Note: Aviation operations could be impacted by Notice of Airmen (NOTAM)
- Are there waterways that can be accessed by boat?
- Are there any locked gates that can cause an issue?
- Are these evacuation routes radio controlled?

Evacuation Staging Areas

If the potential exists for Artemis Gold personnel to become trapped by an approaching wildfire, the individuals should be trained to recognize and utilize adequate evacuation staging areas. Identify and communicate preplanned evacuation staging areas. An ideal staging area should be:

- A clean burn site, natural cleared area, or constructed site free of vegetation (i.e. gravel pit, plant site, etc.)
- · Quickly and safely accessed from worksite
- Free of hazardous materials
- Adequate space for personnel / vehicles / equipment
- Helicopter access

All-Terrain Vehicle Activity Best Practice

All-terrain vehicle activity during the high and extreme fire danger levels can be a high-risk liability. Below are some recommendations during operational periods that should be considered.

- Operators need to stop on a regular basis and remove accumulations of organic material and vegetation from around all components of the exhaust system. The frequency of this cleaning will be dependent upon the terrain and weather conditions. For example, the operator must frequently stop and clean the exhaust after travelling through a muskeg area during the spring.
- ATVs should be parked on site with bare mineral soil, gravel, or cement.
- All ATVs during fire season should be equipped with a small container of water (10-20 litres) and a small handheld firefighting tool that can be used to extinguish any small fire that have started.
- Restrict or limit the use of ATVs in forested areas during prolonged periods of extreme fire danger levels and forest closures.

Fire / Explosion, continued



- Travel on ATVs during the early morning and later evening when relative humidity is usually higher.
- Driving speed of the ATVs is the largest contributor to increasing temperatures produced from the
 exhaust system. If you need to utilize the ATV during fire season, drive at a relatively conservative
 speed to reduce the chance of creating an ignition.

Heavy Equipment Use Best Practice

When operating any heavy equipment such as backhoes, graders, bulldozers, bobcats, etc., surrounding conditions and equipment maintenance should be taken into consideration during the wildfire season.

Exhaust systems associated with heavy equipment use can cause wildfire ignition by different means:

- Diesel engines that idle for long periods build up carbon in the exhaust system. The engine is then
 throttled up and placed under load. When this occurs, small, hot carbon pieces can be expelled,
 causing a wildfire ignition. During windy days, particles can be carried very long distances from the
 equipment.
- Clearing forest vegetation with heavy equipment can cause an accumulation of very fine organic material on the exhaust systems. This organic material dries and if heated on exhaust systems, may ignite. Through vibrations, the ignited materials can then fall to the forest floor and ignite vegetation, causing a wildfire.
- Overheated components are sources of high heat that can catch you unaware. On heavy equipment overheated exhaust manifolds, seized bearings, or locked brakes can generate enough heat to ignite many different sources, from fuel or oil pools on the ground to flammable grasses and brush.
- Poor maintenance and tire changing practices sometimes leave small shards of metal inside of a tire.
 If the air inside the tire becomes overheated due to under-inflation, too much load or too much speed it can cause these small bits of metal to catch fire and in turn the burning metal can start the rubber burning. Once a tire starts to burn, it is almost impossible to extinguish. It has to burn itself out and, in most cases, it's going to take the rest of the machine with it and anything in the surrounding area.

Below are recommendations to be considered when working with or operating any heavy equipment:

- Ensure contractors inspect and clean their heavy equipment exhaust systems, tires, and other equipment parts on a regular basis.
- While cleaning the equipment, park it on bare mineral solid if possible or spray the area with water before driving the equipment over the wet area to clean.
- Place heavy equipment with diesel engines over mineral soil or non-flammable material. Then throttle
 up and place the diesel engine under load to expel any loose carbon particles. Always taking wind
 speed and direction into consideration.

Blasting / Welding / Power Tools - Best Practice

The processes of blasting and welding have the ability to start wildfires. Before performing any of these tasks, make sure there is adequate fire suppression equipment on site and readily available, the correct work permits have been submitted and signed by the Area Supervisor and vegetation around the area has been cleaned up at least 7 metered around the centre of the work area.

During low fire danger levels, assign a fire watcher to remain on site for one hour after the completion of blasting and welding activities. During high fire danger levels, blasting and welding are prohibited unless granted an exception.



Waste Management - Best Practice

Storing waste in the correct locations can reduce the possibility of a wildfire spreading. Below are some general guidelines for waste management

- All used and discarded oil, oil filters, oily rags, or other waste shall be disposed of in approved and marked containers.
- Containers shall be stored in approved locations and removed from the site by licensed contractor or approved personnel and disposed or recycled at approved facilities.
- Avoid any unnecessary piling of woody waste material near timber edges and structures.

Human Behavior - Best Practice

Even though human activity is controllable, we make up approximately 10% of the start of wildfires in any given year. Below are some ways we can control the amount of wildfires caused by human behaviour:

- Smoking is allowed only in designated smoking areas
- Smoking is prohibited in crew vehicles used for transporting workers
- Cigarettes must be contained to and disposed of/extinguished in designated smoking areas only
- Regularly inspect power equipment before and after use for damage or excessive wear and tear
- Do not operate / use damaged or worn mobile / power equipment

Natural Gas Liquid Fire

Definition:

Liquid natural gas is very flammable after vaporization to a gaseous phase.

Hazard:

If liquid natural gas is spilled, it vaporizes. The natural gas vapours are initially heavier than air and they form a cloud close to the ground, which is pushed downwind and eventually dissipates. If a viable ignition source is present where a vapour cloud exists at a 5%–15% concentration in air, the vapour cloud can ignite and burn. A vapour cloud, formed by an LNG spill, could drift downwind into populated areas. An LNG fire gives off a tremendous amount of heat. Water will react violently with the LNG and may cause the fire to flare up and intensify.

Response Actions:

A solid stream of water should never be used to extinguish this type because it can cause the fuel to scatter, spreading the flames. The most effective way to extinguish a liquid or gas fueled fire is by inhibiting the chemical chain reaction of the fire, which is done by dry chemical and Halon extinguishing agents, although smothering with CO₂ or, for liquids, foam is also effective.

Gaseous Release Fire

Definition:

Gases are chemical compounds or products which are found in a gaseous state at normal atmospheric pressure (i.e. can expand indefinitely in air if not contained or pressurized in a closed container). Three general types of gases with specific hazardous properties are:

- 1. Toxic or Corrosive Gases: Toxic or corrosive gases are defined as gaseous materials which are corrosive or toxic to living organisms.
- 2. Flammable Gases: Flammable gases are defined as gaseous materials which will ignite or explode if conditions are present which will support combustion.
- 3. Compressed Gases: Compressed gases are defined as gaseous materials which exhibit no flammable or toxic properties, but exhibit hazardous properties based on air displacement or being confined under pressure.

Hazards

Toxic or Corrosive Gases:

- Toxic or corrosive gases are water soluble.
- Some corrosive gases may be flammable or explosive at high concentrations.
- Corrosive gases which are acidic will corrode various metals.
- Toxic or corrosive gases which are heavier than air may accumulate in low lying areas such as trenches, sumps, pits, sewers, basements, tanks, ditches, creeks, or gullies.
- Toxic or corrosive gases may be liquefied under pressure and be released as a liquid pool which quickly vaporizes at normal room temperatures.
- Toxic or corrosive gases which are liquefied under pressure may freeze clothing and cause frostbite to exposed skin.
- Corrosive gases can break down the structure of organic materials and can cause chemical burns to skin.
- Corrosive gases can cause chemical burns to the mouth, throat or stomach or break down tissues in the lungs if vapours are inhaled.
- Toxic or corrosive gases released under pressure from a ruptured cylinder or tank may cause the container to rocket, causing possible damage or injuries in the direction in which it moves.
- Toxic or corrosive gases involved in a fire may produce other irritating corrosive or toxic by-products.
- Toxic gases can cause poisonous effects to living organisms at low concentrations, through inhalation.
- Corrosive gases mixed with water can lower the pH of the water and can exhibit toxicity to humans, aquatic organisms, or wildlife if released to the environment.

Flammable Gases:

- Flammable gases will ignite in the presence of sufficient oxygen and an ignition source, causing a fire and igniting other materials in the surrounding area.
- Flammable gases could explode if ignited in a confined space such as a tank, enclosed room, or sewer system.
- Flammable gases can displace air in a confined space, causing asphyxiation or suffocation.
- Flammable gases may be lighter or heavier than air.
- Flammable gases that are heavier than air may accumulate in low lying areas as sewers, basements, tanks, ditches, creeks, or gullies.
- Flammable gases may be liquefied under pressure and be released as a liquid pool which quickly vaporizes at normal room temperatures.
- Flammable gases which are liquefied under pressure may freeze clothing and cause frostbite to exposed skin if released, or cause injury if sprayed into eyes.
- Flammable vapours in high concentrations may be irritating or produce dizziness if inhaled.
- Flammable gases released under pressure from a ruptured cylinder or tank may cause the container to rocket, causing possible damage or injuries in the direction in which it moves.
- Flammable gases in a pressurized container involved in a fire may cause a BLEVE condition to occur (i.e. Boiling Liquid Expanding Vapour Explosion).
- Flammable gases which ignite may produce irritating or toxic vapours.



Compressed Gases:

- Compressed gases can displace air in a confined space, causing asphyxiation or suffocation.
- Compressed gases may be lighter or heavier than air.
- Compressed gases that are heavier than air may accumulate in low lying areas as trenches, sumps, pits, sewers, basements, tanks, ditches, creeks, or gullies.
- Compressed gases which are liquefied under pressure may freeze clothing and cause frostbite to exposed skin, or cause injury if sprayed into eyes.
- Compressed gases released under pressure from a ruptured cylinder or tank may cause the container to rocket, causing possible damage or injuries in the direction in which it moves.
- Some compressed gases have been used for refrigeration or firefighting purposes (e.g. Freon and Halon) are substances which can contribute to depletion of the earth's ozone layer, representing an environmental hazard.

Response Actions:

Potential concerns in a fire involving a gaseous release will depend on the nature of the flammable, toxic or corrosive gas being released. Non-flammable gases may aid in extinguishing a fire but may also pose an air displacement or cryogenic hazard to fire responders (i.e. may freeze exposed skin).

- Conduct initial general evacuation of company personnel to a site at least 50 -100 metres upwind of the fire location. Extend evacuation distance as necessary.
- Notify outside emergency agencies of major fires involving gaseous releases, using company plan
 activation procedures. Decisions related to evacuation of citizens downwind of the fire, and
 evacuation distances, shall be made in consultation between company, facility, municipal and
 emergency authorities.
- Consider initial evacuation to a distance of 800 metres for a fire involving toxic, corrosive, or flammable gases. Extend evacuation distance as necessary.
- Use of SCBA and appropriate protective clothing by all emergency response personnel involved in the emergency.
- Extinguishing or small fires using carbon dioxide, or dry chemical extinguishers, as appropriate.
- Extinguishing of large fires using water spray, Carbon Dioxide, dry chemical, or foam, as appropriate.
- Consider initial isolation and evacuation to a distance of at least 1600 metres for fires which involve flammable gases in large tanks, rail tanker cars or tanker trucks as protection against a BLEVE condition.

Flammable Liquid Fire

Definition:

Flammable liquids are hydrocarbons (i.e. contain hydrogen and carbon as part of their chemical structure). These liquids may contain a single hydrocarbon compound (e.g. benzene) or be composed of a complex mixture of hydrocarbons (e.g. fuel, oil, gasoline, diesel fuel, varsol and other solvents).

Hazard:

- Flammable liquids will readily ignite in the presence of sufficient oxygen and an ignition source (e.g. heat, sparks, or flames).
- Most flammable liquids will not readily mix with water, and most are lighter than water (i.e. will float on top of water).

- Flammable liquids which run-off into sewers, or other confined spaces may pose an explosion hazard.
- Flammable vapours may form explosive mixtures in air.
- Flammable vapours are heavier than air and may accumulate in low lying areas such as sewers, basements, tanks, or other confined spaces.
- Flammable vapours which are ignited may flash back to the vapour source.
- Flammable liquid containers involved in a fire may explode when heated.
- Fires involving flammable liquids may produce vapours which are irritating or toxic if inhaled.
- Contact with flammable liquids may be irritating to eyes or skin.
- High concentrations of vapours may cause dizziness or asphyxiation in confined spaces, through air displacement.
- Soluble fractions of flammable liquids can dissolve in water (e.g. benzene, toluene, xylenes) and cause toxicity to aquatic organisms.
- Flammable liquids can contaminate wildlife, birds, environmentally sensitive areas, or historical resources in the vicinity of the spill.
- Flammable liquids spilled into waterbodies or watercourses can contaminate surface water resources and threaten drinking water supplies. Liquids spilled on land can penetrate porous soils and contaminate groundwater resources or water wells.

Response Actions:

- Evacuation of company personnel to a site at least 50 metres upwind of the fire location.
- Notify police and municipal fire officials of major fires involving flammable liquids, using company plan activation procedures. Decisions related to evacuation of citizens downwind of the fire, and evacuation distances, shall be made in consultation between company, municipal and police authorities.
- Use of SCBA and appropriate protective clothing by all emergency response personnel involved in the emergency.
- Extinguishing of small fires using carbon dioxide, dry chemical extinguishers, water spray or foam.
- Extinguishing of large fires using water spray, carbon dioxide, dry chemical, or foam.
- Use of water spray instead of straight water streams, to prevent spreading of ignited flammable liquids over a larger area.
- Use of hose holders or monitor nozzles for areas which pose a danger to emergency response personnel.
- Cooling of flammable liquid containers or tanks near the fire to prevent container explosions from occurring.
- Movement of flammable liquid containers not involved in the fire to a safer location if movement can be done without risk to emergency response personnel.

Corrosive Material Fire

Definition:

Corrosives are chemical compounds or products which can react with and break down the chemical structure or other materials. Two types of materials are defined as corrosives:

Acids are defined as solid or liquid materials which will react with alkali (basic) materials to form insoluble salts and water. Common acidic chemicals include Sulphuric, Nitric and Hydrochloric acids.

Alkalis (bases) are defined as solid or liquid materials which will react with acidic materials to form insoluble salts and water. Typical basic materials include Sodium Hydroxide, Ammonium Hydroxide, Sodium Hypochlorite and Lime (Calcium Hydroxide).

Hazard:

Acids:

- Strong acids will quickly corrode metals and may produce flammable hydrogen gas while in contact with metals.
- Strong acids will react violently when neutralized with alkali material or when water is poured into concentrated acid, producing an exothermic reaction (i.e. large amounts of heat will be released). Pressure may be produced in an enclosed container.
- Possible gaseous by-products may be formed during neutralization of a strong acid, which can cause air displacement (i.e. displaces air or oxygen from confined space, causing asphyxiation), or production of toxic or corrosive vapours.
- Acids can break down the structure of organic materials and can cause acid burns to skin or eyes.
- Acids can cause chemical burns to the mouth, throat or stomach if ingested or break down tissues in the lungs if vapours are inhaled (effects of inhalation of acid vapours may be delayed).
- Acids may decompose when heated in a fire, producing toxic or acidic vapours.
- Acids mixed with water can lower the pH of the water and can exhibit toxicity to humans, aquatic organisms, or wildlife if released to the environment.
- Acid spills or acid contaminated water spilled into waterbodies or watercourses can contaminate surface water resources and threaten drinking water supplies.
- Acid spills or acid contaminated water spilled on land can penetrate porous soils and can contaminate groundwater resources or water wells.

Alkalis (bases):

- Strong alkali materials slowly corrode metals and may produce flammable hydrogen gas while in contact with metals.
- Strong liquid or solid alkali materials will react violently when neutralized with an acidic material or when water is poured into or onto the base, producing large amounts of heat, and pressure in an enclosed container.
- Fires may decompose an alkali material, producing irritating, toxic or corrosive vapours.
- Possible gaseous by-products may be formed during neutralization of a strong alkali, which can cause air displacement (i.e. displaces air or oxygen from confined space, causing asphyxiation), or production of toxic or corrosive vapours.
- Alkali materials can break down the structure of organic materials, and can cause alkali burns to skin, resulting in severe injury. Effects of contact may be delayed.
- Alkali materials has toxic health effects and can cause chemical burns to the mouth, throat or stomach
 if ingested or break down tissues in the lungs if vapours are inhaled. Effected of ingestion or inhalation
 may be delayed.
- Alkali materials mixed with water can raise the pH of the water and can exhibit toxicity to humans, aquatic organisms, or wildlife if released to the environment.
- Alkali spills or alkali contaminated water spilled into waterbodies or watercourses can contaminate surface water resources and threaten drinking water supplies.
- Alkali spills or alkali contaminated water can penetrate porous soils and can contaminate groundwater resources or water wells.

Fire / Explosion, continued



Response Actions:

While corrosive materials are normally not considered to be flammable, heating of corrosive materials may cause release of corrosive vapours, and damage to corrosive containers, may cause a secondary spill to occur in a fire involving hazardous materials. •

- Evacuation company personnel to a site at least 50 metres upwind of the fire location.
- Notify police of major fires involving corrosives, using company plan activation procedures. Decisions
 related to evacuation of citizens downwind of the fire, and evacuation distances, shall be made in
 consultation between company, municipal and police authorities.
- Use of SCBA and appropriate protective clothing by all emergency response personnel involved in the emergency.
- Extinguishing of small fires using carbon dioxide, or dry chemical extinguishers.
- Extinguishing of large fires using water spray, Carbon Dioxide, dry chemical, or foam. Water spray may also be used to control acidic or alkali vapours resulting from the fire.
- Consider movement of corrosive containers not involved in the fire to a safer location if movement can be done without risk to emergency response personnel.
- Controlling of fire control water contaminated with corrosive.

Coal Bunker Fires

Definition:

Coal Bunker fires can represent especially hazardous and specialized conditions in an emergency, requiring appropriate specialized response actions to be initiated to bring the fire under control. In addition to the generalized hazards typical of any fire or explosion, an emergency occurring in a coal bunker can have the following specialized concerns:

Hazards:

- Heated coal produces flammable gases (i.e. methane), which may ignite, or explode in a confined space.
- Methane and other combustion by-products of a coal fire (e.g. Sulphur Dioxide) may be a health hazard, in sufficient concentration.
- Coal can ignite by spontaneous combustion after becoming stagnated in a bunker.
- Coal dust can explode in a confined space.
- A primary and secondary explosion or fire can occur if coal dust or flammable gases are ignited.
- Coal bunkers contain a radiation source.
- Coal can generate its own oxygen, to support combustion.

Note: In an incident involving coal dust, methane, or both, an initial explosion of the dust or gas can disturb settled accumulations of dust, or gases trapped in the coal or dust, resulting in a usually more violent ignition of the second mixture.

Response Actions:

In the event of a bunker fire, the Incident Commander shall ensure that all response personnel are informed of what has occurred, and receive appropriate briefing related to site hazards and safety concerns.

Adequate support from other groups who might be required should be solicited, to bring the fire under control.



Ventilation must be considered as an integral part of handling coal bunker fires, scraper room dust and coal gas problems. However, each coal bunker fire may generate its own unique conditions, requiring adaptive action on the part of the Incident Commander and the firefighting team, to bring the situation under control.

- Ventilate the scraper room above the bunker, if safe to do so, and using positive or negative pressure ventilation equipment, as appropriate.
- Follow operating instruction COA.05.1649 "Coal Mill Fires".
- Introduction of an inert gas into the coal bunker is usually the best way to bring the fire under control, if possible, as the inert gas will displace oxygen, starving the fire.
- With the Feeder Gate closed, inject Carbon Dioxide (CO₂) gas or Nitrogen (N₂) into the coal bunker as needed.
- If the fire cannot be controlled with application of inert gas, and the fire is endangering personnel, or operation of the facility, the bunker shall be saturated with water until the fire is out.

Note: Ensure sufficient supplies of Carbon Dioxide or Nitrogen Gas are available to undertake the procedure.

Nitrogen Gas is supplied by Air Liquide Canada and can normally take 12 to 24 hours to arrive on-site. However, earlier delivery is sometimes possible under emergency conditions (see the appropriate Facility Specific Emergency Response Plan for appropriate contact numbers).

BLEVE

Definition:

BLEVE is an acronym for Boiling Liquid Expanding Vapour Explosion. It is the term for an uncontrolled fire and explosion of vapour as it escapes from a ruptured vessel of pressurized / liquefied gas. Such explosions can be extremely hazardous.

Hazards:

The hazards associated with a BLEVE include the initial impact of the blast, the fireball and radiation from the explosion and projectiles (pieces of the tank and nearby equipment) that are rocketed from the explosion.

Response Actions:

- Contact Emergency Response Assistance Canada (ERAC) for assistance with emptying any damaged tanks.
 - Under the plan, response is provided for the following chemicals: LPG UN 1075, Propane UN 1978, Butane UN 1011, Propylene UN 1077, Butylene UN 1012, Isobutane UN 1969, Isobutylene UN 1055, Butadiene-1,3 UN 1010
- If safe to do so, attempt to extinguish any fires before they come in contact with any storage bullets.
- Call 911 to obtain assistance with fire suppression. Ensure all responders are made aware of the hazards.
- Flowing water can be used to cool the tanks in order to prevent or delay a BLEVE; however, this requires a significant amount of water and should not be attempted unless an unlimited water supply can be located, and the tank can be approached safely.
- Evacuate all personnel and isolate the area to a 1600m radius.
- Evaluate the tank from a safe distance away. Choose an upwind position to the side of the tank if possible.
- Leave the area immediately if you hear a rising sound from venting safety devices or see discoloration
 of the tank.



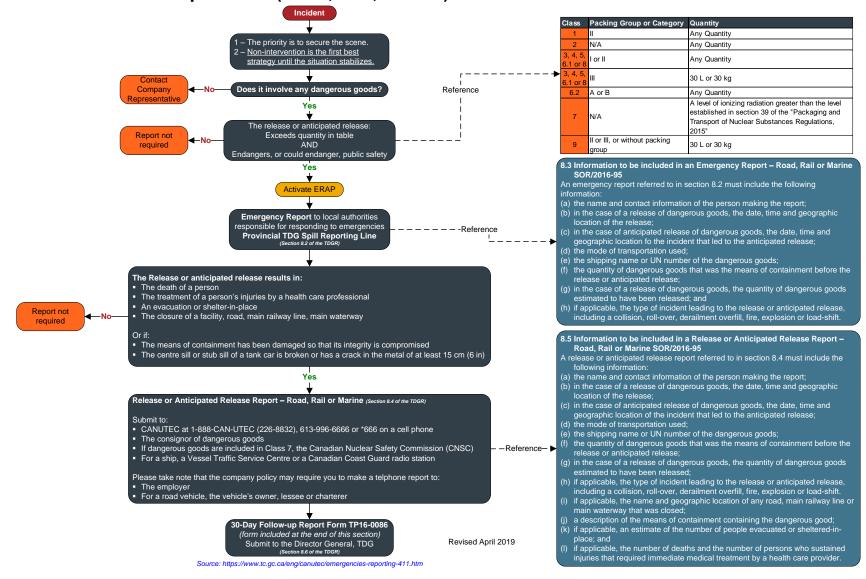
BLEVE Considerations Based on Tank Capacity

Сара	acity	Diame	eter	Lenç	gth	Prop Ma		Minimum time to failure for severe torch	Approximate time to empty for engulfing fire	Fireball Emergency Radius Response Distance		Response Evacu		Minimum Preferred Evacuation Distance Distance		Cooling Water Flow Rate			
Litres	Gallons	Metres	Feet	Metres	Feet	kg	lbs	Minutes	Minutes	Metres	Feet	Metres	Feet	Metres	Feet	Metres	Feet	Litres/min	Gal/min
100	38.6	0.3	1	1.5	4.9	40	88	4	8	10	33	90	295	154	505	307	1007	94.6	25
400	154.4	0.61	2	1.5	4.9	160	353	4	12	16	53	90	295	244	801	488	1601	189.3	50
2000	772	0.96	3.2	3	9.8	800	1764	5	18	28	92	111	364	417	1368	834	2736	424	112
4000	1544	1	3.3	4.9	16.1	1600	3527	5	20	35	115	140	459	525	1722	1050	3445	598	158
8000	3088	1.25	4.1	6.5	21.3	3200	7055	6	22	44	144	176	577	661	2169	1323	4341	848	224
22000	8492	2.1	6.9	6.7	22	8800	19400	7	28	62	203	247	810	926	3038	1852	6076	1404	371
42000	16212	2.1	6.9	11.8	38.7	16800	37037	7	32	77	253	306	1004	1149	3770	2200	7218	1938	512
82000	31652	2.75	9	13.7	45	32800	72310	8	40	96	315	383	1257	1435	4708	2200	7218	2710	716
140000	54040	3.3	10.8	17.2	56.4	56000	12345 7	9	45	114	374	457	1499	1715	5627	2200	7218	3539	935



Transportation Incidents

First On-Scene Transportation (Road, Rail, Marine) Incident Flowchart





Loss, Theft or Unlawful Interference Reporting Flowchart

Loss or Theft Report Protocol 1. Any Quantity of Dangerous Goods in the following Primary and **Subsidiary Classes:** Loss or Theft Explosives included in Class 1.1, 1.2, or 1.3 Toxic gases included in Class 2.3 • Organic peroxides included in Class 5.2, Type B, liquid or solid, temperature Toxic substances included in Class 6.1 and Packing Group I CANUTEC **Dangerous Goods Dangerous Goods** Infectious substances included in Class 6.2 Toll Free: 1-888-226-8832 Class 1, Explosives Class 7, Radioactive Materials Radioactive materials included in Class 7 From Cell Phone: *666 Included in Class 1.1, 1.2, 1.3, 1.4 Canadian Nuclear Safety (except 1.4S), 1.5 or 1.6 Commission: 1-844-879-0805 Inquiries: 613-996-6666 Natural Resources Canada 2. A Total Quantity of 450kg or more, in the case of Dangerous Goods in inspector: 613-995-5555 the following Primary and Subsidiary Classes: Reference Explosives included in Class 1.4 (except for 1.4S), 1.5 or 1.6 Flammable gases included in Class 2.1 Flammable gases included in Class 3 Desensitized explosives included in Class 3 or 4.1 Substances liable to spontaneous combustion, pyrophoric solids or liquids, included in Class 4.2 and Packing Group I or II Water-reactive substances included in Class 4.3 and Packing Group I or II Oxidizing substances included in Class 5.1 and Packing Group I or II Corrosives included in Class 8 and Packing Group I or II 3. Any Quantity of one of these Dangerous Goods: UN1261. Nitromethane. UN1357, Urea Nitrate, Wetted with not less than 20%, UN1485, Potassium Chlorate, Unlawful Interference Report Protocol UN1486, Potassium Nitrate, UN1487, Potassium Nitrate and Sodium Nitrate Mixture, UN1489, Potassium Perchlorate, **Unlawful Interference** UN1495, Sodium Chlorate, UN1498, Sodium Nitrate, UN1499, Sodium Nitrate and Potassium Nitrate Mixture, UN1511, Urea Hydrogen Peroxide, UN1796, Nitrating Acid Mixture with more than 50% nitric acid, CANUTEC **Dangerous Goods Dangerous Goods** UN1826, Nitrating Acid Mixture, Spent, with not more than 50% nitric acid, Toll Free 1-888-226-8832 Class 1, Explosives Class 7, Radioactive Materials UN1942, Nitrating Acid Mixture, with not more than 0.2% combustible Included in Class 1.1, 1.2, 1.3, 1.4 From Cell Phone *666 Canadian Nuclear Safety substances, including any organic substance calculated as carbon, to the 613-996-6666 (except 1.4S), 1.5 or 1.6 Commission: 1-844-879-0805 exclusion of any other added substance, Natural Resources Canada UN2014, Hydrogen Peroxide, Aqueous Solution with not less than 20% but inspector: 613-995-5555 not more than 60% hydrogen peroxide (stabilized as necessary), UN2015, Hydrogen Peroxide, Aqueous Solution, Stabilized with more than 60% hydrogen peroxide; or Hydrogen Peroxide, Stabilized, Revised June 2018 UN2031, Nitric Acid, other than red fuming UN2032, Nitric Acid, Red Fuming UN3149, Hydrogen Peroxide and Peroxyacetic Acid Mixture with acid(s), water and not more than 5% peroxyacetic acid, Stabilized UN3370, Urea Nitrate, Wetted, with not less than 10% water by mass.



Motor Vehicle Accidents

The first person on scene will follow the First Person On-Scene Transportation Incident Flowchart, then:

- Record and report the following:
 - o Driver's name, address, and phone number.
 - Driver's license number.
 - o Vehicle license plate number, make, model, year and colour.
 - o Name of injured and nature of injury.
 - o Witnesses' name, address, and phone numbers.
 - o Time and location of accident.
 - Actions taken.
 - Weather conditions.
 - o Individuals and organizations notified.
- Make a statement to the RCMP / police.
- Chronologically document all actions, decisions, contacts, and requests on an ICS 214 Activity Log (see Section 6: Forms).

The Incident Commander will be engaged through the initial notification and is responsible to:

- Ensure required communication occurs with internal and external personnel.
- Ensure no unauthorized personnel enter the emergency area.
- Ensure evidence is secured for investigation.
- Conduct an initial debriefing to all emergency personnel and delegate areas of responsibility.
- Chronologically document all actions, decisions, contacts, and requests on an ICS 214 Activity Log (refer to Section 6: Forms).

In case of a hazardous material spill:

- Ensure your own personal safety.
- Refer to Section 4: Spill Response.

In case of a vehicle fire:

- Ensure your own personal safety.
- Call for assistance.
- Use an ABC fire extinguisher for cab, electrical, cargo space or trunk and engine fires.

Note: RCMP/Police must be notified when an injury or fatality has occurred and / or vehicle damages exceed \$1000.00.

Refer to the Transport Canada - 2020 Emergency Response Guidebook for further details regarding the Initial Phase of a Dangerous Goods / Hazardous Materials Transportation Incident.



CANUTEC – Canadian Transport Emergency Centre

CANUTEC is operated by Transport Canada to assist emergency response personnel in handling dangerous goods emergencies involving all modes of transportation.

In an emergency, CANUTEC may be called collect at:

Refer to Section 5: External Agencies or Area Specific Information for contact information

CANUTEC **MUST** be notified in the case of the following:

- · Lost, stolen, or misplaced infectious substances.
- An incident involving infectious substances.
- An accidental release from a cylinder that has suffered a catastrophic failure.
- An incident where the shipping documents display CANUTEC's telephone number as the emergency number.
- A dangerous goods incident in which a railway vehicle, a ship, an aircraft, an aerodrome, or an air cargo facility is involved.

Dangerous Goods References

Agency Contacts

Although technical information and emergency response assistance can be obtained from CANUTEC, there are federal and provincial regulations requiring the reporting of dangerous goods incidents to certain authorities.

Refer to Section 5: External Agencies or Area Specific Information for contact information

Note: The nearest police department must be notified in the case of lost, stolen, or misplaced explosives, radioactive materials, or infectious substances.

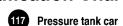
The appropriate federal agencies must be notified if affected:

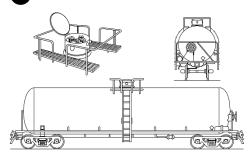
• Refer to Section 5: External Agencies or Area Specific Information for contact information

TDG Reportable Quantities

Refer to Petroleum Release Reporting Requirements chart in Section 4: Spill Response.

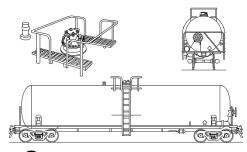
Rail Car Identification Chart



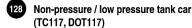


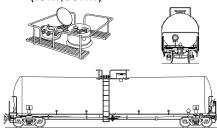
- For flammable, non-flammable, toxic and/or liquefied compressed gases
- Protective housing
- No bottom fittings
- · Pressures usually above 40 psi

Non-pressure / low pressure tank car

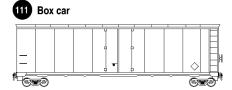


- Known as general service tank car
- For variety of hazardous and non-hazardous materials
- Fittings and valves normally visible at the top of the tank
- Some may have bottom outlet valve
- · Pressures usually below 25 psi



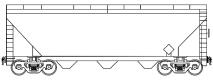


- For flammable liquids (e.g.,
- Petroleum crude oil, ethanol)
- Protective housing separate from manway
- Bottom outlet valve
- Pressures usually below 25 psi



- For general freight that carry bulk or non-bulk packages
- May transport hazardous materials/dangerous goods in small packages or "tote bins"
- · Single or double sliding door



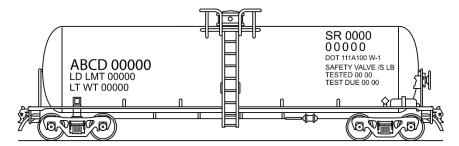


- For bulk commodities and bulk cargo (e.g., coal, ore, cement and solid granular materials)
- Bulk lading discharged by gravity through the hopper bottom doors when doors opened



Rail Car Identification Chart, continued

COMMON MARKINGS ON RAIL CARS: reporting marks and car number, load limit (pounds or kilograms), empty weight of car, placard, tank qualification and pressure relief device information, car specification, and commodity name.





CAUTION: Emergency response personnel must be aware that rail tank cars vary widely in construction, fittings and purpose. Tank cars could transport products that may be solids, liquids or gases. The products may be under pressure. It is essential that products be identified by consulting shipping documents or train consist or contacting dispatch centres before emergency response is initiated.

The information stencilled on the sides or ends of tank cars, as illustrated above, may be used to identify the product utilizing:

- a. the commodity name shown; or
- b. the other information shown, especially reporting marks and car number which when supplied to a dispatch centre, will facilitate the identification of the product.

The recommended guides should be considered as last resort if the material cannot be identified by any other means.

Source: 2020 Emergency Response Guidebook



Road Trailer Identification Chart

WARNING: Road trailers may be jacketed, the cross-section may look different than shown and external ring stiffeners would be invisible.

Note: An emergency shut-off valve is commonly found at the front of the tank, near the driver door.



- For liquefied compressed gases (e.g., LPG, ammonia)
- Rounded heads
- Design pressure between 100-500 psi



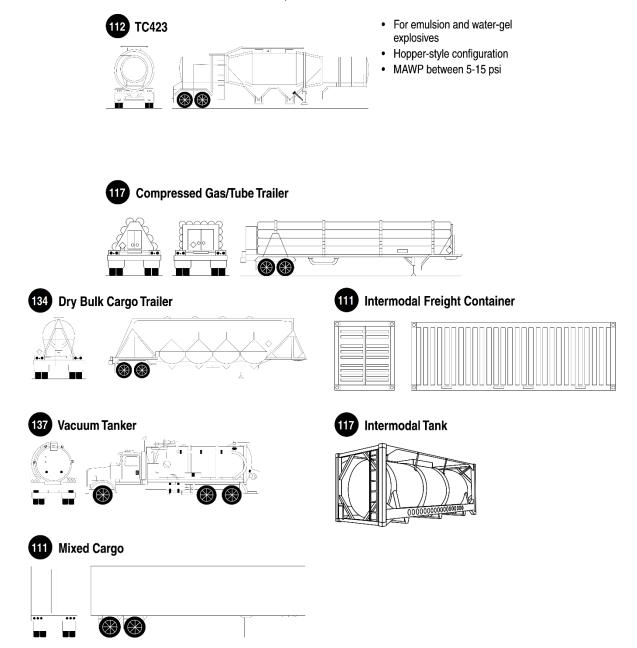
- For refrigerated liquefied gases (cryogenic liquids)
- Similar to a "giant thermo-bottle"
- Fitting compartments located in a cabinet at the rear of the tank
- MAWP between 25-500 psi
- 131 DOT406, TC406, SCT306, MC306, TC306

 137 DOT407, TC407, SCT307, MC307, TC307
- For flammable liquids (e.g., gasoline, diesel)
- · Elliptical cross-section
- Rollover protection at the top
- Bottom outlet valves
- MAWP between 3-15 psi
- For toxic, corrosive, and flammable liquids
- · Circular cross-section
- · May have external ring stiffeners
- MAWP of at least 25 psi



- · Usually for corrosive liquids
- · Circular cross-section
- · External ring stiffeners
- Tank diameter is relatively small
- MAWP of at least 15 psi

Road Trailer Identification Chart, continued



CAUTION: This chart depicts only the most general shapes of road trailers. Emergency response personnel must be aware that there are many variations of road trailers, not illustrated above, that are used for shipping chemical products. The suggested guides are for the most hazardous products that may be transported in these trailer types.

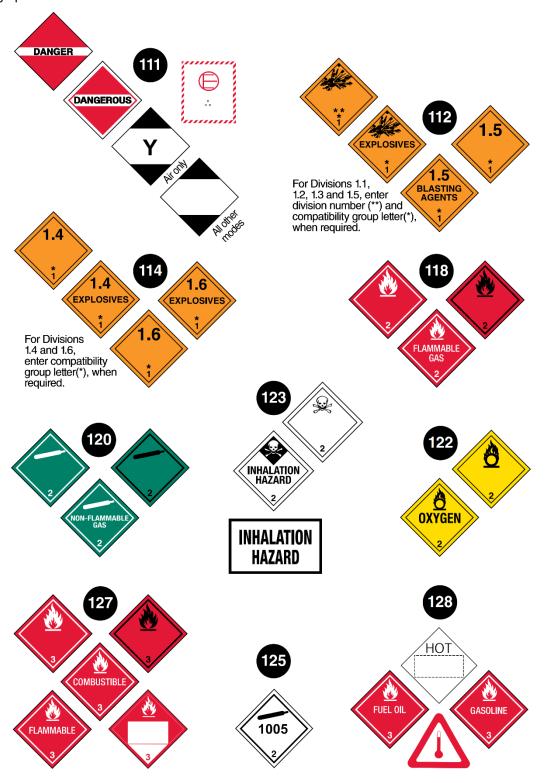
The recommended guides should be considered as last resort if the material cannot be identified by any other means.

Source: 2020 Emergency Response Guidebook



Table of Markings, Labels, and Placards

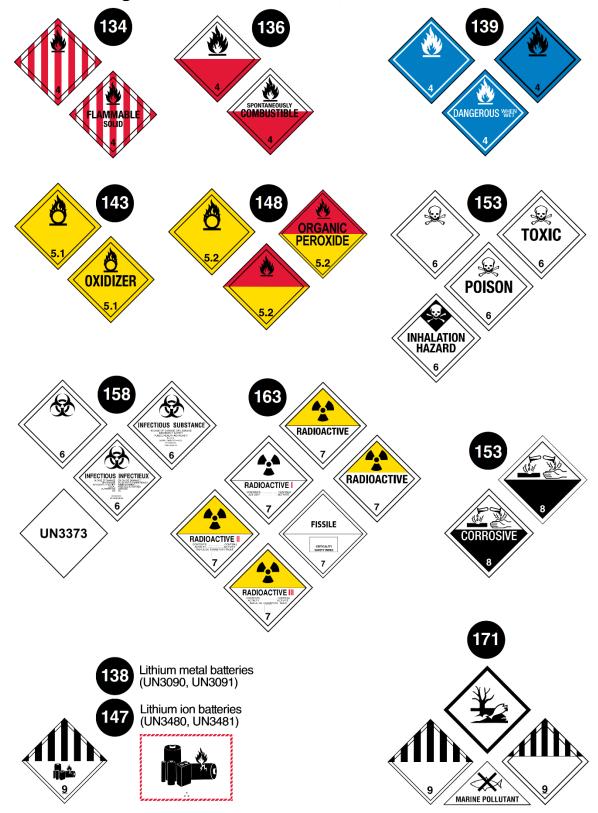
Use this table only if materials cannot be specifically identified by using the shipping paper, numbered placard, or orange panel number.



Section 4: Emergency Response Guidelines



Table of Markings, Labels, and Placards, continued



TRANSPORTATION OF DANGEROUS GOODS 30-DAY FOLLOW-UP REPORT

PART I: REPORTING TIMELINE							
Please provide applicable date				FOR INTERN	AL USE ONLY		
Date of initial report to CANUTE	EC (yyyy-mm-dd):				Marine Reports		
30-Day Follow-up Report subm	ission date (yyyy-mm-dd):			Release	d Pologo		
30-Day Follow-up Repor	t			Anticipate	d Release		
	30-Day Follow-up Report		Air Report				
	Follow-up Report submitted		Dangerous Goods Accident or Incident				
PART II: CONTACT INFORMAT	· · ·	(7777 227					
2. Information of the person comp							
Consignor Consign	-	t Operator	Other				
First Name	Last Name		Title				
Telephone (999-999-9999)	Company Name						
Address			City		Province/Territory		
					·		
Country	Postal Code (Z9Z 9Z9)	Email					
	, ,						
3. Information on the Consignor,	l Consignee and Carrier/Aircı	raft Operator					
Consignor							
First Name	Last Name		Title				
Telephone (999-999-9999)	Company Name		l				
Address			City		Province/Territory		
Country	Postal Code (Z9Z 9Z9)	Email	<u>I</u>				
Consignee							
First Name	Last Name		Title				
Telephone (999-999-9999)	Company Name						
Address			City		Province/Territory		
Country	Postal Code (Z9Z 9Z9)	Email	I				
Carrier/Aircraft Operator	L	I.					
First Name	Last Name		Title				
Telephone (999-999-9999)	Company Name		I				
Address	I		City		Province/Territory		
Country	Postal Code (Z9Z 9Z9)	Email	1		I		



PART III: INCIDENT INFORMATION								
4. Please indicate the date and time of	the incident							
Date (yyyy-mm-dd)			Time (24-hour	system)				
5. Geographic location of the incident								
Address								
City	Province/Territory	Postal Cod	le (Z9Z 9Z9)	GPS Position				
	,		,					
If the incident occured by rail, please in	I dicate the milepost and subd	l ivision	If the incident name	happened on First Nations Territory, please indicate the Territory				
Origin of consignment			Destination of	consignment				
Same address as consignor	Same address as consi	gnee	Same add	ress as consignor Same address as consignee				
Other (please provide address):				ase provide address):				
			"	,				
C. Coornantia Area (Chook anticara ha								
6. Geographic Area (Check only one bo	•	_		Maria de la companya del companya de la companya de la companya del companya de la companya de l				
Urban Mixed use – residential, commercia	•	○ Rur Sma		es, agricultural lands Wilderness/Remote Little or no population				
7. Mode of Transport (Check all applica	ble boxes)			_				
Road	Rail		Air	Marine Marine				
8. If MARINE was checked on question fixed facility	7, please indicate the position	on of the ves	sel and the nex	t location at which the vessel will be at anchor or alongside a				
Position			Next location					
9. Phase of Transport (Check only one	box)							
In-Transit Consignment moving between origi			Consignment is being packed or loaded into a means of transport at origin					
Unloading Consignment is being unpacked or	unloaded from a		Temporary Storage Consignment is in short term storage pending transportation					
means of transport at destination								
10. Type of Incident (Check all applicab	ole boxes)							
Collision/Sideswipe Moving vehicles striking an object, a	animal, or another vehicle		Derailmer Railcar lea	nt aving the rail tracks				
Ran off road Vehicle enters a soft shoulder, ditch	n or similar area		Overturn Vehicle tu	rning on its side or upside down				
Loadshift Shifting of the consignment within a	vehicle		Dropped Means of	containment falling unexpectedly				
Struck Means of containment being struck	by another object		Other (PI	ease specify):				
11. Type of Release (Check all applicate	ole boxes)							
Spill Quick, immediate discharge, emissi	on or escape		Leak Slow, spor	radic or continuous discharge, emission or escape				
Explosion Violent sudden release of energy freshock wave that may result in fragn			Fire Burning su and smoke	ubstances combined with oxygen to typically produce flame, heat				
BLEVE Boiling Liquid Expanding Vapour Ex	xplosion		normal sta					
Venting Controlled release of gas into the en	nvironment		Distressed	ed Release I means of containment that is not leaking, venting or otherwise ts contents				



12. Informat	ion on the Dangero	us Goods											
UN Number	1 •		Primary Class	Subsidi Class(Packing Group or Category	Before the	ntity in MOC Release or ed Release	Units (kg, L, etc.)		timated Quantity Released (if applicable)	Units (kg, L, etc.)	
13. Means o	of Containment												
-	Please provide a description of the means of containment involved in the incident by completing the appropriate forms from Annex E of the Guide (TP15294)												
	ONSEQUENCES												
14. Consequ	uences of the incide	ent (Check all	l applicable b	oxes)									
NOTE: Refe	er to the Guide for m	nore informati	ion on how to	o complet	te this	s section							
Human		(e.g. produc		, equipm	nent)	En	vironmental	(e.g. contarr	ination of wate	erway,	ground, air)		
	ion of people and b	_											
	n Evacuation as a r		`	Yes) No							
	Shelter in place as a		incident? (Yes) No							
if Yes , pleas	se complete the follo	- I						I					
	on of People and /Shelter in Place	Includes I buildings (te Residence houses and oused as dwe tirement hom	other Ilings		Public Buil udes libraries thurches, gov buildings,	, hospitals, ernment	Includ	Vorkplace les warehouse acility, etc.	,	Public (Outsic Includes parks, p parking lots	laygrounds,	
Estimated n evacuated	umber of people												
Estimated n sheltered in	umber of people n place												
Estimated n buildings e	vacuated												
Size of Evad	cuation area (square	e meters)	Du	ration of	Evac	cuation (hours	3)	I	Duration of She	elter in	place (hours)		
16. Injuries	and/or deaths												
Were there	any injuries and/or o	deaths?	Yes (pleas	se comple	ete th	ne following ta	able)) No					
Minor Injuri	ies Yes	○ No											
	injured requiring in Dangerous Goods	mmediate fir		ment at the ributed to					Total				
Moderate In	njuries Yes	○ No											
Number of	injured requiring i	mmediate er	mergency tr	eatment	in ho	ospital and r	elease short	ly after					
Attributed to	Dangerous Goods		Att	ributed to	o incid	dent			Total				
Major Injuri	es Yes	○ No	,										
	injured requiring in Dangerous Goods		1	h overnig	_		on		Total				
Deaths	○ Yes	○ No											
Number of Attributed to	deaths Dangerous Goods		Att	ributed to	o incid	dent			Total				



17. Please indicate an es	stimate of costs	in Canadian	dollars associated	with the	incident, as applicable			
NOTE: Refer to the Guid	le for more inform	mation on ho	w to fill this sectio	n				
Material loss of dangerous goods	Damage incur the carrier	red by	Property damage		Emergency response cost	Clean-up	cost	Total cost
18. Infrastructure closure	and duration (p	lease use ac	Iditional sheets for	r multiple	closures)			
Was there an infrastructu	ure closure as a	result of the	incident?	Yes	○ No			
If Yes, please complete t	the following tab	le						
			Туре				Dura	ation of the closure (in hours)
					whole or in part for arrivipment situated thereor			
Air cargo facility – F	Facility used to re	eceive or trai	nsfer cargo carried	d or to be	carried by an aircraft			
Facility – Permanent dangerous goods	t or temporary b	uilding or a p	ortion of a building	g or equi	oment used in loading o	r unloading	of	
Railway – Tracks use	ed by trains							
Waterway – Navigab	ole body of water	r through whi	ich a ship or boat	can move	e			
Roadway – The strip multiple lane freeway		nich motor ve	hicles circulate, su	uch as di	rt road, numbered provi	ncial highwa	ay or	
Runway – the strip of	of ground on a la	inding field th	nat aircraft use for	landing o	or takeoff			
19. Geographic location	of closure							
Address								
City		Province/Ter	ritory	Postal	Code (Z9Z 9Z9)	GPS Posi	tion	
If the incident occured by	/ rail, please indi	icate the mile	epost and subdivis	sion	Name of facility, road,	railway or v	vaterway	
20. ERAP Requirements	,							
Was an ERAP required u	under Part 7 of th	ne <i>Transpor</i>	tation of Danger	ous Goo	ds Regulations?	O Yes	○ No	
If Yes, please complete t	the following tab	le						
ERAP Reference Number	er		ERAP	Holder				
Address								
City		Province/Ter	ritory		Postal Code (Z9Z 9Z9))	Tolophono of I	ERAP Holder (999-999-9999)
City		riovince/Tel	ntory		F05tal Code (292 928	")	relephone of t	ERAF Holder (999-999-9999)
Email								
Level of Response (chec	k all that apply)							
No response	First responders	s on scene	Phone call	to ERAP	holder Employe	ee from ER	AP holder	Team from ERAP holder
Other:								



PART V: INCIDENT DESCRIPTION	
21. Please describe:	
The sequence of events that led to the incident The means of containment damage or failure, including the size/location of hole	es. cracks. etc.
The actions taken at the time it was discovered	,,
What was done to mitigate the effects of the release	
Contributing factors (e.g. human error, mechanical, equipment, packaging, infra The physical environment (e.g. residential, commercial, industrial, etc.)	astructure, external, weather, etc.)
The physical environment (e.g. festdential, commercial, industrial, etc.) The road's appearance (e.g. flat, straight, inclined, curved, intersection, etc.)	
• Timeline of event (e.g. how long it lasted, time of release or discovery, time of f	irst responder arrival, etc.)
Communications with first responders and with your organization	
Photographs and diagrams should be submitted, as required, for clarification. Es necessary.	timate the duration of the release, if possible. Please use additional sheets if
NOTE: Refer to the Guide for more information on how to complete this section	
PART VI: INCIDENT DESCRIPTION – AIR ONLY	
22. Please describe:	
Any serious jeopardy to persons on any aircraft or aircraft itself	
Any damages to property or environment	
• The route by which the dangerous goods were to be or have been transported,	including the name of any aerodromes along the route
Aircraft Operator	Air Cargo Facility
	1

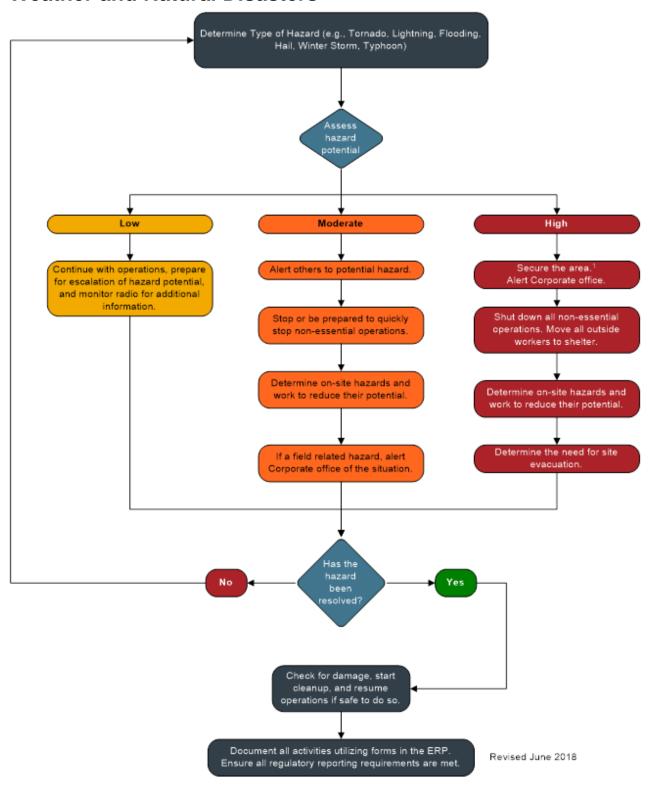




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Weather and Natural Disasters





Severe storms can occur in Canada year round. In the months between May and September, hot and humid weather combined with a cold front could be a sign that a severe storm is brewing. A severe storm can create lightning, hail, severe rain fall (flooding), high winds and tornados. In the months between October and April, severe storms could include blizzards, freezing rain, heavy and blowing snow.

The weather office will issue through the use of radio and television repeated weather watches and warnings. The only exception to these warnings is earthquakes since they occur by surprise and cannot be predicted.

Listen for the Warnings

Environment & Climate Change Canada (ECCC) monitors the weather 24-hours a day, seven days a week. If a severe storm is on the horizon, the weather service issues watches, advisories, and warnings for that specific storm through national, regional, and local radio and television stations, and through ECCC Weather radio.

Weather Watch

This means conditions are favourable for a severe storm, even though nothing has developed yet. It does not mean that the storm will occur. A Weather Watch is usually issued early in the day; keep monitoring weather conditions and listen for updated statements.

Weather Warning

This means severe weather is happening or hazardous weather is highly probable. If the warning is for your area, take precautions immediately and listen to your radio for constant updates.

Earthquake

General Information

An earthquake (also known as a quake, tremor, or temblor) is caused by a sudden slip on a fault, which in turn, releases energy in waves that travel through rock to cause the shaking that we feel during an earthquake.

An earthquake cannot be prevented or predicted, but it can be mitigated. The effects of earthquakes include, but are not limited to, shaking and ground rupture. Most common effects or impacts of an earthquake are shaking and ground rupture. Depending on the magnitude of an earthquake, these may cause damage to buildings, pipelines, and other rigid structures.

During an Earthquake

Be aware that some earthquakes are actually foreshocks, and a larger earthquake might occur. Minimize movement to a few steps to a nearby safe place and stay indoors until the shaking has stopped and exiting is safe.



If Indoors

- DROP to the ground; take COVER by getting under a sturdy table or other piece of furniture; and HOLD ON until the shaking stops. If there isn't a table or desk near you, cover your face and head with your arms and crouch in an inside corner of the building.
- Stay away from glass, windows, outside doors and walls, and anything that could fall, such as lighting fixtures or furniture.
- Use a doorway for shelter only if it is in close proximity to you and if you know it is a strongly supported, load bearing doorway.
- Stay inside until shaking stops and it is safe to go outside. Research has shown that most injuries
 occur when people inside buildings attempt to move to a different location inside the building or try
 to leave.
- Be aware that the electricity may go out or the sprinkler systems or fire alarms may turn on.
- DO NOT use the elevators.

If Outdoors

- Stay outdoors and move away from buildings, streetlights, and utility wires.
- Once in the open, stay there until the shaking stops. The greatest danger exists directly outside buildings, at exits, and alongside exterior walls. Ground movement during an earthquake is seldom the direct cause of death or injury. Most earthquake-related casualties result from collapsing walls, flying glass, and falling objects.

If In a Moving Vehicle

- Stop as quickly as safety permits and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses, and utility wires.
- Proceed cautiously once the earthquake has stopped. Avoid roads, bridges, or ramps that might have been damaged by the earthquake.

If Trapped Under Debris

- Do not light a match.
- Do not move about or kick up dust. Cover your mouth with a handkerchief or clothing.
- Tap on a pipe or wall so rescuers can locate you. Use a whistle if one is available. Shout only as a last resort. Shouting can cause you to inhale dangerous amounts of dust.



Floods

The potential for overland flooding can create a high level of risk for facility damage and environmental impact at petroleum facilities. While there is little that can be done to prevent flooding, actions can be taken to minimize the impact.

It is important to consider that your facility may play a vital role in fuel supply during an emergency situation. It is therefore important that you and the government authority having jurisdiction during a flood emergency have regular and clear communication with regards to facility closure.

To Shut Down a Facility Which May Be Flooded

- Take a product inventory reading of all underground and aboveground tanks, including water level readings.
- Seal fill pipe caps to prevent water from entering underground tanks. Close all valves to above ground tanks. DO NOT PLUG OR SEAL TANK VENT LINES.
- 3. Underground tanks should be kept as full of product as possible. Above ground tanks should be filled to a level at least 25% above the estimated/predicted floodwater elevation.
- 4. Ensure that above ground tanks which could float away are secured or tethered in a manner that would prevent floating from the property.
- 5. Seal all drains in tank lots.
- 6. Oil/water separators and product sumps should be skimmed of product using sorbent pads or vacuum trucks as appropriate. Spent sorbent pads should be drummed and every effort must be made to remove any waste from the expected flood zone. If time does not allow for removal the drums must be secured to prevent them from floating away. Close the oil/water separator drain valve.
- 7. Drums and lubricant cubes should be tied down or otherwise secured to prevent floating.
- 8. Propane facilities contact your propane supplier for appropriate flood emergency procedures.
- 9. Secure used oil collection cabinets. Every effort must be made to remove all waste oil from the expected flood zone. If waste oil from the cabinet drains to a waste oil underground tank, ensure the connection is tight.
- 10. Secure containers of chemicals, cleaning agents, pesticides, etc. Every effort must be made to remove these products from the expected flood zone. If they cannot be moved to a safe location, store these containers at high elevations in a manner that prevents them from floating off the property or leaking into floodwaters.
- 11. If the facility is to be closed/evacuated, shut down electrical power to the site at the main breaker. Contact the power service utility company to determine if the power service to the facility is going to be cut-off.
- 12. Shut down other utilities to the site including natural gas and potable water. If water is obtained from a water well, secure the well using a well seal.
- 13. Shut down all appliances, including hot water tanks, furnaces, etc.
- 14. Lock all doors and gates to the facility.
- 15. Post a sign in a prominent location identifying the names and telephone numbers where key company personnel can be contacted during the emergency.



To Start-up a Facility Which Has Been Flooded

- 1. Re-activate utilities to the site (natural gas, water, electricity) and appliances using qualified utility service personnel, where required.
- 2. Take product inventory readings and water dips of all tanks to determine if product has leaked out from the tanks or water has entered the tanks.
- 3. Take appropriate measures to test product quality.
- 4. Propane facilities contact your propane supplier for recommissioning your propane facilities.
- 5. Pump out water from sumps and containment pans using a qualified petroleum contractor.
- 6. Follow all re-entry procedures and requirements for health and safety as provided by your local government authority (disinfection, potable water testing, etc.).

Government agencies monitor weather patterns, precipitation and provincial water levels and flows. They provide a comprehensive series of public advisories about potential flooding. These include river stage-up advisories, ice-jam warnings, high stream flow advisories, flood watches and flood warnings; for more information visit the following British Columbia website:

Ministry of Forests, Lands and Natural Resource Operations - River Forecast Centre

http://bcrfc.env.gov.bc.ca/warnings/index.htm

What to do during a flood

- Gather essential items together in a high place.
- · Collect things needed for evacuation.
- Stack sandbags, if possible, to form a barrier to hold back or redirect moving water from critical areas.
- Turn off gas, electricity, and water supply if it is safe to do so.
- Avoid electricity sources.
- Avoid walking or driving through flood water.



Thunderstorm and Lightning Safety

A lightning bolt carries up to 100 million volts of electricity. When someone is struck by lightning, an electrical shock occurs that can cause burns and even stop the person's breathing. Although thunder and lightning can occur occasionally during a snowstorm, April to October are the prime thunderstorm months in Canada. Thunderstorms occur most often in late afternoon or evening, and around sunrise.

Knowing how lightning behaves can help you plan for an approaching storm. It tends to strike higher ground and prominent objects, especially materials that are good conductors of electricity, such as metal. Thunder can be a good indicator of lightning - loud crackling means its close, whereas rumbling means the storm is further away.

Because light travels faster than sound, you will see lightning before you hear the thunder. Each second between the flash and the thunderclap represents about 300 metres. If you can hear thunder, you are within striking distance. Immediately go inside, there is NO safe place to be outside in a thunderstorm.

Protection from lightning begins before the storm. Paying attention to weather conditions and forecasts allows time to plan for threatening weather and to react appropriately.

What to do During a Thunderstorm

The safest place to be during a thunderstorm is in a building that is fully enclosed with a roof, walls and floor with electrical wiring, plumbing, telephone line, or antennas to ground the lightning should the building be hit directly. Unsafe shelters are buildings or structures without electricity or plumbing to ground the lightning, as they do not provide any lightning protection. Shelters that are unsafe include covered picnic shelters, carports, tents, baseball dugouts as well as other small non-metal buildings (sheds and greenhouses).

Even when inside the building, there are safety precautions to take:

- Keep as many walls as possible between you and the outside. Stay away from doors, windows, and fireplaces.
- Stay away from anything that will conduct electricity such as radiators, stoves, sinks and metal pipes.
- Use battery operated appliances only. Avoid handling electrical appliances and regular telephones (cordless phones and cell phones do not increase the risk of a lightning strike).

The next best place for shelter is an enclosed metal car, truck, or van but NOT a tractor, golf cart, topless or soft-top vehicle. Make sure the vehicle is not parked near trees or other tall objects that could fall over during a storm. When inside a vehicle during a lightning storm, roll up the windows and sit with your hands in your lap and wait out the storm. Don't touch any part of the metal frame or any wired device in the vehicle (including the steering wheel or plugged-in cell phone). A direct strike to your car will flow through the frame of the vehicle and usually jump over or through the tires to reach ground.

What to do if you cannot find shelter

There is no safe place to be outdoors during a thunderstorm. However, to reduce the risk of being struck by lightning when outside, stay away from things that are tall (trees, flagpoles, or posts), water, and other objects that conduct electricity (tractors, metal fences, lawn mowers, golf clubs). Do not become a target by being the highest object on the landscape. If you are with a group of people in the open, spread out several metres apart from one another.

If you get caught in a level field far from shelter, crouch down on the balls of your feet immediately, with feet together, place your arms around your knees and bend forward. Be the smallest target possible, and at the same time, minimize your contact with the ground. Don't lie flat.



If Someone has Been Hit by Lightning

Lightning victims are safe to touch. Bystanders shouldn't hesitate to save a life by calling for help. If breathing has stopped, administer mouth-to-mouth resuscitation. If the victim is not breathing or they do not have a pulse, a trained rescuer should administer cardiopulmonary resuscitation (CPR).

Tornados

A tornado is nature's most violent form of storm activity. It can produce upwardly spiraling winds of 120 to 450 km/h, producing devastating damage along a path of 50 to 300 metres in width. The forward motion of the tornado funnel may be quite erratic as it zigzags along a southwest to north-easterly direction (usually) at a forward speed of 50 to 70 km/h.

Hot, humid weather combined with a cold front could be a sign that a tornado is brewing, and a funnel cloud hanging from a dark cloud may be visible before the tornado actually occurs (a funnel cloud is not a tornado until it touches the ground). The sound has been described as a tremendous roar which sounds like an express train or jet aircraft (only louder). Clouds may be green or yellow tinged. There is usually a noticeable lowering of a portion of the cloud that contains a large, swirling, turbulent mass from which the funnel will hang (funnel cloud).

Protecting yourself during a tornado

- Have a radio on to listen for warning information or advice.
- Determine an appropriate shelter (select a shelter area that would offer protection, such as underneath a stairway and is secured to the main floor). The shelter must be easily accessible and able to offer protection from flying glass, debris, and furniture. (Decide on shelter options in advance, for your place of employment.) If forced to take shelter away from the plant avoid large halls or any large building with large span roofs. Seek out an inner hallway, washroom, closet, etc.
- Stay away from windows.
- Avoid travelling any great distance so that you will not be caught out in the open.
- If the storm warning is issued for your immediate area, go to your designated shelter.
- If caught outdoors and you cannot reach shelter, lie flat in a ditch, excavation, or culvert. If possible, lay flat, holding the base of a small tree, bush, or shrubbery to avoid being lifted or blown away.
- If caught while driving, drive away from the funnel at a right angle or to its direction of travel (if possible). If you cannot escape the path of the funnel, get out of your vehicle immediately and seek shelter in a ditch or ravine, keeping its slope between you and the funnel.
- If caught away from the plant, seek shelter in a sturdy building. Go to an interior hallway or washroom on the lower floor and stay away from windows.

Winter Storms: Blizzards, Freezing Rain, Heavy Snow, Blowing Snow General Information

Blizzards come in on a wave of cold arctic air, bringing snow, bitter cold, high winds, and poor visibility in blowing snow. These conditions must last for a minimum of six hours to be designated a blizzard and they may last for several days. Poor visibility, low temperatures and high winds constitute a significant hazard.



Freezing rain occurs when the air in an upper-air layer has an above-freezing temperature, while the temperature at the surface is below freezing. The snow that falls melts in the warmer layer; as a result, it is rain—not snow— that lands on the surface. But since the temperature is below 0°C, raindrops freeze on contact and turn into a smooth layer of ice. More slippery than snow, freezing rain is tough and clings to everything it touches. A bit of freezing rain is dangerous; a great deal of it can be catastrophic.

Things to do During a Severe Winter Storm Or If A Storm Is Forecast

- Stay calm and leave your radio on to stay informed of the situation and hear updated forecasts.
- Stay indoors. If you must go out, dress for the weather.
- Secure everything that might be blown around or torn loose indoors and outdoors (flying objects can injure people and damage property).
- If you are outdoors when a storm hits, take shelter immediately.

Winter Weather Warnings	Issued					
Blizzard Warning	When winds of 40 km/hr or greater are expected to cause widespread reductions in visibility to 400 metres or less, due to blowing snow, or blowing snow in combination with falling snow, for at least 4 hours.					
Freezing Rain Warning	When freezing rain is expected to pose a hazard to transportation or property; or when freezing rain is expected for at least 2 hours.					
Snowfall Warning	When 10 cm or more of snow is expected to fall within 12 hours.					
Wind Warning	70 km/h or more sustained wind; and/or Gusts to 90 km/h or more.					
	Issued to warn of conditions that will cause frostbite to exposed skin. Criteria vary across the country, ranging from wind chill values of -55 in some Arctic regions to -30 in South-western Ontario. A national wind chill program is in development.					
Wind Chill Warning	For wind chill values:					
	-27 to -44risk of frostbite and risk of hypothermia increases with time spent outdoors					
	-45 or lowerexposed flesh may freeze in minutes and there is a serious risk of hypothermia					
	When severe and potentially dangerous winter weather conditions are expected, including:					
Winter Storm Warning	A major snowfall (25 cm or more within a 24 hour period); and					
	A significant snowfall (snowfall warning criteria amounts) combined with other cold weather precipitation types such as: freezing rain, strong winds, blowing snow and/or extreme wind chill.					

Source: Environment & Climate Change Canada (ECCC), Public Alert Criteria http://www.ec.gc.ca/meteo-weather/default.asp?lang=En&n=D9553AB5-1



Avalanches

An avalanche is a rapid flow of snow down a sloping surface that can occur at any time provided the right conditions are present. Avalanches have three main parts:

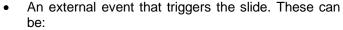
- Starting zone (point of origin): Where the unstable snow first breaks away. An avalanche path may have several starting zones. Characteristics of starting zones include: incline, slope aspect, exposure to wind, elevation, exposure to sun, natural ground condition.
- Track (zone of transition): Below the starting zone, where the avalanche accelerates and typically reaches maximum destructive potential. It will have the potential to overrun terrain features and previous avalanche tracks. Avalanche areas can contain one or more tracks. These tracks may be poorly or clearly defined.
- **Run-out zone:** Where the avalanche decelerates and finally comes to rest. It can be identified as a zone where the bulk of the snow is deposited.

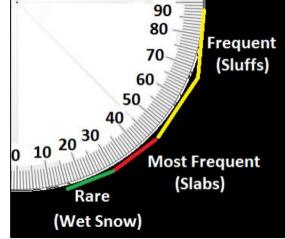
Avalanches may occur anywhere given the following conditions:

- Geography, such as the natural topography of the area, engineered landforms, and slope orientation.
- Snow accumulates on a moderate to steep slope (30°–45°). Avalanches rarely start on slopes steeper than 45° as snow sloughs off continuously rather than accumulating.



- o Snowpack (accumulation)
- o Mass
- Layers of snow and bonding between facet layers
- Environmental effects: Variation in temperature, wind, humidity





- o **Natural:** New snow, transported snow (wind), temperature changes, sun, rain, thawing and animals.
- o **Human:** Explosives, working on a slope, working below a slope, mobile equipment, and recreational activities.
- o **Trigger points:** Snow conditions, shallow areas/variable depth snowpacks, points of weakness (e.g., trees, rock outcrops) may all contribute to the development of avalanche conditions.



Two types of avalanche are commonly recognized:

Loose Snow Avalanches

May consist of dry powder snow or wet snow. Dry snow avalanches are most common in winter after storms and rare in spring or summer. Wet snow avalanches consist of heavy, wet, sun-heated, or rain-rotted snow or wet new snow and are most common in spring and summer, particularly on south-facing slopes. These avalanches:

- Start from a point
- Are set in motion progressively
- Require snow with poor cohesion, similar to that of dry sand
- Are usually confined to surface layers and therefore relatively small



Slab Avalanches

Occur when a slab of fairly cohesive layers of snow, poorly bonded to the snow underneath, breaks off along a fracture line. These avalanches are by far the most dangerous. They are set in motion simultaneously, over a large area and may start in either shallow or deep snow layers.

Safety in Avalanche Zones

The successful rescue of a person buried in an avalanche very often depends upon actions taken by unburied survivors. Teams performing rescue operations in an avalanche area must be mentally prepared for the possibility that they too may be overtaken by an avalanche.

If crossing an avalanche track cannot be avoided, take the following precautions:

- Select the shortest possible route high on the slope or low in the run-out zone
- Plan an escape route.
- Wear mitts and hats. Tighten clothing and smaller packs. Loosen larger packs in case they need to be quickly removed.
- Assign a spotter at the top and bottom of the track and agree on a warning signal.
- Cross quickly. If the crossing is narrow, one person crosses at a time. Otherwise, maintain space between rescuers to minimize the risk of exposure to an avalanche track.



Avalanche Rescue Gear

Probe, Avalanche transceiver (beacon), and Shovel: These three items work together and are the minimum required equipment for every avalanche rescuer. For proper use of avalanche rescue gear, refer to manufacturer's guidelines.

L-R: Probe, Shovel, Transceiver (bottom)

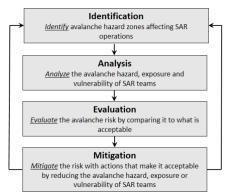




Avalanche Risk Assessment Process for GSAR Response

The process of risk assessment is a sequential examination of different factors which includes the use of the Response Assessment and Decision-Making Support tool (RADeMS) that strives to determine the degree of risk, whether or not it's acceptable, and what mitigations are necessary to keep the risk within acceptable levels.

Note: Ground Search and Rescue (GSAR), Search and Rescue (SAR)





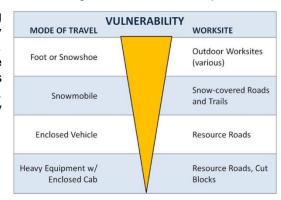
Avalanche risk specifically is comprised of three main

elements: Avalanche hazard (or danger), exposure and vulnerability. All three of these components integrate in different ways to produce different degrees of avalanche risk.

Avalanche hazard (or danger) is determined by a combination of the likelihood of avalanche(s) and their destructive size. These factors are driven by interactions between the terrain and the snowpack. The level of avalanche hazard can vary significantly over space and time depending on the location of the activities and the weather patterns each winter. When people or resources are not exposed to avalanche hazard, then there is no risk to them.

Exposure to avalanche hazard is measured in terms of time and space, as well as by the number of people and/or equipment exposed to the hazard. Exposure escalates as the number of people/equipment and the length of time spent in the hazard area increases. Stationary work in avalanche paths typically means personnel have a higher degree of exposure versus occasional travel through isolated avalanche paths.

Vulnerability is an expression of how susceptible something is to the consequences of an avalanche. Reduced vulnerability results in risk reduction for a given avalanche hazard. Vulnerability of people to avalanche hazards may also be reduced by using avalanche safety equipment such as transceivers and through avalanche awareness training. Vulnerability of personnel to avalanche hazard will vary depending on the mode of travel

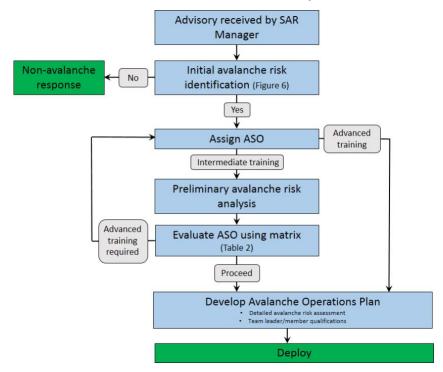


All GSAR operations occurring in areas with potential snow avalanche risk must follow the avalanche risk assessment process identified below, which is structured around the following three broad stages:

- Initial avalanche risk identification
- · Preliminary avalanche risk assessment
- Detailed avalanche risk assessment



Avalanche Risk Assessment Process for GSAR Response



Avalanche Safety Officer (ASO) Matrix

			Maximum ATE	S Rating	
		Simple	Challenging	Complex	No Data
	5. Extreme	Advanced	Advanced	Advanced	Advanced
ing	4. High	Advanced	Advanced	Advanced	Advanced
Danger Rating	3. Considerable	Advanced	Advanced	Advanced	Advanced
	2. Moderate	Intermediate	Advanced	Advanced	Advanced
nch	1. Low	Intermediate	Intermediate	Advanced	Advanced
Avalanche	Unknown or Not Available*	Advanced	Advanced	Advanced	Advanced

^{*} Consult an avalanche professional to determine the rating.



After a Disaster

These are general guidelines to look for after an occurrence:

- Assess site and declare an emergency as required.
- Activate MERP as required.
- Account for all on-site and field personnel.
- Listen to a battery-operated radio or television for the latest emergency information.
- Give first aid to the injured and call for medical assistance if required. Do not move seriously injured
 persons unless they are in immediate danger of further injury. Use intrinsically safe flashlights to
 survey for damage and look for victims. Do not use candles or matches (explosion hazards may
 exist).
- Use the telephone for emergency calls only.
- Check for spilled medicines, bleaches, gasoline, or other flammable liquids.
- Open cabinets cautiously. Beware of objects that can fall off shelves.
- Report fires to the fire department. Be alert to prevent fires, as broken water mains may cause a
 reduction in water pressure. Lightning and downed power lines can cause fires. Know how to fight
 small fires.
- Inspect utilities.
 - o Look for electrical system damage. If you see sparks or broken or frayed wires, or if you smell hot insulation, turn off the electricity at the main fuse box or circuit breaker. Do not go near loose or dangling power lines. If you have to step in water to get to the fuse box or circuit breaker, call an electrician first for advice.
 - o Check for sewage and water lines damage. If you suspect sewage lines are damaged, avoid using the toilets and call a plumber. If water pipes are damaged, contact the water company and avoid using water from the tap. You can obtain safe water by melting ice cubes.
 - Check for leaking pipes. If you smell sour gas:
 - Immediately evacuate the area and don appropriate personal protective equipment.
 - Close gas valves and isolate the area.
 - Turn off the main power switch (only if you are NOT wet or standing in water).
 - Shut down required plant and well sites and notify appropriate government authorities.
 - Check buildings prior to entering as there may be structural damage; proceed cautiously.
- In the case of a flood, proper cleanup is essential. Discard all materials that cannot or should not be saved. Wash and rinse all surfaces, then disinfect them. Remove any water as soon as possible and clean out mud and other debris. Water supplies may be contaminated; use caution with drinking water.
- In the case of an earthquake, expect aftershocks. These are usually less violent than the main quake but can be strong enough to do additional damage to weakened structures and can occur in the first hours, days, weeks, or even months after the quake.

Note: The emotional impacts of disasters on those affected can be distressing and lasting, even if it doesn't involve physical harm. Help by maintaining a positive attitude and a sense of calmness. Your local health authority can assist in coping with trauma resulting from a disaster.



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AVALANCHE OPERATIONS PLAN

Task #:		Task Name:					1	For Op	Period	#:		1	Avalanc	ne Safety	Officer:		
Date:		Time:		Valid Until Da	te:			Valid U	Intil Tin	ne:			Prepare	d By:			
Location:			Descrip	otion:			J										
Access/Egress:																	
Operational Objectives	:						I										
WEST IN CO.	erauunai Objecuves.																
WEATHER STATION OB	SERVATIONS				Te	emperatu	ire			Snowfal	I						
Weather Site	Elevation	Time	Sky Cover	Precip. Type & Intensity	Present	Max	Min	H2D (cm)	HN24 (cm)	HST (cm)	Date Reset (HST)	HS (cm)	Gauge			Speed irection	Barometric Pressure and Trend
FIELD WEATHER OBSER	RVATIONS	1	l														
										1	Snowfal	I					
Field Weather Location	Elevation	Date	Time	Sky Cover	Prec & Int	ip. Type tensity		Air erature	HIN (cm)	HIN Time Period	HST (cm)	HST Time Period	HS (cm)		Speed & ection	Addition	al Observations
WEATHER FORECAST																	



AVALANCHE OPERATIONS PLAN

NEARE	ST NEIG	HBOUR INPU	T/INFOE														
AVALA	NCHE A	CTIVITY															
SNOW	PACK																
AVALA	NCHE PE	ROBLEMS															
			e Type		D	escrip	tion		Layer Depth	Sensitivity to	Si	ze	Asp (clock	pect wise)	Elev	ation	Spatial
	NCHE PR	ROBLEMS Avalanche	⊇ Туре		D	escrip	tion		Layer Depth (cm)	Sensitivity to Triggers	Si	ze To			Elev From	ation To	Spatial Distribution
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Layer	Name		⊇ Туре		D	escrip	tion		Depth (cm)		From	То	(clock	wise)		I	
Layer	Name	Avalanche	Туре		D	escrip	tion	1	Depth (cm)	Triggers	From	То	(clock	wise)		I	
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Revised 2020/01/29

Destructive Size



AVALANCHE OPERATIONS PLAN

	ition(s) / Elevation Band(s)	41ING3	Avalanche	Hazard Rating	:	Comments a	ınd Re	striction	ns		
1		Low	Moderate	Considerable	High/Extreme or Unknown						
2		Low	Moderate	Considerable	High/Extreme or Unknown						
3		Low	Moderate	Considerable	High/Extreme or Unknown						
AVA	LANCHE TERRAIN EX	KPOSURE SCA	ALE CLASSIFIC	ATION:				AVALA	NCHE INCIDENT DETAILS:		
	Simple	Challenging		■ Complex	☐ Unknow	n		Avala	nche Incident Involment Form Attached?	☐ Yes	□ No
TFRE	RAIN USE AND REST	RICTIONS (i.e	e. critical locat	rions, locations	of concern. clos	ed areas, safe	locatio	ons. acc	cess/egress. etc.)		
	LANCHE SAFETY ME										
AVA	LANCHE TECHNICIA	N OBJECTIVE	<u>s</u>								
AVA	LANCHE DANGER ID	ENTIFICATIO	N / MITIGATI	ON AND RISK (CONTROL CHECK	LISTS					
REFE	RENCE DESCRIPTIO	N						ASSIGN	IMENT CHECKLIST		
	PUBLIC AVALANCHE E	BULLETIN							TEAM ASSIGNMENT		
	WEATHER FORECAST								TEAM ASSIGNMENT BRIEFING		
	AVALANCHE PATH SU	IMMARY									
	DANGERATOR							SAFETY	/ MEASURES		
									Personal Protective Equipment (Transceiver,	Shovel, Probe)	
SUPF	PLEMENTARY REFER	ENCES							Explosive Strike Team		
	AVALANCHE ATLAS's								Helicopter Based Signal Search - Barryvox Ext	ernal Transceiver	
	LOCAL AVALANCHE P	ROFESSIONAL							Helicopter Based Rescue Effort - Class D Fixed	d Line Helicopter Support	
	Name:		-						Rapid Intervention Team		
	Name:		_								



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Security Incidents

A security incident is a security-related occurrence, threat or action that has adversely affected people, the environment, assets, and economic stability, or could potentially do the same.

General Notes on Prevention of Security Incidents

As defined in the CSA Standard Security Management for Petroleum and Natural Gas Industry Systems (Z246.1-21), a Security Management Program should be implemented to ensure security incidents and threats are identified and managed with appropriate safeguards and response procedures in place.

This documented security risk management process should incorporate threat, vulnerability, risk assessment and asset characterization. Asset characterization, in particular, identifies and ranks any assets that could result in adverse consequences if damaged or destroyed.

To minimize the possibility of threats within a company property, an adequate physical security system must be in place. This should include the following:

- Perimeter fencing and gates to protect against unauthorized entry into a facility gates should be closed when not in use and locked when unoccupied
- Appropriate signage at the perimeter and entrances
- Intrusion detection systems / alarm systems
- Sufficient lighting in darkness or areas of poor visibility
- Pedestrian access control
- Security guard force, both static and mobile
- Employee awareness

Types of Security Threats

Security-related threats have the intent to cause harm and could include bomb threats, suspicious packages, terrorism, vandalism, trespassing and cyber-attacks.

Responding to Threats

Should any facility or office be the subject of a threat or be advised of the potential of a terrorist attack, or of the potential of an attack to an adjoining facility being operated by another company, the person receiving the initial threat should remain calm, document all information in writing and notify his supervisor immediately. The supervisor should make an immediate assessment of the circumstances then:

- Obtain all data from the person who received the threat.
- If there is clear and imminent danger, the plant should be immediately evacuated, and the Incident Management Team (IMT) activated from a remote location.
- Contact local police / Royal Canadian Mounted Police (RCMP).
- Notify the Regulatory Agency and the EOC Director.



Security Incidents, continued

Once the IMT is activated, the IMT Incident Commander and a senior company representative will consider the threat and options available to respond to the threat. There is a myriad of potential short and long term responses available and they will be dependent on the evaluation of the threat, time available to respond, resources available locally or that can be brought in a reasonable time, and police and military resources available.

• If the threat is considered possible, the Canadian Security Advisor recommends that the following immediate/short term responses should be considered:

Field Operations:

- Establish intelligence liaison with local authorities (e.g. police).
- Report all suspicious activity to Corporate Security.
- Discontinue all site tours and visits.
- Restrict vehicle access to specifically authorized vehicles only.
- · ID all visitors seeking access.
- Assign a person to patrol the perimeter of the facility at the beginning of each operational shift and note any deficiencies; look for signs of attempted break and enter.
- Conduct an evacuation exercise.

Remotely Operated Facilities (also applies to any facility operated by a single person):

- Establish full lock down on fences and assets on the lease/site everything that can be secured and locked is secured and locked.
- Conduct a fence perimeter patrol before entering the site look for signs of illegal entrance.
- Conduct a full exterior building patrol before entering a building look for signs of unlawful entrance (doors pried, windows open, broken glass etc.).
- When working, lock the gates upon entering and leaving the facility, and rigidly adhere to the work alone guidelines.

Bomb Threats

Bomb threats are delivered in a variety of ways. The majority of threats are called in to the target, though occasionally these calls are through a third party. Sometimes a threat is communicated in writing, or by a recording.

Persons making bomb threats generally have one of two motivations:

- 1. The caller has definite knowledge or believes that an explosive or incendiary bomb has been, or will be, placed. He or she wants to minimize personal injury or property damage. The caller may be the person who placed the device or someone who has become aware of such information.
- 2. The caller wants to create an atmosphere of anxiety and panic which will, in turn, result in a disruption of the normal activities at the location where the device is purportedly placed.

While most bomb threats are unfounded, some are not. As such, each one must be dealt with as though it is real and handled seriously and calmly.



Bomb Appearance

Bombs can be constructed to look like almost anything and can be placed or delivered in any number of ways. The probability of finding a bomb that looks like the stereotypical bomb is almost non-existent. Most bombs are homemade and are limited in their design only by the imagination and resources available to the bomber.

Remember, when searching for a bomb, suspect anything that looks unusual. Ultimately, however, let a trained bomb technician determine what is or is not a bomb.

Responding to Bomb Threats over the Phone

Most threats or implied threats are received by telephone, generally at a publicized or switchboard number. Should that occur, obtain as much information as possible, filling out the Threatening Call / Bomb Threat form (Section 6: Forms).

If a bomb threat is received over the telephone, the employee receiving the phone call should take the following actions:

- Stay calm and keep their voice calm.
- Pay close attention to details. Write information down as the caller says it. Attempt to get the following information from the caller:
 - o What type of bomb is being used?
 - o Did you place the bomb?
 - o Who is the target?
 - o Where has the bomb been placed?
 - o What time is the bomb set to explode?
 - o Why was the bomb placed?
 - What type of container is the bomb placed in?
 - o What does it look like?
 - o What is the bomber's name?
 - o What is the bomber's address?
- While the first employee is dealing with the threatening phone call, they should have a co-worker or another person contact the police (dial 911) using another telephone, and as covertly as possible. As the first employee writes down answers to the questions above, these answers should be relayed to the police.
- The call recipient should attempt to keep the caller on the phone.
- The call recipient should note the caller's:
 - o Age and gender
 - Emotional state (angry, agitated, calm, etc.)
 - o Speech patterns (accent, tone)
 - o Background noise (traffic, people talking and accents, music, and type, etc.)

Responding to Bomb Threats Received in Writing

If a threat has been received in writing, minimize the handling of the document to ensure preservation of forensic evidence - DO NOT PHOTOCOPY.

Supervisor Responsibilities after Receiving a Bomb Threat

The supervisor should then:

- 1. Obtain all data from the person who received the threat
- 2. Activate the MERP if the situation warrants
- 3. Contact local police / Royal Canadian Mounted Police (RCMP) if this has not already been done
- 4. Notify the Regulatory Agency
- 5. Decide on partial or total evacuation (if needed)
- 6. Decide on partial or total search of the facility (if needed)

Evacuating the Facility

If it seems prudent to evacuate the building:

- Have all employees briefly check their work areas for unfamiliar items.
- Instruct all employees not to touch suspicious items, but simply to report them to their supervisors (taking pictures if feasible).
- Instruct all employees not to take personal belongings when they leave.
- · Leave doors and windows open
- Do not to turn light switches on or off.
- Do not activate the fire alarm.
- Use stairs only; do not use elevators.
- Use of radio communications should be restricted as the signal could detonate a device.
- All evacuees should report to an outside pre-designated muster area for accountability.

IED Evacuation Distances

Improvised Explosive Device (IED) SAFE STAND OFF DISTANCE

	Threat Description	Explo Mass equiva	(TNT	Build Evacu Dista	ation	Outo Evacu Dista	
	Pipe Bomb	5 lbs	2.3 kg	70 ft	21 m	850 ft	259 m
int)	Suicide Belt	10 lbs	4.5 kg	90 ft	27 m	1,080 ft	330 m
ivale	Suicide Vest	20 lbs	9 kg	110 ft	34 m	1,360 ft	415 m
(TNT Equivalent)	Briefcase/Suitcase Bomb	50 lbs	23 kg	150 ft	46 m	1,850 ft	564 m
NE NE	Compact Sedan	500 lbs	227 kg	320 ft	98 m	1,500 ft	457 m
High Explosives	Sedan	1,000 lbs	454 kg	400 ft	122 m	1,750 ft	534 m
xplo	Passenger/Cargo Van	4,000 lbs	1 814 kg	640 ft	195 m	2,750 ft	838 m
igh E	Small Moving Van/ Delivery Truck	10,000 lbs	4 536 kg	860 ft	263 m	3,750 ft	1 143 m
Ī	Moving Van/Water Truck	30,000 lbs	13 608 kg	1,240 ft	375 m	6,500 ft	1 982 m
	Semitrailer	60,000 lbs	27 216 kg	1,570 ft	475 m	7,000 ft	2 134 m



Bomb Search Guidelines

Employees must not touch anything - only law enforcement explosive disposal units or qualified private consultants are qualified to search for a bomb or suspicious package.

In the event of a search, however, employees may be called upon to unlock drawers, cabinets, and the like for the search crew, and to identify any strange or unfamiliar objects.

Explosive Device Located

If a device or suspected device is located:

- Do not touch or move the object.
- Evacuate the immediate area.
- If possible, take steps to minimize effects of an explosion in the vicinity by evacuation or isolation of the area.
- Ensure RCMP are apprised of the location so explosive disposal unit can be called.

If there is an Explosion

- Have employees take cover under sturdy furniture or leave the building if directed to do so by emergency responders.
- Stay away from windows.
- · Do not light matches.
- Move well away from the site of the hazard to a safe location.
- Use stairs only; do not use elevators.
- Call 911 if no one has called.

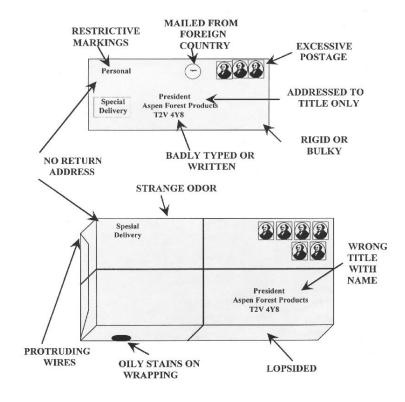
Suspicious Packages

The likelihood of receiving a bomb in the mail is remote. Unfortunately, however, a small number of explosive devices have been mailed over the years resulting in death, injury, and destruction of property.

A bomb can be enclosed in either a parcel or an envelope, and its outward appearance is limited only by the imagination of the sender. However, mail bombs have unique characteristics that may assist in identifying suspect packages.



Appearance of Suspicious Packages



- Mail bombs may display restricted endorsements such as "Personal" or "Private". This factor is important when the addressee does not usually receive personal mail.
- Addressee's name / title may be inaccurate.
- Return address may be fictitious.
- Mail bombs may reflect / distort handwriting or the name and address may be prepared with homemade labels or cut-and-paste lettering.
- Cancellation or postmark may show a different location than the return address.
- Mail bombs may have excessive postage.
- Mail bombs may feel rigid or appear uneven or lopsided and may have an irregular shape, soft spots, or bulges.
- Parcel bombs may be unprofessionally wrapped with several combinations of tape used to secure the package and may be endorsed "Fragile Handle With Care" or "Rush Do Not Delay".
- Parcel bombs may have a buzzing or ticking noise or a sloshing sound.
- Pressure or resistance may be noted when removing contents from an envelope or parcel.



Dealing with Suspicious Packages

If an employee is suspicious of a mailing and is unable to verify the contents with the addressee or sender:

- Do not open the article.
- Isolate the item and evacuate the immediate area.
- Do not put the package or envelope in water or a confined space such as a desk drawer or filing cabinet
- If possible, open windows in the immediate area to assist in venting potential explosive gases.

If an employee suspects a harmful chemical or biological substance is in a package already on company property, they should:

- Cover the package or envelope with a plastic sheet, raincoat, etc.
- Evacuate the room closing all doors and windows.
- Call their supervisor who will contact the local police.
- Isolate the area where the package is.
- Isolate themselves in another area that has a telephone and wait for the emergency responders to arrive.

If an employee has touched a package that possibly contains a harmful substance or got some on their clothes, they should:

- Wash their hands well.
- Shower with their clothes on
- Undress and seal their clothes in a plastic bag.
- Shower again and put on fresh clothes.

If an employee has any reason to believe a letter or parcel is suspicious, they should never take a chance or worry about possible embarrassment if the item turns out to be innocent.

Trespassing

Any person who enters land where entry is prohibited or does not leave land immediately after being directed to do so by the owner or occupier of the land is guilty of trespassing.

Dealing with Trespassing

If any personnel encounter a trespasser:

- Ask the trespasser to leave the unauthorized area.
- Give the trespasser a reasonable amount of time to leave peacefully.
- If the trespasser refuses to leave, call the RCMP / local authority.



Vandalism

Vandalism is the willful damaging or defacing of property belonging to another person or to the public. Acts of vandalism can include:

- **Defacing** removing, marking, or damaging a part of an object to draw attention to it.
- Criminal damage willful and unlawful destruction of other people's property.
- "Tagging" or graffiti gangs use "tags" to mark their territory and usually spray-paint walls and doors of homes and business establishments.

Vandalism can happen at any time of the day or night and in any season, but it most often occurs:

- In the evening during summer and fall
- On weekday evenings
- At night when fewer people are around, and the property isn't under as much scrutiny
- Where building design and lighting offers concealment and anonymity
- In areas frequented by young people such as schools, parks, shopping plazas and public buildings
- In unoccupied buildings, open spaces, or parked vehicles where minimum surveillance is given to property

Dealing with Vandalism

- Report all incidents of vandalism to a supervisor
- Do not paint over vandalism and graffiti until the police department gives clearance to do so.

Terrorism

Terrorism is the use of violence and threats against persons or property for the purposes of intimidation, coercion, or ransom. The direct targets of violence are not the main targets of a terrorist but a means to draw the attention of the local populace, the government, and the world to their cause. A terrorist group commits acts of violence to:

- Produce widespread fear
- Obtain worldwide, national, or local recognition for their cause by attracting the attention of the media
- Destroy facilities or disrupt lines of communication in order to create doubt that the government can provide for and protect its citizens
- Discourage foreign investments, tourism or assistance programs that can affect the target country's economy and support of the government in power
- Influence government decisions, legislation, or other critical decisions
- Satisfy vengeance

Acts of terrorism include threats of terrorism, assassinations, kidnappings, hijackings, bomb scares and bombings, cyber-attacks, and the use of chemical, biological, nuclear, and radiological weapons.



Examples of Petroleum Assets Subject to Risk

- Buildings: Administration offices, corporate offices, control rooms
- Equipment: Process units and associated control systems, product storage tanks, surge vessels, boilers, turbines, process heaters, sewer systems
- Support Systems: Utilities such as natural gas lines, electrical power grid and facilities (including back-up power systems), water-supply systems, wastewater treatment facilities
- Transportation Interfaces: Railroad lines and railcars, product loading racks and vehicles, pipelines entering and leaving facility, marine vessels and dock area, off-site storage areas
- Cyber systems and information technology: Computer systems, networks, all devices with remote maintenance ports, SCADA systems, laptops, PDAs, and cell phones.

Dealing with Terrorism

All threats and incidents should be reported to the RCMP Terrorism Tip Line at 1-800-420-5805.

In order to deal with threats of terrorism, it is important to establish a security management system to effectively manage security risks. This system should include a security risk management process incorporating asset characterization, threat assessment, vulnerability assessment, risk assessment, risk mitigation, communication, and recommendations.

This system should be reviewed at regular intervals and updated as necessary.

Cyber-Attacks

Cyber-attacks are computer-to-computer attacks that undermine confidentiality, integrity or availability of a computer or the information contained.

Cyber-attacks can make computer systems malfunction or result in a disrupted flow of data and have the potential to create extreme economic damage.

This threat includes a risk to SCADA and DCS systems, which collect, display, and store information in support of controlling equipment, devices, and facilities.

Preventing Cyber-Attacks

Steps that can be taken to enhance your cyber security:

- Know who owns and operates the IT system and its operating framework.
- Map the network include all internal/external connections, configuration control, etc.
- Develop a security policy structure and implement compliance monitoring.
- Apply as much security and hardening as appropriate.
- Accredit the IT system and follow a risk management approach.
- Know the system's possible vulnerabilities.
- Patch the system in a timely manner the longer this is delayed, the longer the system is vulnerable.
- Reduce Internet access points.
- Reduce or eliminate potential sources of infection USB flash drives (thumb drives, USB keys, etc.), flash media, etc.
- Communicate, train, and educate staff and users.

Source: 10 IT Security "Commandments" - Communications Security Establishment Canada



Dealing with Cyber-Attacks

In the event of a cyber-incident:

After obtaining corporate approval, local police or RCMP should be notified.

Serious cyber incidents:

- Should be reported to Public Safety Canada by email at <u>contact@cyber.gc.ca</u> or by phone at:
 - o 1-833-292-3788.

Active Assailant

In the event of an Active Assailant the Mine Emergency Response Plan (MERP) will be implemented to communicate and activate a standard organizational response to an incident in which a weapon (firearm, edged weapon, explosive device, or instrument that can cause bodily harm or injury) is being used by an individual(s) actively engaged in killing or attempting to kill people.

The main objectives of enacting the MERP in the active assailant situation is

- To minimize risk and preserve the safety of on-site personnel, volunteers, and any contractors that
 may be on-site at the time of the incident; and
- To trigger an immediate response from police services.

The Active Assailant policy can be initiated by any member of staff who witnesses or recognizes an active threat that requires an immediate police service notification and response by activating the actions outlined in this policy.

Law enforcement personnel are the primary responders and will assume control in any Active Assailant response. Do not interfere with the police officers by delaying or impeding their movements: The police are there to stop the threat as soon as possible. Officers will proceed directly to the area the assailant was last seen or heard. The first officers at the scene will not stop to assist injured individuals.

Police officers will be responding with the intent to use a required level of force to diffuse the situation. Ensure you do not present yourself as a threat to them:

- Drop any items in your hands (e.g. bags, jackets, etc.)
- Immediately raise hands and keep them visible at all times
- Remain calm and follow the officers' instructions; avoid screaming and/or yelling
- Avoid making quick movements toward officers
- Do not stop to ask officers for help or direction when evacuating proceed in the direction from which officers are entering the area

All individuals must remain in a safe location, as instructed by police until the situation is under control and all witnesses have been identified and questioned. Do not leave the safe location until police have instructed you to do so.



Incident Commander - Procedures

- 1. Assess the situation and take charge. Call 911 and notify the police of the situation.
- 2. Announce over the radio system "Active Assailant" three times and announce location if known.
- Evacuate the area of staff and others if safe to do so.
- 4. Do not allow anyone to enter the building.
- 5. Provide police with access codes, cards and master keys as required to allow them to enter any area within the Mine site.
- 6. Initiate a lockdown of the building as instructed by the police.
- 7. Delegate an employee to meet the police at the main entrance or outside the building and provide as much information as you can to assist the police. Inform the police of an weapons the assailant is in possession of, if known. Provide optional access to the scene (e.g. stairways/elevators).
- 8. As soon as police arrive, they will assume control of the situation.
- 9. Have the following information available for police and senior management:
 - Identification and number of hostage(s) and/or injured persons/victims (including locations in the building, if known);
 - o Identification and number of assailant(s) including location in the building, if known;
 - o Type and number of weapons, if any, in possession of the assailant(s);
 - Threats and demands by the assailant(s);
 - o Precise location and floor plan / map of the area controlled by the assailants(s), if appropriate;
 - o Location of people who could not be evacuated and may or may not be injured;
 - Location and number of telephones in the available area.
- 10. Account for all staff, visitors, and contractors.
- 11. Notify/ establish the IMT and initiate the internal notification process.
- 12. Contact necessary authorities and governing agencies.
- 13. Establish the CMT in the Emergency Operations Centre.
- 14. Appoint an Information Officer who will provide appropriate information to families and other stakeholders and communicate with the media.

Following the Active Assailant Situation

- Announce "Active Assailant, All Clear" overhead three times only after being notified by police that it
 is safe to do so.
- 2. Provide support to staff, visitors and contractors impacted by the situation.
- 3. Arrange for medical aid and/or counseling services as needed and requested.
- 4. Account for staff, visitors, and contractors.
- 5. Ensure any parties involved speak with the police following the incident.
- 6. Conduct a short initial debriefing of personnel involved in the incident. The IMT will schedule a full debrief.
- 7. Ensure all staff involved completes a written report of the incident details and submits it to the Administrator before leaving.



All Staff

- 1. Remain calm and evacuate if safe to do so.
- 2. Do not confront any individual with a weapon.
- 3. If possible, assist others to leave the area and redirect those trying to enter.
- 4. Hide, if unable to evacuate. Use rooms with doors that lock and barricade the door with heavy furniture. Silence your cell phone and turn off any sources of noise (radios, televisions, etc.). Hide behind large objects. Remain quiet and low to the ground.
- 5. Survive! Fight only as a last resort. Only if your life is in imminent danger, attempt to disrupt and/or incapacitate the assailant by:
 - o Acting as aggressively as possible against him/her,
 - throwing items at the assailant(s) and;
 - improvising weapons.

Note: If others are available, work together to distract and attack the assailant(s) as fiercely as possible.

- Call the police and advise them of your location and details of your situation only when safe to do so. Give the police as much information as possible, including; current location of the assailant(s) or direction headed, if known; type of weapons; description of the assailant(s); any comments or demands made by the assailant(s); information on victims/hostages; and any other information that you feel may be relevant.
- 2. Remain on the line and follow the instructions of the operator (stay as quiet as possible).



Staff Member Discovering the incident

Staff in close proximity to the incident

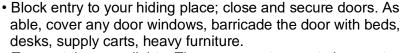


RUN

- Have an escape route and plan in mind
- Leave the area of the threat immediately; leave your belongings behind
- Do not wait for others to follow and do not stop to assist anyone injured by the assailant. If an injured person is ambulatory and will not delay your escape, have them travel with you away from the building
- · Choose a safe exit to leave the facility
- Call 911 when it is safe to do so

Depending on the situation/where you are, your best option may be to **HIDE**





- Turn out the room lights. The room must seem to be empty.
- Stay quiet; silence your pager and cell phone; turn off any source of noise (e.g. radio, TV).
- If safe and able, particularly if there are injured individuals with you, call 911(cell or landline) to report where occupants or the assailants are sheltering. Do what you can to help any injured individuals who are sheltering with you.
- Remain where you are until Police announce themselves and they open the door to allow you out.



If **RUN** or **HIDE** are not safe options, when your life is in imminent danger; prepare to **FIGHT**

- As a last resort and only when your life is in imminent danger
- Attempt to incapacitate the assailant
- Act with physical aggression. If with others, act as a team; use improvised weapons (e.g. fire extinguishers, scissors, chairs)



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Gas Release

General Site Safety - All Gases

The Incident Commander in charge of response to a gas release of any type shall ensure that:

- The gas release site has been secured to prevent unauthorized access.
- An assessment of site safety hazards, including hazards associated with the gas release, is conducted prior to undertaking site operations.
- Monitoring for concentrations of flammable, toxic or corrosive vapours (and oxygen concentrations in confined spaces) is conducted, as required, prior to allowing any response personnel to enter the site and continued throughout the incident.
- Wind monitoring is undertaken in outside areas for an external release (i.e. using windsocks or other devices) on a continuous basis throughout the incident.
- Emergency response personnel approach the site of an outside gas release from the upwind side and remain upwind throughout the incident.
- Evacuation routes for spill response personnel have been clearly identified and are kept clear of obstructions throughout the emergency.
- All workers undertaking site operations have been trained in proper spill response procedures and have been briefed as to the nature of the hazards present at the site, and the hazards of the gas being released, prior to commencing any emergency response activities.
- Appropriate safety, monitoring and response equipment and supplies have been provided for use by spill response personnel, based on conditions at the site and that replacement clothing and equipment and supplies are made available, as required.
- Appropriate first aid equipment is available, in sufficient quantities, based on the number of response personnel working at the site.
- Appropriate fire equipment is present on-site, as required, in the event of ignition of flammable materials.
- All procedures or conditions identified which are immediately dangerous to life and health are suspended or corrected immediately.
- Any safety hazards or potential safety hazards not immediately dangerous to life and health are identified and corrected in a timely manner.
- Response personnel are provided with frequent rest breaks and work shifts do not exceed 16 hours in length.
- Additional response personnel are provided for prolonged response to emergencies.

All personnel responding to a gas release shall ensure that:

- They understand the nature of the product hazards and have been briefed on site safety hazards.
- They do not place themselves or other personnel at the site in danger.
- Identified safety hazards or potential safety hazards are reported to the personnel in charge of response to the emergency.
- All procedures or conditions immediately dangerous to life and health are suspended immediately.
- They request assistance from other personnel, as required, for tasks which require more than one person.



General Site Safety – Flammable Gases

The Incident Commander in charge of response to a release of flammable gases shall ensure that:

- All potential ignition sources at or near the site of the flammable gas release are eliminated.
- Vehicles and other equipment responding to an external site approach from the upwind direction, and do not drive through the vapour cloud.
- Vehicle and other mobile equipment are shut down and parked upwind, well away from a flammable gas release site.
- Vehicles or equipment required to undertake activities at or near a flammable gas release site are equipped to safely undertake these activities.
- All confined spaces or low-lying areas are monitored for flammable gas concentrations prior to entry.
- Personnel do not enter any area where vapour concentrations approach or exceed the flammable limit for the gas.

Worker Protection

All personnel responding to a gas release shall ensure that:

- Proper protective clothing and equipment is worn, based on the nature of the gas release, size of the release and the hazards involved. Proper protective clothing and equipment could include, but not be limited to the following:
 - Gloves, safety boots, chemical resistant coveralls and/or full body or total containment suits for toxic or corrosive gases.
 - o Thermal protection if refrigerated liquefied gases may be released.
 - Flame resistant clothing for flammable gas releases.
 - Hardhats, safety goggles or full-face shields.
 - o Hearing protection in high noise areas.
 - Self-contained breathing apparatus (SCBA) for work in or near the site of the gas release.
 - Warm clothing for outside spills in cold weather.
- Personnel required to wear SCBA are clean shaven, to ensure a correct fit for the equipment.
- Personnel required to wear respirators or SCBA are clean shaven, to ensure a correct fit for the equipment.
- Proper maintained and calibrated monitoring equipment, as required, is used to assess the nature of safety hazards at the site. Proper monitoring equipment could include but not be limited to:
 - Toxic or corrosive gas monitors.
 - o Chemical specific monitoring tubes (e.g. Gastec or Drager tubes) and pumps.
 - Oxygen monitors.
- Heavily contaminated or damaged clothing is replaced, and malfunctioning equipment is removed from service.
- Response personnel do not walk-through areas downwind of where the gas release is occurring.



The Incident Commander in charge of response to a gas release shall ensure that:

- Response personnel understand the appropriate use and limitations of any specialized safety equipment used during work activities (e.g. toxic, corrosive, or flammable gas monitors, SCBA, etc.).
- Facilities are provided on or near the site for emergency personnel to remove contaminated clothing or equipment and change into clean clothing prior to leaving the site.

Initial Response Actions

In initial response to a gas release, initial company personnel who discover the incident shall ensure that:

- Appropriate equipment shutdown and isolation is implemented, based on the location of the emergency.
- Injuries to personnel are identified, and appropriate basic first aid measures are implemented.
- All affected personnel are initially evacuated at least 50-100 metres from the vicinity of the spill site, and all personnel who were working in the area are accounted for.
- Emergency notification is undertaken to the appropriate Control Room Operator for the affected facility via any internal telephone.
 - o Identify yourself and report the incident.
 - o Indicate the location, type, and nature of the spill.
 - Provide appropriate information (e.g. presence of fire, requirement for general evacuation, injuries etc.).
- The site is secured and ribboned to eliminate through traffic and prevent entry by unauthorized personnel.
- They remain at or near the site of the spill, if safe to do so, until training responders arrive at the site to take charge.

Note: The General Manager (GM) is responsible for ensuring that appropriate company emergency plan activation procedures for gas releases, evacuation or employee injuries are implemented, as appropriate, and appropriate trained emergency response personnel are notified to respond to the emergency.

Spill containment or fire suppression procedures in initial response to an incident involving flammable liquids should be considered ONLY if the following conditions are met:

- 1. The gas release or leak is minor.
- 2. The release can be contained SAFELY with the manpower and resources available.



General Response Actions

The Operations Group shall assume organized gas release response duties and responsibilities at the affected facility.

Upon report of a gas release, the appropriate Control Room Unit Operator shall:

- Use the Mine Incident Preliminary Reporting Form (A1) to record appropriate information received related to the reported gas release.
- Notify the Shift Supervisor of the report.
- Sound the fire and evacuation alarm for the facility if general evacuation is required.
- If assistance is required to control the gas release, announce over the Public Address System "Spill Report", five times in succession, until all manpower is alerted.
- Relinquish control of the appropriate units to another operator and remain available to provide additional communications assistance to the Incident Commander and site responders throughout the incident.

Upon receipt of a fire alarm signal or "Spill Report" signal:

- Operations Group personnel for the facility (Shift Supervisor, Assistants, General, Bottom Ash and Water Treatment Operators, as appropriate) on all units shall stabilize their immediate job function and report for spill response duty.
- Personnel shall gather their protective equipment and shall report to the Control Room in appropriate protective gear. Personnel shall take further instruction from the Shift Supervisor upon arrival.
- The Shift Supervisor shall assume the role of designated Incident Commander for the emergency, unless or until relieved by personnel with greater authority in a major emergency.
- Once assembled, team organization will commence, related to leadership, manpower, spill response plan and deployment of resources.

Note: The Control Room Unit Operator may direct one of the responders directly to the spill scene to undertake on-site assessment of the situation.

Anyone reporting late to the control room must determine who group leaders are, and report to them before becoming involved in any spill response activities.

If relieved of the duties of Incident Commander in a major incident, the Shift Supervisor shall normally assume the role of Operations Section Chief for the incident and shall focus his or her efforts on coordinating operational efforts to bring the emergency under control.

During an emergency involving a gas release at a company facility, the Incident Commander for the affected facility shall ensure that:

- Injured personnel receive proper medical attention and proper internal and external medical aid response procedures has been initiated, for severe or life-threatening injuries.
- The site remains secured and is identified with red ribbon, to prevent unauthorized access.
- Equipment is shut down and isolated in a controlled manner to minimize further damage related to the incident.
- Valves are closed or vessels are isolated, if possible and as safe to do so, to stop additional gas release at the source.
- Additional resources are requested through the appropriate Control Room Operator for the affected facility, as required.



- All personnel involved in a site evacuation are accounted for, and a search is conducted for any
 missing personnel, as safe to do so, in cooperation with on-site emergency agencies.
- Evacuation routes have been clearly identified for personnel responding to the gas release, and these routes are kept clear of obstructions throughout the emergency.
- An incident assessment is conducted to assess issues related to the emergency, define objectives, and implement appropriate strategies to control the effects of the emergency.
- Emergency agencies are notified and respond to the site if the gas release extends outside the affected facility or assistance is required to control the incident.
- Company assistance is provided to external response agencies, as requested, or required.
- Appropriate internal company personnel and departments are notified of the emergency and updated throughout the incident.
- Proper environmental reporting procedures have been implemented within the appropriate timeframes.
- Proper release control procedures are initiated, as required, for spills which occur as a result of a fire
- An emergency organization is created on-site which effectively manages all company issues and resources related to the emergency and effectively coordinates with external emergency or government agencies.
- A command post with communications is established at or near the site to facilitate coordination of emergency activities between the company and external agencies.
- Inspection of all affected facilities is undertaken in a coordinated manner and damage to critical components or facilities are repaired after spill response operations are completed and before facility start-up.
- Other necessary actions are undertaken to control the incident, or effects of the incident.

Note: If the gas release is large, and beyond the internal capabilities of the company to respond to the emergency, appropriate spill response contractors shall be contacted to assist in the response to the incident.

Detailed advice on containment, recovery and clean-up may also be obtained from the supplier of the flammable liquids involved

(See site-specific MERP information for a listing of Spill Response Contractors, and Supplier emergency numbers).

Gas Release Control Options

Containment options for gas releases are limited, given the nature of the materials being released.

Control of the release at its source represents the only viable option in a gas release situation. Control actions of this nature will centre on operational procedures involving electrical and mechanical control devices present on the storage vessel itself to seal the vessel and stop the release.

The Incident Commander for the gas release shall determine the most appropriate control actions to be implemented, in consultation with appropriate specialists, based on assessment of the nature and circumstances of the incident, and the issues involved.



Source Shutdown

Shutdown of the source of the gas release may be attempted if the source of the gas release can be safely controlled using available personnel and equipment.

If shutdown is considered a viable option, the Incident Commander shall ensure that:

- All potential hazards associated with the shutdown process have been assessed prior to undertaking
 any activities, including hazards related to potential flammability hazards, hazards related to air
 displacement, and potential hazards related to the toxic or corrosive properties of the gas released.
- Gas concentrations are monitored to ensure operations can be conducted safely on-site using appropriate safety precautions and equipment.
- All personnel involved in the shutdown process are fully briefed as to the nature of the hazards and potential safety concerns.
- Non-essential personnel are evacuated from the site during site operations.
- Appropriate positive or negative ventilation is established as required, based on site conditions.
- All potential ignition sources are eliminated in the area of a flammable gas release.
- All workers undertaking shutdown operations are fully protected with appropriate chemical resistant clothing and equipment, including SCBA, based on the nature of the hazards and size of spill.
- Only proper equipment is used at the site, based on the nature of the incident (e.g. non-sparking tools or intrinsically safe equipment in areas with a flammability hazard).
- A safety watch is established during the shutdown process, including personnel dressed in appropriate protective clothing and equipment, to provide rescue in the event of an emergency.
- Air monitoring is undertaken on a continuous basis, to ensure that site operations remain safe at all times.
- Shutdown of site operations and evacuation of all involved personnel is undertaken if the Incident Commander determines that site conditions have become too hazardous to continue.

Gas Elimination – Confined Space

If control of a gaseous material cannot be undertaken successfully at the source of a release, and the gas has been released into a confined space, additional response actions could include but not be limited to

- Ventilating confined areas to reduce the concentration of confined gases present in the area.
- Dissipating or removing the released gas from atmosphere, using a water spray.
- Introducing an inert gas into an area where flammable or explosive vapours are present, to limit the
 possibility of ignition.



Cross Ventilation - Confined Spaces

If shutdown of the gaseous release is not determined to be a viable option, the Incident Commander shall ensure that appropriate cross ventilation is implemented for a confined space, based on the type of release and the nature of the hazards.

Cross ventilation may be undertaken by opening doors, hatches, or entryways into the confined space, if safe to do so, to enhance natural ventilation, or through use of mechanical devices to establish negative or positive pressure ventilation.

Negative pressure ventilation of a site (i.e. ventilation of an area using mechanical devices such as suction fans to draw air from a confined space) shall be used as required to enhance air flow and lower vapour concentrations. The Incident Commander shall ensure that all negative ventilation is undertaken with equipment which is appropriate for site operations.

Positive pressure ventilation (also known as air induction) may be used to push air into a confined space to lower vapour concentrations, using mechanical devices such as blowers or air inductors. Air induction represents a safer option for flammable gas releases, as no flammable vapours are being drawn through a mechanical device, causing potential ignition.

Materials ventilated to the outside atmosphere will be diluted by large volumes of air, eliminating the hazard caused by the confined gas.

In all cases where ventilation is used, monitoring will need to be undertaken, to ensure that gaseous materials ventilated to atmosphere will not pose safety hazards to areas downwind of the release.

Note: Only ventilation equipment which has been rated as explosion proof shall be used to establish negative pressure ventilation in a confined space, for releases involving flammable gases.

Dissipation of a Confined Gas

A water spray may be used in two ways to eliminate the presence of a confined gas:

For non-water-soluble gaseous materials, the water spray may be directed into the confined space to increase turbulence and mixing, to help in ventilating an area.

This method has the advantage of using a readily available resource for use in firefighting to increase ventilation if ventilation equipment is unavailable. However, the method also has disadvantages, as water flooding a confined area may damage equipment of the confined space itself and will require clean-up to be undertaken after the incident is complete.

A water spray may also be directed into a confined area containing a gaseous material which is highly water soluble (e.g. ammonia, or chlorine gas.).

Water soluble gases will be converted from a gas to a liquid solution, effectively eliminating the gas from the atmosphere. However, water contaminated with flammable, corrosive or toxic materials may pose additional hazards, and may need to be confined, recovered, tested, and disposed of as a hazardous waste, in compliance with government legislation.



Pumping Inert Gas into a Flammable Atmosphere

In situations where a flammable gas is present in a confined space, representing a potential fire or explosion hazard, and limited ventilation can be introduced into the area, due to the presence of the flammable gas, an inert gas such as Nitrogen or Carbon Dioxide may be introduced into the space.

This will create turbulence, to facilitate ventilation and mixing. Turbulence will also make it easier to displace the air present in the confined space, limiting the possibility of an uncontrolled ignition of the flammable material.

Sufficient volume of inert gases must be present on site to implement this procedure. In addition, the flammable / inert gas mixture may need to then be removed by some form of ventilation from the confined space.

Release to Atmosphere

For materials which have been released to the external atmosphere, response actions will center on limiting impacts to the surrounding area to protect life, property, and the environment. Response actions in response to a gas release to atmosphere will centre on identifying and protecting areas of potential impact, from the effects of the gas release.

Gaseous materials released from a confined space to the external environment, and gaseous materials stored outside of a building that are released from storage vessels will travel downwind with the prevailing wind.

The Incident Commander shall undertake air monitoring and shall monitor the wind direction carefully, on a continuous basis, to assess possible impacts on the surrounding area related to the gas release.

Response personnel shall undertake control and/or response activities from an upwind direction, where at all possible. Where downwind activities must be undertaken, response personnel shall implement all necessary actions using appropriate protective measures, or at an appropriate distance downwind to remain outside the potential impact area.

As a response measure, for releases directly to the atmosphere involving a water soluble, corrosive, or toxic gas, a water spray directed at the release source may be considered as a method of reducing potential downwind impacts of the gaseous release.

However, if this method is considered for use, the safety concerns related to the set-up of water spray equipment, and environmental considerations related to containment of contaminated water may need to be assessed prior to undertaking any site actions of this nature.

If a determination is made that downwind communities or facilities may be affected by a gas release which is traveling off-site, communication shall be undertaken with appropriate authorities, or with management of the affected facilities, informing them of the release.

Facility Emergency Activities

For other facilities which may be impacted by a gaseous release to atmosphere, decisions shall be made by management for the affected facility as to appropriate evacuation or in-place sheltering measures which may need to be implemented to protect the safety of personnel and contractors.



Corrosive Materials

General Site Safety

The Incident Commander in charge of response to a corrosives spill shall ensure that:

- The spill site has been secured to prevent unauthorized access.
- An assessment of site safety hazards, including hazards associated with the product spilled, is conducted prior to undertaking site operations.
- Monitoring for concentrations of toxic or corrosive vapours (and oxygen concentrations in confined spaces) is conducted, as required, prior to allowing response personnel to enter the site.
- Wind monitoring is undertaken (i.e. using windsocks or other devices) on a continuous basis for outside spills.
- All enclosed or confined spaces are ventilated in an appropriate manner to limit buildup of toxic or corrosive vapours.
- Spill site evacuation routes have been clearly identified for response personnel and are kept clear of obstructions throughout the emergency.
- All workers undertaking site operations have been trained in proper spill response procedures and have been briefed as to the nature of the hazards present at the site, and the hazard of the product spilled, prior to commencing any containment, recovery and treatment activities.
- Appropriate protective clothing, safety, monitoring and response equipment and supplies have been provided for use by spill response personnel, based on conditions at the site and that replacement clothing and equipment and supplies are made available, as required.
- Appropriate first aid equipment is available, in sufficient quantities, based on the number of response personnel working at the site.
- All spill response procedures are undertaken in a safe manner.
- All procedures or conditions identified which are immediately dangerous to life and health are suspended or corrected immediately.
- Any safety hazards or potential safety hazards not immediately dangerous to life and health are identified and corrected in a timely manner.
- Response personnel are provided with frequent rest breaks and work shifts do not exceed 16 hours in length.
- Additional response personnel are provided for prolonged response to emergencies.

All personnel responding to a corrosives spill shall ensure that:

- They understand the nature of the product hazards and have been briefed on site safety hazards.
- They do not place themselves or other personnel at the site in danger.
- All identified safety hazards or potential safety hazards are reported to the personnel in charge of response to the emergency.
- All procedures or conditions immediately dangerous to life and health are suspended immediately.
- They request assistance from other personnel, as required, for tasks which require more than one person.



Worker Protection

All personnel responding to a corrosives spill shall ensure that:

- Proper protective clothing and equipment is worn, based on the nature of the acidic or alkali chemical
 of product, size of the spill and the hazards involved. Proper protective clothing and equipment could
 include, but not be limited to the following:
 - Gloves, safety boots, chemical resistant coveralls and/or full body or total containment suits which are acid or alkali resistant.
 - Hardhats, safety goggles or full face shields.
 - Hearing protection in high noise areas.
- Full or half face respirators, with appropriate air purifying cartridges if sufficient oxygen is present in the atmosphere and the respirator can eliminate toxic or corrosive vapours present.
- Self-contained breathing apparatus (SCBA) for all oxygen deficient atmospheres or areas where toxic
 or corrosive vapours cannot be eliminated by a respirator.
- Warm clothing for outside spills in cold weather.
- Personnel required to wear respirators or SCBA are clean shaven, to ensure a correct fit for the
 equipment.
- Proper maintained and calibrated monitoring equipment, as required, is used to assess the nature of safety hazards at the site. Proper monitoring equipment could include but not be limited to:
 - Toxic or corrosive gas monitors.
 - o Chemical specific monitoring tubes (e.g. Gastec or Drager tubes) and pumps.
 - Oxygen monitors.
- Heavily contaminated or damaged clothing is replaced, and malfunctioning equipment is removed from service.
- Response personnel do not walk in the spilled material.

The Incident Commander in charge of response to a corrosives spill shall ensure that:

- Response personnel understand the appropriate use and limitations of any specialized safety equipment used during work activities (e.g. toxic or corrosive gas monitors, SCBA, etc.)
- Response personnel are monitored for signs of heat exhaustion, hypothermia or other safety related conditions, as appropriate, based on the nature of the emergency.
- Facilities are provided on or near the site for emergency personnel to remove contaminated clothing or equipment and change into clean clothing prior to leaving the site.



Treatment of Corrosive Spills

If treatment of the corrosive spill with a neutralizing agent or dilution of the spill with water is undertaken, personnel in charge of response to the spill shall ensure that:

- An assessment is undertaken of all potential hazards associated with the treatment process, including hazards involved with neutralization or dilution of the acid or alkali material, as well as any potential gaseous by-products which may be formed, and their potential hazards, including:
 - o Gaseous by-products which may cause air displacement.
 - Gaseous by-products which may be toxic.
 - o Gaseous by-products which may be corrosive.
- All personnel involved in the treatment process are fully briefed as to the nature of the hazards and potential safety concerns.
- Non-essential personnel must be evacuated from the site during the neutralization process.
- Appropriate ventilation is established as required, based on site conditions.
- All workers undertaking treatment are fully protected with appropriate chemical resistant clothing and equipment, based on the nature of the hazards and size of spill, including SCBA, prior to starting the treatment.
- A safety watch is established during the treatment process, including personnel dressed in appropriate protective clothing and equipment, to provide rescue in the event of an emergency.
- Air monitoring is established for anticipated gaseous by-products which may be produced, in situations where gases may accumulate in confined spaces.
- Personnel involved in the treatment process do not work directly in the spill.

Initial Response Actions

- Appropriate equipment shutdown and isolation is implemented, based on the location of the emergency.
- Injuries to personnel are identified, and appropriate basic first aid measures are implemented.
- All affected personnel are evacuated at least 25 metres from the vicinity of the spill site, if no fire is present, and all personnel who were working in the area are accounted for.
- Emergency notification is undertaken to the appropriate Control Room Unit Operator for the affected facility via any internal telephone.
 - o Identify yourself and report the incident.
 - Indicate the location, type and nature of the spill.
 - o Provide appropriate information (e.g. presence of fire, requirement for general evacuation, injuries etc.).
- The site is secured and red ribbon is placed in the area to eliminate through traffic, indicate a hazard is present and prevent entry by unauthorized personnel.
- They remain at or near the site of the spill, if safe to do so, until training responders arrive at the site to take charge.

Note: The Shift Supervisor/Mining Coordinator is responsible for ensuring that appropriate company emergency plan activation procedures for corrosive spills, evacuation or employee injuries are implemented, and appropriate trained emergency response personnel are notified to respond to the emergency.



Spill containment procedures in initial response to an incident involving flammable liquids should be considered ONLY if the following conditions are met:

- 1. The corrosive spill is minor.
- 2. The spill can be contained SAFELY with the manpower and resources available.

General Response Actions

The Operations Group shall assume organized spill response duties and responsibilities at the affected facility. Upon report of a corrosives spill, the appropriate Control Room Unit Operator shall:

- Use the Initial Emergency Report form to record appropriate information received related to the reported spill.
- Notify the Shift Supervisor of the report.
- Sound the fire and evacuation alarm for the facility, if general evacuation is required.
- If spill response assistance is required to control the fire, announce over the Public Address System "Spill Report", five times in succession, until all manpower is alerted.
- Relinquish control of the appropriate units to another operator and remain available to provide additional communications assistance to the Incident Commander and site responders throughout the incident.

Upon receipt of a fire alarm signal or "Spill Report" signal:

- Operations Group personnel for the facility (Shift Supervisor, Assistants, General, Bottom Ash and Water Treatment Operators, as appropriate) on all units shall stabilize their immediate job function and report for spill response duty.
- Personnel shall gather their protective equipment and shall report to the Control Room in appropriate protective gear. Personnel shall take further instruction from the Shift Supervisor upon arrival.
- The Shift Supervisor shall assume the role of designated Incident Commander for the emergency, unless or until relieved by personnel with greater authority in a major emergency.
- Once assembled, team organization will commence, related to leadership, manpower, spill response plan and deployment of resources.

Note: The Control Room Unit Operator may direct one of the responders directly to the spill scene to undertake on-site assessment of the situation.

Anyone reporting late to the control room must determine who group leaders are, and report to them before becoming involved in any spill response activities.

If relieved of the duties of Incident Commander in a major incident, the Shift Supervisor shall normally assume the role of Operations Section Chief for the incident and shall focus his or her efforts on coordinating operational efforts to bring the emergency under control.

During an emergency involving a spill of hazardous materials at a company facility, the Incident Commander for the affected facility shall ensure that:

- Injured personnel receive proper medical attention and proper internal and external medical aid response procedures has been initiated, for severe or life-threatening injuries.
- The site remains secured and is identified with red ribbon to prevent unauthorized access.
- Equipment is shutdown and isolated in a controlled manner to minimize further damage related to the incident.



- Valves are closed or vessels are isolated, if possible and as safe to do so, to stop additional leakage at the source.
- Additional resources are requested through the appropriate Control Room Unit Operator for the affected facility, as required.
- All personnel involved in a site evacuation are accounted for, and a search is conducted for any missing personnel, as safe to do so, in cooperation with on-site emergency agencies.
- Evacuation routes have been clearly identified for personnel responding to the spill, and these routes are kept clear of obstructions throughout the emergency.
- An incident assessment is conducted to assess issues related to the emergency, define objectives, and implement appropriate strategies to control the effects of the emergency.
- Emergency agencies, fire departments or contractors as appropriate, are notified and respond to the site if outside assistance is required to control the incident.
- Company assistance is provided to external response agencies, as requested or required.
- Appropriate internal company personnel and departments are notified of the emergency and updated throughout the incident.
- Proper environmental reporting procedures have been implemented within the appropriate timeframes.
- Proper spill mitigation procedures are initiated, as required, for spills which occur as a result of a fire.
- An emergency organization is created on-site which effectively manages all company issues and resources related to the emergency and effectively coordinates with external emergency or government agencies.
- A command post with communications is established at or near the site to facilitate coordination of emergency activities between the company and external agencies.
- Inspection of all affected facilities is undertaken in a coordinated manner and damage to critical components or facilities is repaired after spill response operations are completed and before facility start-up.
- Other necessary actions are undertaken to control the incident, or effects of the incident.

Note: If the corrosives spill is large, and beyond the internal capabilities of the company to respond to the emergency, appropriate spill response contractors shall be contacted to assist in the response to the incident.

Detailed advice on containment, recovery and clean-up may also be obtained from the supplier of the corrosive material involved.

(See site-specific MERP information for a listing of Spill Response Contractors, and supplier emergency numbers).

Containment Actions

The Incident Commander for the corrosive liquids spill shall determine the most appropriate containment actions to be implemented, based on the assessment of the nature and circumstances of the incident, and the issues involved. General containment priorities could include:

- Stopping leaks in small containers such as damaged bottles, pails or drums.
- Blocking manholes, sewers outlets or doorways to prevent entry of the spill into sewers, waterways, basements or other areas where corrosives can migrate from the original spill site or cause a buildup of corrosive vapours in a confined space.
- Confining the spill to the smallest area possible on land or in a building.
- Containing corrosive liquid spills prior to entry into any waterbodies such as ditches, lakes, rivers, creeks, or streams.



Detailed containment actions for corrosive spills are presented in the following tables:

ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS			
	Small Containers (Bottles, Pails, Drums)						
Change orientation of container	Container is moved or tilted to stop leak.	Remaining liquid in container is quickly contained.	Container may leak from other locations such as caps, bungs or seals if placed on its side. Severely damaged containers may spring additional leaks from movement. Used as a temporary containment measure only.	Damaged containers should not be touched unless proper acid or alkali resistant protective clothing is used. Container should be safely propped or held in place to ensure it does not fall over or move.			
Plug hole in container	Holes in container are plugged using a mechanical plug (wood, rubber, etc.) or plugging paste (e.g., Plug n Dike or similar material).	Remaining liquid in container is quickly contained.	Plug must be made secure in the hole to ensure it does not fall out. Plug may not seal effectively. Used as a temporary containment measure only. Metal plugs should not be used with acids and alkalis, as hydrogen gas may be formed by contact of the acid with metal.	Damaged containers should not be touched unless proper acid or alkali resistant protective clothing is used. Material used to plug hole must be compatible with the acid or alkali material spilled.			



ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS			
	Small Containers (Bottles, Pails, Drums) cont'd						
Place leaking container in overpack drum (lined specialized 250 litre chemical recovery overpack drums may be purchased for use)	Leaking bottle, pail or drum is placed in another container to contain spilled corrosive material.	Remaining liquid can be contained safely for extended period prior to disposal.	Overpack container must be compatible with acid or alkali spilled. Metal drums should not be used with acids or alkalis, as hydrogen gas may be formed by contact of the acid with metal, posing a flammability hazard.	Damaged containers should not be touched unless proper acid or alkali resistant protective clothing is used. Extreme caution should be used by response personnel moving damaged container.			
Transfer liquid to new container	Remaining liquid is transferred to new container for storage.	Remaining liquid can be contained safely for extended period prior to disposal.	New container must be compatible with acid or alkali spilled. Any transfer equipment used must be compatible with the acid or alkali spilled.	Damaged containers should not be touched unless proper acid or alkali resistant protective clothing is used.			



ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS
		Containment of	on Land	
Construct berm or dyke to contain spill	A berm or dyke is constructed using sand, earth, sand bags or other suitable material to contain acid or alkali spill and prevent further spill movement. Effectively contains spill on level ground or floor.	Berm can be constructed using readily available material. Berm can be constructed using hand tools, heavy equipment (backhoes, bulldozers, bobcats, etc.) or other methods, as appropriate.	Material used must be compatible with acid or alkali spilled. Note: combustible materials (e.g., wood) should not be used in construction of the berm, as reaction with acid or alkali materials may generate heat and cause combustion to occur. Note: snow or ice should not be used to construct dyke, as acid or alkali will react and generate heat, effectively melting the snow Berm construction material should be dry, if possible, to prevent heat generation from reaction with acid or alkali.	Personnel or equipment constructing berms shall not work directly in the spill. Personnel shall wear proper protective clothing for the acid or alkali spilled. Spill may travel under a dam or dyke built on porous soil and penetrate downward to groundwater. Berm material contaminated with acid or alkali will require proper waste disposal in compliance with government regulation.



ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS		
	Containment on Land cont'd					
Construct trench or bell hole to contain spill	A trench or bell hole is dug into soil to allow liquid acid or alkali material to flow into hole or trench for recovery. Effective for containment of spills on sloping ground. Can be used to intercept spilled material prior to entering watercourse.	Accumulation of acid or alkali material in hole aids recovery. Trench or hole can be constructed using hand tools or heavy equipment (backhoes, track hoes, etc.)	Construction of trench in porous soil (e.g., sand) can make it easier for spilled corrosive to penetrate into soil and possibly contaminate groundwater (acid or alkali resistant liner may be required in trench or bell hole to prevent soil penetration). Trench or hole should be dry, if possible, to prevent heat generation from reaction of water with acid or alkali.	Personnel or equipment constructing holes or trenches shall not work directly in the spill. Personnel shall wear proper protective clothing for the acid or alkali spilled.		
Block manhole sewer outlet or doorway	A manhole or sewer outlet or doorway is blocked with plastic, sand, earth or other suitable material.	Blocking manhole, sewer or doorway can limit spill travel and prevent a corrosive spill from entering a sewer, waterway, basement, confined space or other area where recovery and cleanup may be difficult.	Material used must be compatible with acid or alkali spilled. Note :combustible materials (e.g., wood) should not be used to block manholes, sewers or doorways as reaction with acid or alkali materials may generate heat and cause combustion to occur. Material used to block manholes, sewers or doorways contaminated with acid or alkali will require proper waste disposal in compliance with government regulation.	Personnel or equipment blocking manholes, sewers or doorways shall not work directly in the spill. Personnel shall wear proper protective clothing for the acid or alkali spilled		



ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS
		Containment o	n Water	
Construct a dam or dyke to contain spill	A dam or dyke is constructed using sand, earth, sand bags or other suitable material to contain liquid acid or alkali spill or acid /alkali contaminated water, preventing spill movement into a waterbody.	Limits possible environmental effects related to spill into a waterbody, including significant pH changes, aquatic toxicity and contamination of surface water supplies. Berm can be constructed using readily available material Berm can be constructed using hand tools, heavy equipment (backhoes, bulldozers, bobcats, etc.) or other methods, as appropriate.	Large quantities of contaminated water generated from rainfall or fire control may be extremely difficult to contain, and may overflow or wash out dam. Dam may cause flooding or surrounding area, spreading contamination over a wider area. Dam material contaminated with acid or alkali will require proper waste disposal in compliance with government regulation.	Personnel or equipment constructing dams or dykes shall not work directly in the spill Personnel shall wear proper protective clothing for the acid or alkali spilled.



Recovery Actions

Once appropriate containment options have been implemented, the Incident Commander shall determine the most appropriate recovery actions to be implemented, based on the volume of the spill and type of recovery equipment or supplies available.

Typical recovery priorities include:

- Pumping of large quantities of free liquid into suitable containers.
- Recovery of small quantities of spilled liquid using natural or synthetic sorbent materials compatible with the acid or alkali material spilled

Detailed recovery options for corrosive liquid spills are presented in the following tables.



ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS				
	Solid Spills on Land							
Manual recovery using hand tools or equipment	Spill of solid material or contaminated soils is recovered manually using hand tools or equipment (e.g., bobcat, backhoe, etc.) based on size of spill. Material placed containers for storage.	Solid material is recovered quickly.	Storage container used must be compatible with acid or alkali spilled. Residue or dust from solid alkali material may contaminate equipment, requiring decontamination after recovery is completed.	Personnel shall wear proper protective clothing for the acid or alkali spilled				
	Small Liquid Spills							
Recovery of spilled material using sorbent	Sorbents are used to soak up small spills and are recovered into containers for storage; sorbents may include sand, dry earth, clay based materials or synthetic products specially formulated for spills of acid or alkali materials. Sorbent may be granular, powder, pads or rolls.	Corrosive spill may be cleaned up quickly with minimal effort.	Sorbent and storage containers used must be compatible with the acid or alkali spilled. Sorbent contaminated with acid or alkali will require proper waste disposal in compliance with government regulation. Use of large amounts of specialized sorbents may be expensive Contaminated sorbent may contaminate equipment used for recovery.	Personnel spreading or using sorbent shall not work directly in the spill. Combustible materials such as sawdust should not be used as a sorbent material. Metal drums should not be used with acids or alkalis, as hydrogen gas may be formed by contact of the acid with metal, posing a flammability hazard.				



ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS				
	Solid Spills on Land							
Recovery of large corrosive liquid spills or contaminated water using pumping equipment	Pumps and hoses are used to transfer acid or alkali material into containers for storage effective for spills where sufficient depth of corrosive liquid is present at the spill site to allow liquid pumping to be undertaken successfully.	Large quantities of spilled liquid material may be recovered effectively, without safety concerns related to chemical reaction during treatment.	Pumps, hoses, and storage containers must be compatible with the material spilled. Metal drums should not be used with acids or alkalis, as hydrogen gas may be formed by contact of the acid with metal, posing a flammability hazard. Sufficient depth of product must be present to allow effective product recovery. Treatment or adsorption of remaining product may still be required after as much product as possible is recovered.	Containment of product in area where sufficient depth of product can be maintained can aid recovery.				
Recovery of spilled material using sorbent	Readily available sorbents such as sand or dry earth are used to adsorb liquid. Effective in combination with recovery by pumping, to absorb remaining free liquid.	Residual liquid may be recovered effectively, without safety concerns related to chemical reaction during treatment.	Sorbent contaminated with acid or alkali will require proper waste disposal in compliance with government regulation. Contaminated sorbent may contaminate equipment used for recovery requiring decontamination after recovery is completed.	Personnel or equipment spreading or using sorbent shall not work directly in the spill.				



Treatment Actions

Once all feasible recovery operations have been implemented, treatment options may be considered by the Incident Commander, based on the nature and circumstances of the spill, and issues involved.

Treatment of spills of acidic or basic products may generate an exothermic reaction, producing large quantities of heat, as well as gaseous by-products which can cause air displacement (e.g. Carbon Dioxide), or materials which are toxic or corrosive in nature.

Additional hazards may also be present based on the product(s) involved in the treatment process for a general corrosive hazard description and refer to the appropriate SDS for the products being used.

The Incident Commander shall ensure that all hazards related to the treatment process have been identified and that all appropriate precautions have been implemented to protect the safety of workers prior to undertaking site activities.

Disposal Actions

All recovered spilled flammable liquids, treated materials, and contaminated debris must be disposed of properly, in compliance with appropriate government legislation.



Flammable Liquids

General Site Safety

The Incident Commander in charge of response to a flammable liquids spill shall ensure that:

- All ignition sources or potential ignition sources (e.g. sparks, flames, active non-explosion proof equipment) have been eliminated in the immediate vicinity of the spill.
- The spill site has been secured to prevent unauthorized access.
- An assessment of site safety hazards, including hazards associated with the product spilled, is conducted prior to undertaking site operations.
- Monitoring for concentrations of flammable vapours (and oxygen concentrations in confined spaces)
 is conducted using explosion proof equipment, as required, prior to allowing response personnel to
 enter the site.
- Wind monitoring is undertaken (i.e. using windsocks or other devices) on a continuous basis for outside spills.
- All enclosed or confined spaces are ventilated using explosion proof fans or air inductors to limit buildup of flammable vapours.
- Spill site evacuation routes have been clearly identified for response personnel and are kept clear of obstructions throughout the emergency.
- All workers undertaking site operations have been trained in proper spill response procedures and have been briefed as to the nature of the hazards present at the site, and the hazard of the product spilled, prior to commencing any containment and recovery activities.
- Appropriate protective clothing, safety, and monitoring equipment and supplies have been provided for use by spill response personnel, based on conditions at the site and that replacement clothing and equipment and supplies are made available, as required.
- Non-sparking tools are used in the immediate vicinity of the spill.
- Communications equipment (e.g. radios or handsets) used at the site is intrinsically safe.
- Appropriate first aid equipment is available, in sufficient quantities, based on the number of response personnel working at the site.
- Appropriate fire equipment is present on-site, in the event of ignition of the spilled material.
- No smoking is undertaken in the vicinity of the spill site.
- All spill response procedures are undertaken in a safe manner.
- All procedures or conditions identified which are immediately dangerous to life and health are suspended or corrected immediately.
- Any safety hazards or potential safety hazards not immediately dangerous to life and health are identified and corrected in a timely manner.
- Response personnel are provided with frequent rest breaks and work shifts do not exceed 16 hours in length.
- Additional response personnel are provided for prolonged response to emergencies.

Note: Pagers and Cellular telephones that are not intrinsically safe should not be used in the immediate vicinity of the spill.



Flammable Liquids, continued

All personnel responding to a flammable liquid spill shall ensure that:

- They understand the nature of the product hazards and have been briefed on site safety hazards.
- They undertake all procedures in a safe manner.
- They do not place themselves or other personnel at the site in danger.
- All identified safety hazards or potential safety hazards are reported to the personnel in charge of response to the emergency.
- All procedures or conditions immediately dangerous to life and health are suspended immediately.
- They request assistance from other personnel, as required, for tasks which require more than one person.

Worker Protection

All personnel responding to a flammable liquids spill shall ensure that:

- Proper protective clothing and equipment is worn, based on the nature of the flammable liquid involved, the size of the spill, and the hazards involved. Proper protective clothing and equipment could include, but not be limited to the following:
 - Gloves resistant to the flammable liquid spilled, safety boots, and flame-resistant coveralls (Nomex or other appropriate material).
 - Hardhats, safety goggles or full-face shields, as appropriate.
 - Hearing protection in high noise areas.
 - o Full or half face respirators for high concentrations of hydrocarbon vapours, with appropriate air purifying cartridges if sufficient oxygen is present in the atmosphere and the respirator can eliminate hydrocarbon vapours present.
 - Self-contained breathing apparatus (SCBA) for all oxygen deficient atmospheres or areas where hydrocarbon vapours cannot be eliminated by a respirator.
 - o Warm clothing for outside spills in cold weather.
- Personnel required to wear respirators or SCBA are clean shaven, to ensure a correct fit for the equipment.
- Proper emergency equipment is used in the vicinity of the spill to limit potential ignition sources.
 Proper emergency equipment could include, but not be limited to:
 - Explosion proof flashlights
 - Non-sparking tools
 - Intrinsically safe radios or handsets
- Proper maintained and calibrated monitoring equipment, as required, is used to assess the nature of safety hazards at the site. Proper monitoring equipment could include but not be limited to:
 - o flammability monitors
 - o chemical specific monitoring tubes (e.g. Gastec or Drager tubes) and pumps
 - o oxygen monitors.
- Heavily contaminated or damaged clothing is replaced, and malfunctioning equipment is removed from service.
- Response personnel do not walk in the spilled material.



The Incident Commander in charge of response to a flammable liquids spill shall ensure that:

- Response personnel understand the appropriate use and limitations of any specialized safety equipment used during work activities (e.g. flammable gas monitors, SCBA, etc.).
- Response personnel are monitored for signs of heat exhaustion, hypothermia, or other safety related conditions, as appropriate, based on the nature of the emergency.
- Facilities are provided on or near the site for emergency personnel to remove contaminated clothing or equipment and change into clean clothing prior to leaving the site.

Transfer of Flammable Liquids

During recovery operations involving transfer of flammable liquids personnel involved in the transfer operation shall ensure that:

- Proper pumping equipment compatible with flammable liquids is used for the transfer process.
- All appropriate equipment, including vacuum trucks and storage tanks are properly bonded or grounded, if required prior to transfer operations taking place.

Initial Response Actions

- Appropriate equipment shutdown and isolation is implemented, based on the location of the emergency.
- Injuries to personnel are identified, and appropriate basic first aid measures are implemented.
- All affected personnel are evacuated at least 25 metres from the vicinity of the spill site, if no fire is
 present, and all personnel who were working in the area are accounted for.
- Emergency notification is undertaken to the appropriate Control Room Unit Operator for the affected facility via any internal telephone.
 - Identify yourself and report the incident.
 - o Indicate the location, type, and nature of the spill.
 - Provide appropriate information (e.g. presence of fire, requirement for general evacuation, injuries etc.).
- For flammable liquids, ensure all ignition sources or potential ignition sources are eliminated at or near the spill site.
- The site is secured, and red ribbon is placed in the area to eliminate through traffic, indicate a hazard is present and prevent entry by unauthorized personnel.
- They remain at or near the site of the spill, if safe to do so, until training responders arrive at the site to take charge.

Note: The Shift Supervisor/Mining Coordinator is responsible for ensuring that appropriate company emergency plan activation procedures for flammable liquid spills fire, evacuation or employee injuries are implemented, and appropriate trained emergency response personnel are notified to respond to the emergency.

Spill containment or fire suppression procedures in initial response to an incident involving flammable liquids should be considered ONLY if the following conditions are met:

The flammable liquids spill or resulting fire is minor.

The spill can be contained SAFELY with the manpower and resources available.



General Response Actions

The Operations Group shall assume organized spill response duties and responsibilities at the affected facility.

Upon report of a flammable liquids spill, the appropriate Control Room Unit Operator shall:

- Use the Initial Emergency Report Form to record appropriate information received related to the reported spill.
- Notify the Shift Supervisor of the report.
- Sound the fire and evacuation alarm for the facility if general evacuation is required.
- If spill response assistance is required to control the fire, announce over the Public Address System "Spill Report", five times in succession, until all manpower is alerted.
- Relinquish control of the appropriate units to another operator and remain available to provide additional communications assistance to the Incident Commander and site responders throughout the incident.

Upon receipt of a fire alarm signal or "Spill Report" signal:

- Operations Group personnel for the facility (Shift Supervisor, Assistants, General, Bottom Ash and Water Treatment Operators, as appropriate) on all units shall stabilize their immediate job function and report for spill response duty.
- Personnel shall gather their protective equipment and shall report to the Control Room in appropriate protective gear. Personnel shall take further instruction from the Shift Supervisor upon arrival.
- The Shift Supervisor shall assume the role of designated Incident Commander for the emergency, unless or until relieved by personnel with greater authority in a major emergency.
- Once assembled, team organization will commence, related to leadership, manpower, spill response plan and deployment of resources.

Note: The Control Room Unit Operator may direct one of the responders directly to the spill scene to undertake on-site assessment of the situation.

Anyone reporting late to the control room must determine who group leaders are, and report to them before becoming involved in any spill response activities.

If relieved of the duties of Incident Commander in a major incident, the Shift Supervisor shall normally assume the role of Operations Section Chief for the incident and shall focus his or her efforts on coordinating operational efforts to bring the emergency under control.

During an emergency involving a spill of hazardous materials at a company facility, the Incident Commander for the affected facility shall ensure that:

- Injured personnel receive proper medical attention and proper internal and external medical aid response procedures has been initiated, for severe or life-threatening injuries.
- The site remains secured and is identified with red ribbon to prevent unauthorized access.
- Equipment is shutdown and isolated in a controlled manner to minimize further damage related to the incident.
- Valves are closed or vessels are isolated, if possible and as safe to do so, to stop additional leakage at the source.
- Additional resources are requested through the appropriate Control Room Unit Operator for the affected facility, as required.



- All personnel involved in a site evacuation are accounted for, and a search is conducted for any
 missing personnel, as safe to do so, in cooperation with on-site emergency agencies.
- Evacuation routes have been clearly identified for personnel responding to the spill, and these routes are kept clear of obstructions throughout the emergency.
- An incident assessment is conducted to assess issues related to the emergency, define objectives, and implement appropriate strategies to control the effects of the emergency.
- Emergency agencies, fire departments or contractors as appropriate, are notified and respond to the site if outside assistance is required to control the incident.
- Company assistance is provided to external response agencies, as requested, or required.
- Appropriate internal company personnel and departments are notified of the emergency and updated throughout the incident.
- Proper environmental reporting procedures have been implemented within the appropriate timeframes.
- Proper spill mitigation procedures are initiated, as required, for spills which occur as a result of a fire.
- An emergency organization is created on-site which effectively manages all company issues and resources related to the emergency and effectively coordinates with external emergency or government agencies.
- A command post with communications is established at or near the site to facilitate coordination of emergency activities between the company and external agencies.
- Inspection of all affected facilities is undertaken in a coordinated manner and damage to critical components or facilities is repaired after spill response operations are completed and before facility Startup.
- Other necessary actions are undertaken to control the incident, or effects of the incident.

Note: If the flammable liquids spill is large, and beyond the internal capabilities of the company to respond to the emergency, appropriate spill response contractors shall be contacted to assist in the response to the incident.

Detailed advice on containment, recovery and clean-up may also be obtained from the supplier of the flammable liquids involved

(See site-specific MERP information for a listing of Spill Response Contractors, and Supplier emergency numbers).



Containment Actions

The Incident Commander for the flammable liquids spill shall determine the most appropriate containment actions to be implemented, based on the assessment of the nature and circumstances of the incident, and the issues involved. General containment priorities could include:

- Stopping leaks in small containers such as damaged bottles, pails, or drums.
- Blocking manholes, sewers outlets or doorways to prevent entry of the spill into sewers, waterways, basements, or other areas where flammable liquids can migrate from the original spill site or cause a buildup of explosive vapours in a confined space.
- Confining the spill to the smallest area possible on land or in a building.
- Containing flammable liquid spills prior to entry into any waterbodies such as ditches, lakes, rivers, creeks, or streams.
- Containing flammable liquid spills on water using appropriate water containment options, based on the nature and circumstances of the spill.



Detailed containment actions for flammable liquids are presented in the following tables:

ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS			
	Small Containers (Bottles, Pails, Drums)						
Change orientation of container	Container is moved or tilted to stop leak.	Remaining liquid in container is quickly contained.	Container may leak from other locations such as caps, bungs or seals if placed on its side when severely damaged.	Proper protective clothing for flammable liquids should be used. Container should be safely			
			Containers may spring additional leaks from movement. Used as a temporary containment	propped or held in place to ensure it does not fall over or move.			
			measure only.				
Plug hole in container	Holes in container are plugged using a mechanical plug (wood, rubber, etc.), patch or plugging paste (e.g. Plug n Dike or similar material).	Remaining liquid in container is quickly contained.	Plug must be made secure in the hole to ensure it does not fall out. Plug may not seal effectively. Used as a temporary containment measure only.	Material used to plug or patch hole must be compatible with the flammable liquid spilled (some plastics or rubbers may dissolve in contact with flammable liquid).			
Place leaking container in overpack drum (lined specialized 250 litre chemical recovery overpack drums may be purchased for use)	Leaking bottle, pail or drum is placed in another container to contain spilled material.	Remaining liquid can be contained safely for extended period prior to disposal.	ignition sources or sparks could ignite liquid during transfer process	Proper protective clothing for flammable liquids should be used. Caution should be used moving damaged container to ensure container does not rupture and they do not come in contact with leaking material.			



ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS		
	Small Containers (Bottles, Pails, Drums) cont'd					
Transfer liquid to new container	Remaining liquid is transferred to new container for storage.	Remaining liquid can be contained safely for extended period prior to disposal.	New container must be compatible with flammable liquid spilled. Any transfer equipment used must be compatible for use with flammable liquids. All appropriate transfer equipment should be properly grounded if required.	Proper protective clothing for flammable liquids should be used.		
		Containment or	n Land			
Construct berm or dyke to contain spill	A berm or dyke is constructed using sand, earth, sandbags snow or ice or other suitable material to contain flammable liquid and prevent further spill movement. Effectively contains spill on level ground or floor.	Berm can be constructed using readily available material. Berm can be constructed using hand tools, heavy equipment (backhoes, bulldozers, bobcats, etc.) or other methods, as appropriate.	Large berms may require significant time and effort to construct. Spill may travel under berm or dyke built on porous soil and penetrate downward to groundwater. Berm material contaminated with flammable liquid will require proper waste disposal in compliance with government regulation.	Personnel or equipment constructing berms shall not work directly in the spill. Proper protective clothing for flammable liquids should be used.		



ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS	
	Containment on Land cont'd				
Block manhole sewer outlet, or doorway	A manhole or sewer outlet or doorway is blocked with plywood, plastic, sand, earth, or other suitable material.	Blocking manhole, sewer or doorway can limit spill travel and prevent a flammable spill from entering a sewer, waterway, basement, confined space, or other area where an explosive hazard may be created and where recovery may be difficult.	Material used must be compatible with flammable liquid spilled. Material used to block manholes, sewers or doorways contaminated with flammable liquid will require proper disposal as per government regulation.	Personnel or equipment blocking manholes, sewers or doorways shall not work directly in the spill. Proper protective clothing for flammable liquids should be used.	
Construct trench or bell hole to contain spill	A trench or bell hole is dug into soil to allow flammable liquid material to flow into hole or trench for recovery. Effective for containment of spills on sloping ground. Can be used to intercept spilled material prior to entering watercourse.	Accumulation of flammable liquid material in hole aids recovery. Trench or hole can be constructed using hand tools or heavy equipment (backhoes, track hoes, etc.).	Construction of trench in porous soil (e.g., sand) can make it easier for flammable liquid to penetrate into soil and possibly contaminate groundwater (petroleum or solvent resistant liner may be required in trench or bell hole to prevent soil penetration).	Personnel or equipment constructing holes or trenches shall not work directly in the spill. Proper protective clothing for flammable liquids should be used.	



ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS
		Containment o	n Water	
Construct a dam or dyke to contain spill	A dam or dyke is constructed using sand, earth, sandbags snow, ice, or other suitable material to contain liquid, preventing spill movement into a waterbody. Effective for containment in small creeks or streams or dry intermittent creek or stream beds.	Berm can be constructed using readily available material. Berm can be constructed using hand tools, heavy equipment (backhoes, bulldozers, bobcats, etc.) or other methods, as appropriate.	Large quantities of flammable liquid may be extremely difficult to contain and may overflow or wash out dam. Dam may cause and backup of water in creek or stream, causing flooding of surrounding area, spreading contamination over a wider area. Dam material contaminated with flammable liquid requires proper waste disposal in compliance with government regulation.	Personnel or equipment constructing dams or dykes shall not work directly in the spill. Proper protective clothing for flammable liquids should be used by workers constructing dams or dykes.



ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS		
	Containment on Water cont'd					
Construct an inverted weir to contain spill	An inverted weir is constructed consisting of a culvert, culverts, pipes, or other tubing placed at an angle into a berm, with the lower end of the culvert below the surface of water contained inside the berm. Effective in flowing creeks or streams to prevent flooding from damming the watercourse.	Flammable liquids floating on top of water is contained inside the inverted weir, while water in the weir is allowed to flow freely. Weir may be constructed using readily available materials to quickly contain the spill. Inverted weir can be constructed using hand tools or heavy equipment (backhoes, track hoes, etc.).	Difficult to construct in large rivers or fast flowing waterbodies. Soluble fractions of the flammable liquid may dissolve in the water, requiring monitoring on the flowing water to ensure no environmental impacts have occurred. Inverted weirs are not effective for containment of flammable liquids which sink in water or are emulsified in water. Dam material contaminated with flammable liquid requires proper waste disposal as per government regulation.	Personnel or equipment constructing inverted weirs shall not work directly in the spill. Level of water should not fall below the inlet of the weir, to ensure that flammable liquids floating on the water do not escape the weir.		
Construct a filter fence to contain spill	A filter fence is constructed by placing chicken wire into a creek or stream and placing sorbent pads or boom or straw bales on the upstream side of the chicken wire, to absorb flammable liquids which are flowing with the current. Effective for containment of thin layers of flammable liquids on slow moving creeks or streams.	Filter fence may be constructed using readily available materials to quickly contain the spill. Filter fence will support straw bales or fragile sorbent boom or pad material, preventing it from breaking up or tearing. Sorbents may be layered in front of boom to provide additional absorption capacity to aid in containment.	Not effective in fast flowing waterbodies, as flammable liquid will be swept under the filter fence, or filter fence may be swept away. Not effective for containment of large spills of flammable liquids. Straw or other sorbent material contaminated with flammable liquid requires proper waste disposal in compliance with government regulation.	Personnel or equipment constructing filter fences shall not work directly in the spill.		



ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS
		Containment on Water con	it'd	
Use sorbent boom to contain flammable liquid spills floating on water	Log-like floating sections of boom made of sorbent is used to contain flammable liquids floating on top of the water.	Can effectively contain spills on slower moving or stagnant waterbodies to allow recovery to proceed. Specialized containment equipment can facilitate recovery of the flammable liquid on water. Containment boom can also be used to protect sensitive areas from contamination if the spill cannot be	Sorbent boom will break easily under constant hydrostatic pressure, making it of limited use in responding to spills on fast flowing waterbodies. Sorbent material contaminated with flammable liquid requires proper waste disposal in compliance with	Containment boom must be set up downstream of the leading edge of the spill to effectively contain the spill.
Use rigid containment boom to contain flammable liquid spills floating on water	Log-like floating sections of boom made of sorbent is used to contain flammable liquids floating on top of the water.	contained and recovered effectively. Can effectively contain spills on faster moving water (e.g., creeks, rivers) and on lakes to allow recovery to proceed. Specialized containment equipment can facilitate recovery of the flammable liquid on water.	government regulation. Other specialized equipment may also need to be deployed with the containment boom to hold it in place. Boats and trained personnel may need to be used to effectively deploy equipment into large bodies of water o wide rivers. Deployment may be time consuming.	Containment boom must be set up downstream of the leading edge of the spill to effectively contain the spill. Containment boom can also be used to protect sensitive areas from contamination.



Recovery Actions

Once appropriate containment options have been implemented, the Incident Commander shall determine the most appropriate recovery actions to be implemented, based on the volume of the spill and type of recovery equipment, or supplies available. Typical recovery priorities include:

- Pumping of large quantities of free liquid into suitable containers.
- Skimming of small quantities of free liquid floating on the water surface, for recovery into suitable containers.
- Recovery of small quantities of spilled liquid using natural or synthetic sorbent materials compatible with the flammable liquid spilled.

Detailed recovery options for flammable liquid spills are presented in the following tables.



ACTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS			
	Small Spills on Land						
Recovery of spilled material using sorbent	Sorbents are used to soak up small spills and are recovered into containers for storage. Sorbents may include sand, dry earth, clay based materials or synthetic products specially formulated for flammable liquids. Sorbent may be granular, powder, pads, or rolls.	Flammable liquid spill may be cleaned up quickly with minimal effort. Synthetic sorbents for flammable liquids will pick up the spilled material without picking up water.	Sorbent contaminated with flammable liquids will require proper waste disposal in compliance with government regulation. Use of large amounts of specialized sorbents may be expensive.	Personnel spreading or using sorbent shall not work directly in the spill.			
		Spills on Land or V	Vater				
Recovery of flammable liquid spills using pumping equipment	Pumps and hoses, or a vacuum truck are used to transfer large quantities of flammable liquid for storage.	Effective for land spills where sufficient depth of flammable liquid is present at the spill site to allow liquid pumping to be undertaken successfully.	Pumps, hoses, and storage containers must be compatible with the material spilled. Sufficient depth of product must be present to allow effective product recovery.	Containment of spilled material in an area where sufficient depth of product can be maintained can aid recovery.			
		Small Spills on W	ater				
Recovery of flammable liquid spills using pumping equipment cont'd		Effective for recovery of large quantities of spilled liquid on water.	Large amounts of water may be picked up with the flammable liquid, for spills on water, requiring large amounts of storage capacity.	All appropriate equipment used in the transfer process shall be adequately bonded or grounded to prevent buildup of static electricity, which can ignite spilled material.			



OPTION	DESCRIPTION	ADVANTAGE	DISADVANTAGE	COMMENTS		
	Small Spills on Water, cont'd					
Recovery of spilled material using sorbent	Sorbent boom or pads are to absorb spilled materials on water. Effective for removing small amounts of flammable liquids on water.	Residual liquid may be recovered effectively without concerns related to storage of large volumes of spill contaminated water.	Sorbent contaminated with flammable liquids will require proper waste disposal in compliance with government regulation.	Personnel or equipment spreading or using sorbent shall not work or walk directly in the spill.		
Recovery of flammable liquids on water using skimmer equipment	Flammable liquids floating on water are recovered using specially designed spill recovery equipment, which skims floating flammable liquids from the top of water.	Weir skimmers are effective for transferring large quantities of flammable liquids to storage from waterbodies or watercourses. Oleophilic disc or drum skimmers only remove the flammable liquids, without picking up water and are effective for removing small quantities of flammable liquids from waterbodies or watercourses.	Weir skimmers remove large quantities of water with the flammable liquid, causing problems with storage of large quantities of spilled material and water. Oleophilic skimmers pick up flammable liquids much more slowly than weir skimmers. Response personnel must be trained in proper use and maintenance of the skimmers in waterbodies and rivers.	Both weir and oleophilic skimmers are available in company spill response trailers or from oil spill response spill contractors.		

Disposal Actions

All recovered spilled flammable liquids, treated materials, and contaminated debris must be disposed of properly, in compliance with appropriate government legislation.



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Cyanide Release

Potential Cyanide Release

An uncontrolled cyanide release may be caused by the following scenarios:

- Operator error and/or equipment failure leading to rupture of container tanks of solid sodium cyanide during off-loading and initial process solution mixing, and subsequent contact of cyanide with precipitation or other low to neutral pH water source;
- Operator error during process solution mixing that would introduce low to neutral pH water into the container tank;
- Temporary loss of process pH control systems; and
- Failure or leaks from tanks, pipelines, couplings, valves, or secondary containment systems; power outages and pump failures occurring simultaneously with malfunctions of pump interlocks and highlevel switches.

These scenarios require the immediate alarm stating, "CODE 1" and implementation of the MERP.

Emergency Response

Responders should not attempt to halt the release unless they've received the necessary training and can do so without risking their own safety.

For releases that cannot be safely stopped:

- Avoid contact with the released product.
- Assess the scene for personnel that may have been exposed to cyanide, whilst maintaining safety.
- Direct the personnel exposed to fresh air (if conscious).
- If personnel unconscious, ERT to respond and remove casualties to fresh air (using the appropriate PPE including SCBA).
- Remove contaminated clothing.
- Wash Cyanide residue from the casualties.
- Administer oxygen 15 lpm.
- Record baseline observations in preparation for communications with Emergency Medical Services (EMS).
- Remain with the casualty and provide appropriate support and treatment.
- The Incident Management Team (IMT) or delegate to contact EMS via 911 and request response to suspected cyanide exposure giving the contact details of the contract physician on-call identifying the availability of a CYANOKIT. EMS to request the approval for the attending paramedics to administer the CYANOKIT when they arrive on-site from the on-call physician.
- The IMT or delegate to request CYANOKIT be collected from the site first aid room transported to the location of casualties.
- The IMT or delegate to notify security to allow ambulance through entrance gate.
- Delegate someone to meet EMS and direct to location of the casualty.

Note: Never leave the casualty alone. Provide support and appropriate assistance to casualty until emergency help arrives.



The Incident Management Team (IMT) is responsible for ensuring that appropriate company emergency plan activation procedures for cyanide releases, evacuation or employee injuries are implemented, and appropriate trained emergency response personnel are notified to respond to the emergency.

General Site Safety

The Incident Commander in charge of response to a cyanide spill shall ensure that:

- The spill site has been secured to prevent unauthorized access.
- An assessment of site safety hazards, including hazards associated with the product spilled, is conducted prior to undertaking site operations.
- Monitoring for concentrations of toxic vapours is conducted, as required, prior to allowing response personnel to enter the site.
- Wind monitoring is undertaken (i.e. using windsocks or other devices) on a continuous basis for outside spills.
- All enclosed spaces are ventilated in an appropriate manner to limit buildup of toxic or corrosive vapours.
- Spill site evacuation routes have been clearly identified for response personnel and are kept clear of obstructions throughout the emergency.
- All workers undertaking site operations have been trained in proper spill response procedures and have been briefed as to the nature of the hazards present at the site, and the hazard of the product spilled, prior to commencing any containment, recovery, and treatment activities.
- Appropriate protective clothing, safety, monitoring and response equipment and supplies have been
 provided for use by spill response personnel, based on conditions at the site and that replacement
 clothing and equipment and supplies are made available, as required.
- Appropriate first aid equipment is available, in sufficient quantities, based on the number of response personnel working at the site.
- All spill response procedures are undertaken in a safe manner.
- All procedures or conditions identified which are immediately dangerous to life and health are suspended or corrected immediately.
- Any safety hazards or potential safety hazards not immediately dangerous to life and health are identified and corrected in a timely manner.
- Response personnel are provided with frequent rest breaks and work shifts do not exceed 16 hours in length.
- Additional response personnel are provided for prolonged response to emergencies.

All personnel responding to a cyanide spill shall ensure that:

- They understand the nature of the product hazards and have been briefed on site safety hazards.
- They do not place themselves or other personnel at the site in danger.
- All identified safety hazards or potential safety hazards are reported to the personnel in charge of response to the emergency.
- All procedures or conditions immediately dangerous to life and health are suspended immediately.
- They request assistance from other personnel, as required, for tasks which require more than one person.



Worker Protection

All personnel responding to a cyanide spill shall ensure that:

Proper protective clothing and equipment is worn, based on the nature of the acidic or alkali chemical of product, size of the spill and the hazards involved. Proper protective clothing and equipment could include, but not be limited to the following:

- Gloves, safety boots, chemical resistant coveralls and/or full body or total containment suits which are acid or alkali resistant.
- Hardhats, safety goggles or full-face shields.
- Hearing protection in high noise areas.
- Full or half face respirators, with appropriate air purifying cartridges if sufficient oxygen is present in the atmosphere and the respirator can eliminate toxic vapours present.
- Self-contained breathing apparatus (SCBA) for all oxygen deficient atmospheres or areas where toxic vapours cannot be eliminated by a respirator.
- · Warm clothing for outside spills in cold weather.
- Personnel required to wear respirators or SCBA are clean shaven, to ensure a correct fit for the equipment.
- Proper maintained and calibrated monitoring equipment, as required, is used to assess the nature of safety hazards at the site. Proper monitoring equipment could include but not be limited to:
 - o Toxic gas monitors.
 - o Chemical specific monitoring tubes (e.g. Gastec or Drager tubes) and pumps.
 - o Oxygen monitors.
- Heavily contaminated or damaged clothing is replaced, and malfunctioning equipment is removed from service.
- Response personnel do not walk in the spilled material.

The Incident Commander in charge of response to a corrosives spill shall ensure that:

- Response personnel understand the appropriate use and limitations of any specialized safety equipment used during work activities (e.g. toxic gas monitors, SCBA, etc.)
- Response personnel are monitored for signs of heat exhaustion, hypothermia, or other safety related conditions, as appropriate, based on the nature of the emergency.
- Facilities are provided on or near the site for emergency personnel to remove contaminated clothing or equipment and change into clean clothing prior to leaving the site.

General Response Actions

The Operations Group shall assume organized spill response duties and responsibilities at the affected facility. Upon report of a cyanide spill, the appropriate Control Room Unit Operator shall:

- Use the Mine Incident Preliminary Reporting Form (A1) to record appropriate information received related to the reported spill.
- Notify the Shift Supervisor of the report.
- Sound the fire and evacuation alarm for the facility if general evacuation is required.



- If spill response assistance is required to control the fire, announce over the Public Address System "Spill Report", five times in succession, until all manpower is alerted.
- Relinquish control of the appropriate units to another operator and remain available to provide additional communications assistance to the Incident Commander and site responders throughout the incident.

Upon receipt of a fire alarm signal or "Spill Report" signal:

- Operations Group personnel for the facility (Shift Supervisor, Assistants, General, Bottom Ash and Water Treatment Operators, as appropriate) on all units shall stabilize their immediate job function and report for spill response duty.
- Personnel shall gather their protective equipment and shall report to the Control Room in appropriate protective gear. Personnel shall take further instruction from the Shift Supervisor upon arrival.
- The Shift Supervisor shall assume the role of designated Incident Commander for the emergency, unless or until relieved by personnel with greater authority in a major emergency.
- Once assembled, team organization will commence, related to leadership, manpower, spill response plan and deployment of resources.

Note: The Incident Commander may direct one of the responders directly to the spill scene to undertake onsite assessment of the situation.

Anyone reporting late must determine who group leaders are, and report to them before becoming involved in any spill response activities.

If relieved of the duties of Incident Commander in a major incident, the Shift Supervisor shall normally assume the role of Operations Section Chief for the incident and shall focus his or her efforts on coordinating operational efforts to bring the emergency under control.

During an emergency involving a spill of hazardous materials at a company facility, the Incident Commander for the affected facility shall ensure that:

- Injured personnel receive proper medical attention and proper internal and external medical aid response procedures has been initiated, for severe or life-threatening injuries.
- The site remains secured and is identified with red ribbon to prevent unauthorized access.
- Equipment is shutdown and isolated in a controlled manner to minimize further damage related to the incident.
- Valves are closed or vessels are isolated, if possible and as safe to do so, to stop additional leakage at the source.
- Additional resources are requested through the appropriate IMT for the affected facility, as required.
- All personnel involved in a site evacuation are accounted for, and a search is conducted for any
 missing personnel, as safe to do so, in cooperation with on-site emergency agencies.
- Evacuation routes have been clearly identified for personnel responding to the spill, and these routes are kept clear of obstructions throughout the emergency.
- An incident assessment is conducted to assess issues related to the emergency, define objectives, and implement appropriate strategies to control the effects of the emergency.
- Emergency agencies, fire departments or contractors as appropriate, are notified and respond to the site if outside assistance is required to control the incident.
- Company assistance is provided to external response agencies, as requested, or required.
- Appropriate internal company personnel and departments are notified of the emergency and updated throughout the incident.



- Proper environmental reporting procedures have been implemented within the appropriate timeframes.
- Proper spill mitigation procedures are initiated, as required, for spills which occur as a result of a fire.
- An emergency organization is created on-site which effectively manages all company issues and resources related to the emergency and effectively coordinates with external emergency or government agencies.
- A command post with communications is established at or near the site to facilitate coordination of emergency activities between the company and external agencies.
- Inspection of all affected facilities is undertaken in a coordinated manner and damage to critical components or facilities is repaired after spill response operations are completed and before facility startup.
- Other necessary actions are undertaken to control the incident, or effects of the incident.

Note: If the spill is large, and beyond the internal capabilities of the company to respond to the emergency, appropriate spill response contractors shall be contacted to assist in the response to the incident.

Detailed advice on containment, recovery and clean-up may also be obtained from the supplier of the corrosive material involved.

(See Area Specific Information for a listing of Spill Response and HAZMAT service providers)

Containment Actions

The Incident Commander for the spill shall determine the most appropriate containment actions to be implemented, based on the assessment of the nature and circumstances of the incident, and the issues involved. General containment priorities could include:

- Stopping leaks in small containers such as damaged bottles, pails, or drums.
- Blocking manholes, sewers outlets or doorways to prevent entry of the spill into sewers, waterways, basements, or other areas where corrosives can migrate from the original spill site or cause a buildup of corrosive vapours in a confined space.

Sodium Cyanide

Solid (Sodium or Potassium) Cyanide

Transportation Emergency Information

Sodium and potassium cyanide are very poisonous white solids, shipped as briquettes or granules. **Never transport or store these cyanides with acids or food products.** If proper procedures are followed, most spills can be handled safely and easily.

The following is intended to provide guidance during a sodium or potassium cyanide transportation emergency.

Immediately protect people and the environment

- Keep people away to prevent spreading the spill. Prevent people, cars, etc., from contacting spillage and scattering cyanide. Block traffic if necessary.
- Cyanide spills should be cleaned up promptly to minimize exposure to people and the environment.
- Avoid overreaction that can occur because "cyanide" is involved.
 Evacuation should not be necessary, unless acid is also spilled
 and comes in contact with the cyanide (acid from another truck, a
 vehicle battery, etc.). Cyanide contact with acids will release large
 amounts of highly toxic hydrogen cyanide (HCN) gas. As with all
 chemical spills, approach the scene from upwind to determine what
 chemicals are involved. Gasoline, diesel, or motor oils in contact
 with sodium or potassium cyanide will normally produce small
 amounts of HCN gas.
- In rain or wet conditions, small amounts of HCN gas will be released. Cover spillage with tarp, plastic, etc., to prevent dissolving cyanide. Contain the spill using dirt, stones, wood, etc., to keep cyanide away from drainage ditches, lakes, ponds, or streams. Direct water streams away from spills. While dangerous levels of HCN gas can develop in enclosed spaces, sodium and potassium cyanide solutions in the open air can usually be handled by standing upwind during cleanup.
- Sodium and potassium cyanide are not flammable. In case of fire, avoid or minimize water use, if the resulting solution is not contained, to prevent cyanide runoff. It may be better to let the fire burn itself out.

Call the following:

- Local emergency response authorities.
- Chemours Emergency Cyanide Hotline, COLLECT, (901) 357-1546.
 Chemours will provide emergency assistance and cleanup guidance.
- CHEMTREC®, (800) 424-9300 or in Canada, CANUTEC, (613) 996-6666.
- · Your terminal.

Note: Even if no spillage, call the Chemours Hotline number as soon as possible after an accident or other situation when police or news media are involved.

Cleanup Procedures

- Place as much of the spilled material as possible into a container suitable for proper disposal.
- Decontamination of an area, after cleaning up as much cyanide as possible, can be accomplished with hypochlorite solution or hydrogen peroxide. See Cyanide Destruction at the end of the Chemours Sodium Cyanide Properties, Uses, Storage, and Handling bulletin for detailed explanation.

Observe these precautions when handling cyanide:

- Work upwind, and avoid inhaling dust, mist, or fumes from solid or solution cyanides or HCN gas.
- Keep cyanide off skin and clothing to prevent skin absorption; promptly wash any contacted area with water. Wear chemical goggles and rubber gloves.

Preliminary First Aid

- · Call for nearby help
- · Move victim to fresh air.
- · Remove contaminated clothing.
- · Quickly determine the victim's condition.
- Send for trained medical help (to administer first aid and proper medical treatment).
- Symptoms of low level cyanide poisoning include reddening of eyes, nausea, and headache. If these occur, retreat upwind and examine clothing, skin, and inside your shoes to confirm cyanide is not present.

Make the above information available to others at the spill site.

I have carefully reviewed and understand the above information. \square Yes \square No (If you do not understand, review any questions with a shipping point supervisor before signing.)

igned (Driver)

Date

This document is to be read and understood by the driver. Keep it with the Bill of Lading and Safety Data Sheet. A copy will also be kept with the shipping point's records.

For more information, visit mining.chemours.com

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Dams

Emergency Response Protocols

The Emergency Preparedness and Response Plan (MERP) should be activated if observed conditions indicate an imminent facility-related safety concern (i.e., loss of impounded water containment). Activation of the MERP is specified within the TARP (typically within the Moderate- and High-Risk TARP Classifications) but may also be triggered by the EOR, Facility Qualified Person, or designates thereof in response to observations indicating an imminent hazard, even if QPOs are not contravened.

The key response protocols of the MERP are summarized by the list of actions below:

- If imminent threat to people or the environment, call "CODE 1, CODE 1, CODE 1" over the site radio system to activate the BW Gold Mine Emergency Response protocols, as outlined in the BW Gold Mine Emergency Activation Procedure.
- Mine Emergency Response Plan enacted with triage of emergency level and where required, introduction
 of an incident command team.
- If necessary, evacuate all personnel from applicable Safety Exclusion Zones:
 - Water Management Pond.
 - Central Diversion System (CDS)
 - Davidson Creek Division Berms (DCDS)
 - o Main Dam C
 - Interim Environmental Control Dam (IECD) (Need to immediately evacuate downstream Davidson Creek work areas)
 - Lake 15-16 (Need to immediately evacuate the Davidson Creek area between Lake 15-16 and the Central Water Diversion.)

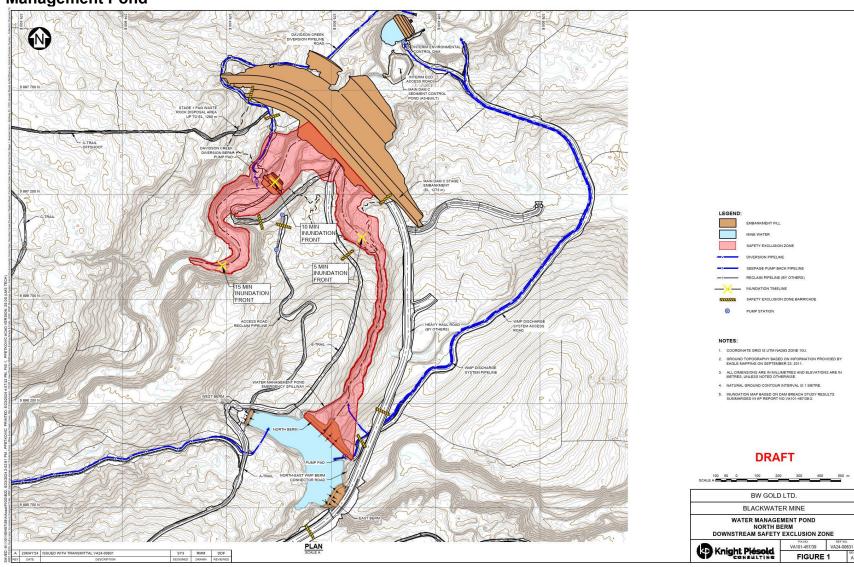
Note: Refer to the Downstream Safety Exclusion Zones section document to view the maps mentioned above.

- Maintain closed all areas within the applicable Safety Exclusion Zone and ensure barricades prevent all
 personnel from entering the closure area.
- Notification to EOR of situation in accordance with TARP.
- Notification to BW Gold General Manager in accordance with TARP.
- BW Gold General Manager to enact appropriate Mine Emergency Response Protocols to respond to situation.
- Notification to BW Gold Environmental/Regulatory Manager of situation.
- Removal of all mobile assets from areas downstream, where safe to do so, as directed by the Facilities Qualified Person.
- Perform incident investigation to determine gaps in response to incident.
- Review OMS module and update according to incident investigation outcomes.



Downstream Safety Exclusion Zones

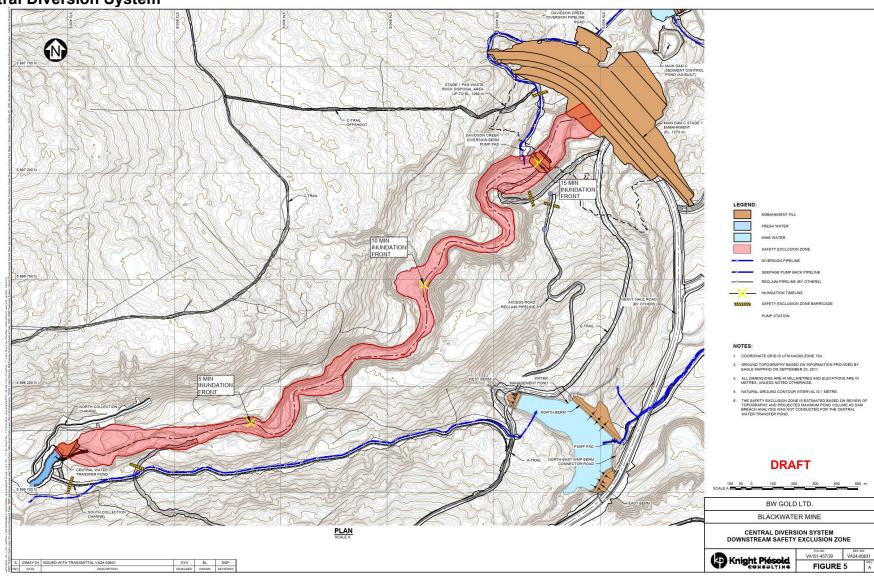
Water Management Pond



Section 4: Emergency Response Guidelines



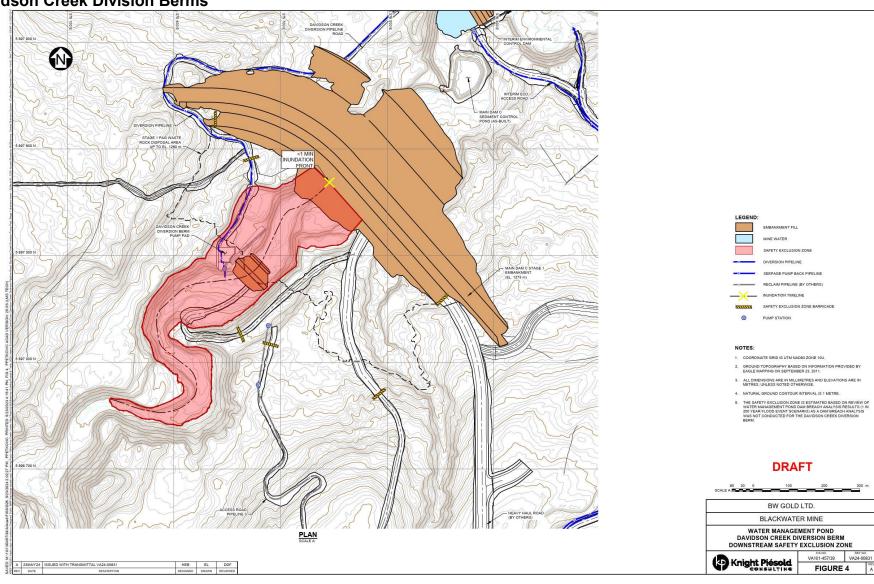
Dams, continued Downstream Safety Exclusion Zones, continued Central Diversion System



Section 4: Emergency Response Guidelines



Dams, continued Downstream Safety Exclusion Zones, continued Davidson Creek Division Berms



Section 4: Emergency Response Guidelines



Dams, continued Downstream Safety Exclusion Zones, continued Interim Environmental Control Dam (IECD)

If the Dam Breach were to occur, proper notification would be as outlined in the Internal Notification Flowchart, Section 1.



Dam Breach Inundation Zones

In the event of a flood or unlikely MDC breach/failure a significant inundation event could occur. The potential impacts of such an event would depend on the severity, however, such an event could result in a large increase in flows reporting to the Fresh Water Reservoir, Davidson Creek downstream environment and beyond.

To assess the potential impacts of a hypothetical dam failure and to provide guidance for emergency response planning, a dam breach study was completed by Knight Piesold (KP), Blackwater Gold Project Tailings Storage Facility – Dam Breach Study Up To Crest EL. 1,283 masl, August 13, 2024 (KP Dam Breach Study). The potential inundation extent subsequent to such a hypothetical failure are provided in Appendix C - KP Dam Breach Study and are based on a "flood induced breach" and represents the anticipated maximum extents of the scenarios modelled.

It should be noted that the lead up to a dam breach may take several hours or even a day, as such, the lead up to and possible timing of two potential breach scenarios are broadly discussed below. They are provided as a guide only as actual timing will depend upon severity and facility monitoring during the event.

Flood Induced Scenario

This scenario is preceded with a significant rain event, and it occurs during such rain event. If the population downstream is flooded during such natural event, they may have moved to higher ground, but if the flooding is not too severe, they may choose to stay and tend to their properties. This preceding stage may take several hours or even a day. The following should be considered:

- Monitoring the spillway and of the water levels in the TSF are key for such weather conditions.
- Should a spillway blockage occur, an alert issued to mine personnel may be required with continued intensified monitoring of available freeboard in the TSF. This phase can take several hours.
- If the freeboard is lost and overtopping of the dam occurs, this still does not mean the dam would breach, but it likely requires a warning to be issued to put everyone downstream on high alert (mine personnel and population at risk).
- As overtopping continues, the erosion of the dam may commence. This phase can also take up to several
 hours, but it can also develop rapidly depending on the specific conditions of the dam itself. An evacuation
 order should likely be issued during this period, especially if it is noted that this phase is developing fast.
- When this erosion cuts through the dam and reaches the upstream side of the dam crest, this will typically result in a much faster progression thereafter, as a substantial volume of water would start discharging through the opening at this point. This condition is typically associated with a point of no return and a partial or full failure of the dam would be imminent. The development of this phase can be very fast and less than an hour. It may be too late to issue the evacuation order at this stage of the failure development.
- The arrival times indicated on the maps in Appendix C KP Dam Breach are relative to this point in time
 when substantial outflow of the stored volumes begins. All of the preceding development is considered
 to be an initiation time, which can play into the early warning system.

Fair Weather Scenario

Instrumentation monitoring and timely (i.e., real-time) investigation into any identified anomalies is key to detecting early signs and warnings of potentially developing Fair Weather failure scenarios. This scenario is not preceded by an extreme weather event, but may be preceded by an extreme earthquake, or some other significant event at the dam (e.g., a slip that results in significant dam deformation or cracking of the dam). In that sense, there is no pre-warning due to a weather event lasting for several hours, but this failure may develop much more rapidly. The following should be considered:

Any event resulting in a significant visible change to the dam should likely trigger an alert to be sent out
to mine personnel. Similarly, detected and confirmed instrumentation anomalies that are known to have
a potential to lead to a failure should also put the mine personnel on alert. This phase can last for hours,
or even days, but it can also be very short.

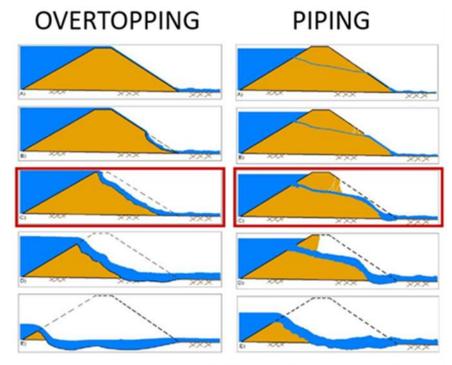


Dam Breach Inundation Zones, continued

- If a significant visible change to the dam occurs and seepage is detected, intensified monitoring of such seepage should commence immediately. This still does not mean the dam would breach and this seepage may continue for hours, but if an increase in seepage is identified, it likely requires a warning to be issued to put everyone downstream on high alert (mine personnel and population at risk).
- The seepage may quickly progress into a piping failure development, where the discharge through the pipe rapidly increases and the dam above the developing pipe collapses with significant outflow continuing over the collapsed section of the dam. An evacuation order should be issued early during this period, especially if it is noted that this phase is developing fast.
- The arrival times indicated on the maps in Appendix C KP Dam Breach are relative to this point in time when substantial outflow of the stored volume begins through the developing pipe and efforts to plug the piping location are ineffective.

In a way of observation, the breach flood wave in the Fair Weather scenario travels a little slower than in the Flood Induced scenario, because in the later, the channels are already flooded which aids in faster wave propagation.

For illustration purposes, the graphics below, in particular the red rectangles indicate the time when a significant breach outflow commences. The arrival times on the maps in Appendix C - KP Dam Breach are relative to this point in time; however, it is not possible to identify exactly when this would happen, or how long the preceding initiation phase would last.



U.S. Army Corps of Engineers (USACE). 2014. Using HEC-RAS for Dam Break Studies. Hydrologic Engineering Center, Technical Report TD-39.



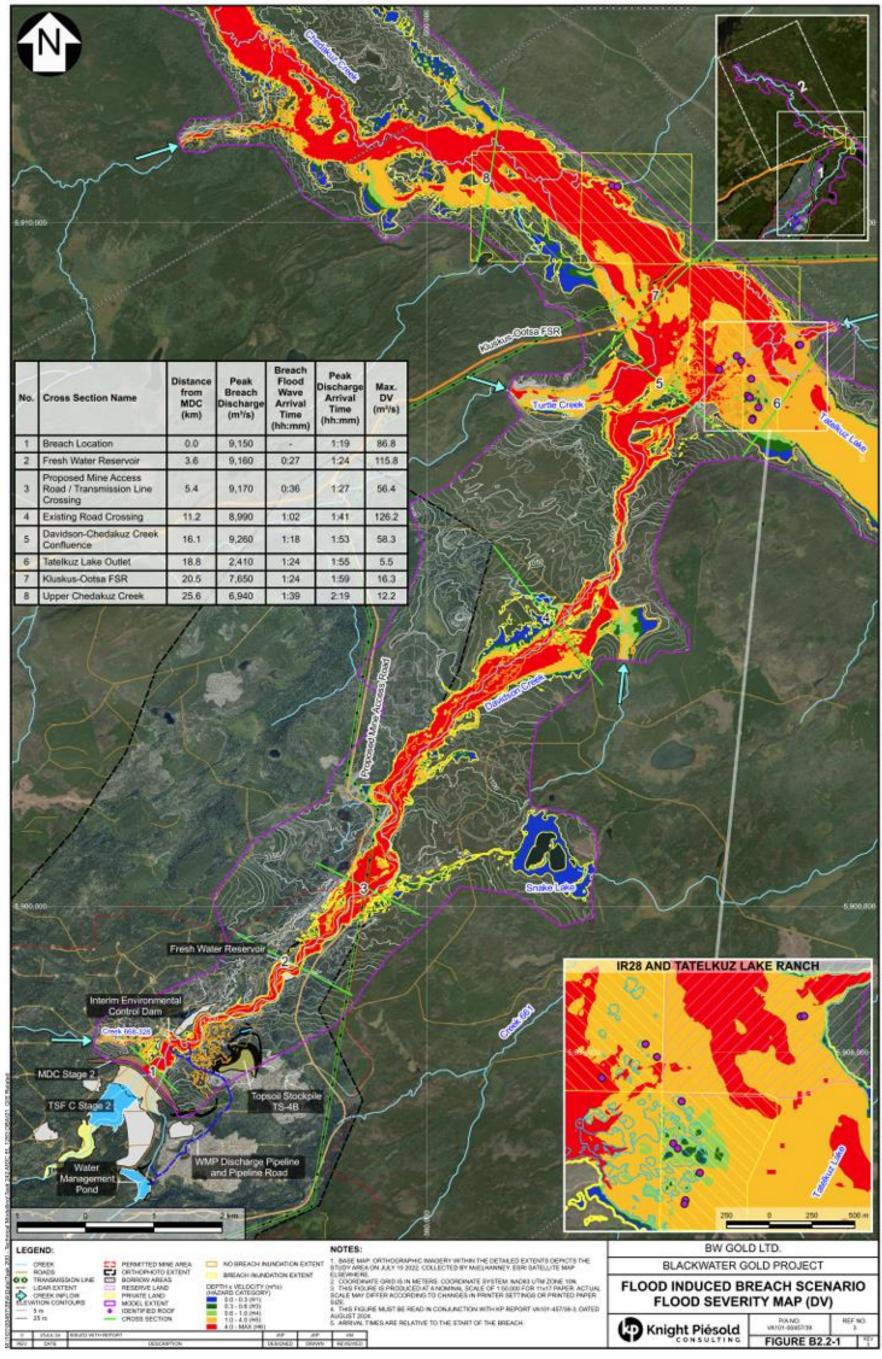
Hazard Vulnerability Classification Table

Table 6.1 Flood Hazard Curves – Vulnerability Thresholds and Classification Limits (Table 5-1 and Table 5-2 in Smith et al., 2014)

Hazard Vulnerability Classification	Description	Combined Classification Limit (m²/s)	Limiting Still Water Depth, D (m)	Limiting Velocity, V (m/s)
H1	Generally safe for vehicles, people, and buildings.	D × V ≤ 0.3	0.3	2.0
H2	Unsafe for small vehicles.	D × V ≤ 0.6	0.5	2.0
Н3	Unsafe for vehicles, children, and the elderly.	D × V ≤ 0.6	1.2	2.0
H4	Unsafe for vehicles and people.	D × V ≤ 1.0	2.0	2.0
H5	Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust buildings subject to failure.	D × V ≤ 4.0	4.0	4.0
Н6	Unsafe for vehicles and people. All building types considered vulnerable to failure.	D × V > 4.0	-	-

Flood Severity Maps

Map 1

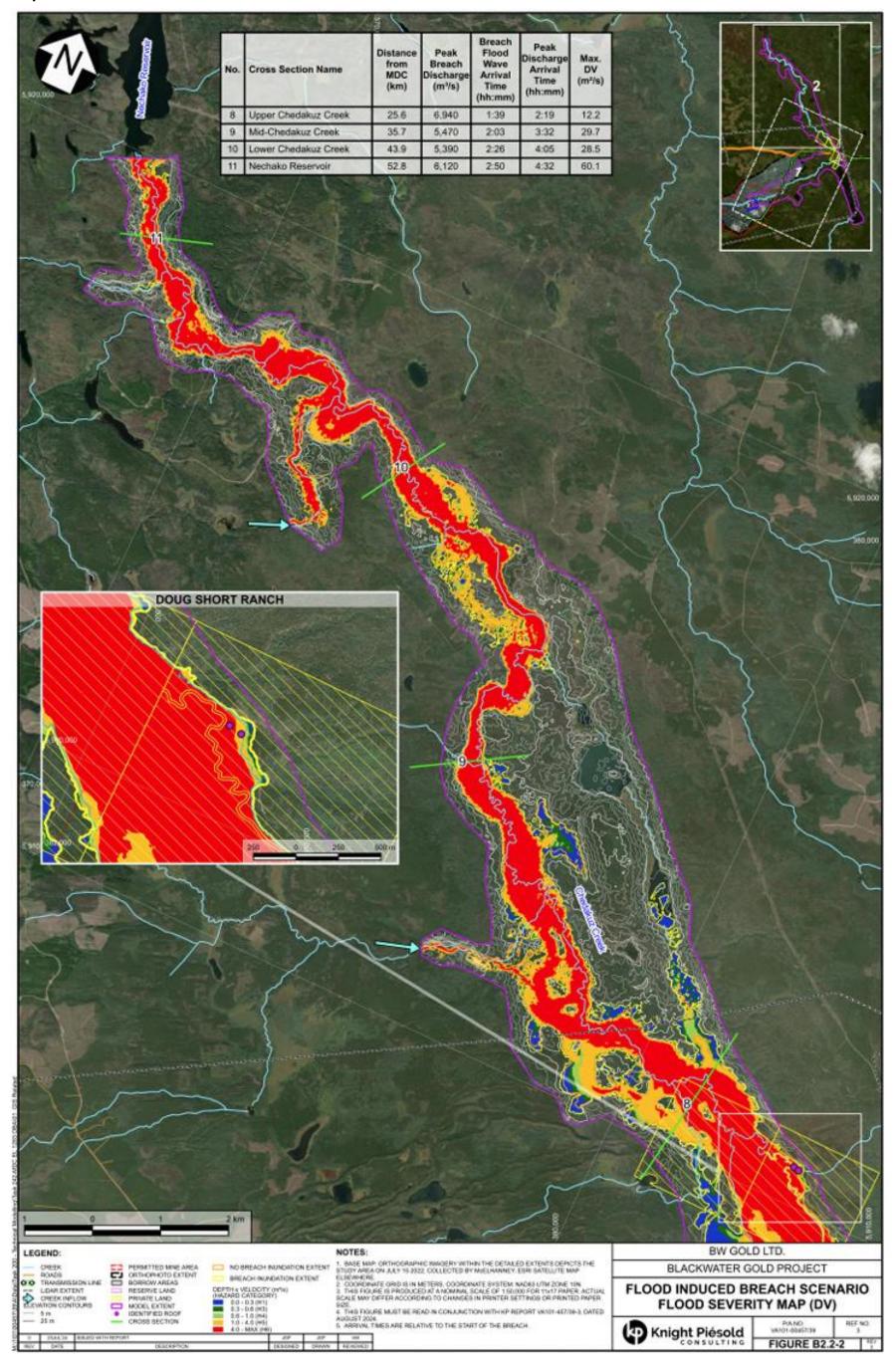


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Dams, continued Flood Severity Maps, continued

Map 2



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Dam Regulatory Requirements

Blackwater has included individual emergency preparedness and response plans for TSFs or dams within the MERP which has been submitted to EMLI. The MERP will be updated and resubmitted as and when required.

Health Safety Reclamation Code BC

- 10.6.10 (1) The manager must develop an Emergency Preparedness and Response Plan (EPRP) for potential TSF or dam failures that is included in the Mine Emergency Response Plan (MERP) required under section 3.7.1 (2) (c) and that contains the following minimum components:
 - (a) one or more maps showing potential impact zones and potentially affected infrastructure;
 - (b) emergency escalation levels detailing escalation triggers;
 - (c) stakeholders, potentially affected First Nations and community warnings and notifications;
 - (d) emergency responses and procedures including evacuation of mine personnel;
 - (e) roles, responsibilities and contact information of key personnel.



This section describes the actions required in response to hazardous conditions for different levels of emergency at the dam structures. The emergency levels are:

- Potential Flood Emergency when an abnormal condition is observed at the dam or the dam performs abnormally and, without swift and effective intervention, the condition could deteriorate and lead to dam breach.
- Imminent Flood Emergency when the dam has failed, or there is a severe abnormal condition that has a significant probability of leading to a dam breach.

Potential Flood Emergency

- Localized safety hazards related to personnel responding to, or attempting to mitigate the hazard being presented at the dam site, including but not limited to:
 - o Potential for drowning or being swept away, due to high flow.
 - Physical injury resulting from tripping or slipping, overexertion, health concerns resulting from pre-existing conditions or other health related or work conditions.
 - Electrocution, if powered equipment is submerged in water.
 - o Accidental conditions which result in the requirement for rescuing impacted personnel.
 - o Stand by evacuation notice of personal downstream.
- Local safety hazards to mobile equipment responding to the site, or attempting to mitigate the hazard, including but not limited to:
 - Washing away or damage due to flash flooding.
 - o Submersion of equipment working at or near the site.
- Potential localized flooding, from dam overflow, water back-up or other conditions where water threatens to overflow dam structure or reservoir, causing damage to local facilities, property, or equipment.
- Secondary emergency conditions resulting from localized flooding and damage, including fire or explosion, release of hazardous chemicals or flammable fuels, and electrical hazards.

Imminent Flood Emergency

- Widespread flooding, downstream of the control structure, causing flooding or flash flooding affecting
 mine personnel, mine, or pit structures, mine infrastructure, draglines and/or associated high voltage
 power cables, other mobile heavy equipment, or mine vehicles. Flooding or flash flooding may cause
 injury to people, and damage to facilities, property, equipment, wildlife, or the environment.
- Secondary emergency conditions resulting from flooding and damage, including fire or explosion, release of hazardous chemicals or flammable fuels, and electrical hazards.
- Significant risk to plant personnel and infrastructure, as well as the general public and other infrastructure (roads, railways, etc.).



Response Actions – Potential Flooding

If high inflows are experienced due to severe weather conditions, rapid snow melt or other factors, Operations staff shall:

- Keep abreast of forecasts and rainfall and runoff developments.
- Monitor rainfall intensity, to forecast potential inflow and level rise of within the dam and reservoir.
- Maintain frequent visual and instrument surveillance as appropriate, of the structural integrity of the control structure.

On indication of any storm damage or abnormal conditions resulting from high inflow, which may cause potential flooding, personnel shall immediately report the condition to the Fleet Control Foreman or designate directly.

Personnel who receive the notification of a potential flooding situation shall document the call, using the Initial Emergency Report Form, and shall:

- Notify the Mine Rescue Team Leader or designate and/or the Production Foreman or designate of the situation, as well as any other required personnel.
- The Mine Rescue representative or the Production Foreman or designate, will assume the role of the designated Incident Commander, as appropriate, based on the nature of what has occurred.

The Incident Commander, upon receiving the notification, shall:

- Assess the potential impacts of the situation on site operations and all stakeholders (public and private).
- Decide whether to undertake a general or partial evacuation of the mine site, based on current conditions.
- Put mining operations resources and reclamation resources (men/women and heavy equipment) on alert or mobilize mine resources or private contractor's personnel and equipment to the site, to repair damage, or undertake other actions, as required.
- Restrict access along roads threatened by a potential flood emergency. Refer to area inundation mapping for reference.
- Continue frequent monitoring of structures, embankments, and water levels for unusual or changed conditions. Implement appropriate additional response actions as necessary, based on changing conditions.
- See Water Levels Above Normal High Operating Level for additional response actions.

Water Levels Above Normal High Operating Level

In case of high inflows due to a storm or severe snow melt, or other conditions which cause dam levels to rise higher than the normal maximum operating level, Operations personnel shall follow these procedures:

- Initiate drawdown procedures, to bring levels below normal maximum operating levels.
- Inspect toe and abutments of the dam for any new seeps, an abnormal increase in quantities of seepage, or any indication of muddy / silty / cloudy flow.
- Inspect the dykes for slope instability, slumps, cracking, settlement and any new deformity or misalignment.
- If piezometers are present, check that piezometer readings to ensure they're within expected ranges.
- Consult with the company Dam Safety Engineer, as required.



If an imminent deteriorating condition is evident, or the high-water level is such that it could threaten the integrity or safety of the dam:

Immediately report the situation to the Fleet Control Foreman or designate directly.

Personnel who receive the notification of a potential flooding situation shall document the call, using the Initial Emergency Report Form, and shall:

- Notify the Mine Rescue Team Leader or designate and / or the Production Foreman or designate of the situation, as well as any other personnel required.
- The Mine Rescue representative or the Production Foreman or designate, will assume the role of the designated Incident Commander, as appropriate, based on the nature of what has occurred.

The Incident Commander, upon receiving the notification, shall:

- Decide, in consultation with the Dam Safety Engineer and the appropriate plant or mine management responsibility holder(s), whether to undertake a general or partial evacuation of the mine site, based on current conditions if this has not been done previously (e.g. for high inflow conditions).
- Continue frequent monitoring of structures, embankments, and water levels for unusual or changed conditions. Implement appropriate additional response actions as necessary, based on changing conditions. o Restrict access along roads threatened by a potential flood emergency.
- Put mining operations and reclamation resources (men/women and heavy equipment) on alert or mobilize mine resources or private contractor's personnel and equipment to the site, to repair damages or open a controlled breach in the embankment, as required, to relieve pressure on the dam.

Slumping or Cracking of the Dam

In case of slumping or cracking, Operations personnel shall contact the Dam Safety Engineer and determine:

- Location of the slumping or cracking.
- Size of affected area(s) in height, width, and depth.
- Severity.
- Estimated leakage discharge (whether clear or muddy / silty / cloudy).
- Reservoir and tailwater elevations.
- Report findings to the Lead Dam Safety Engineer, who will assess the potential impacts of the situation on site operations and all stakeholders (public and private).

If an imminent deteriorating condition is evident, threatening the integrity or safety of the dam:

Immediately report the situation to the Fleet Control Foreman or designate directly.

Personnel who receive the notification of a potential flooding situation shall document the call, using the Initial Emergency Report Form, and shall:

- Notify the Mine Rescue Team Leader or designate and the Production Foreman or designate of the situation, as well as any other personnel required.
- The Mine Rescue representative or the Production Foreman or designate, will assume the role of the designated Incident Commander, as appropriate, based on the nature of what has occurred.



The Incident Commander, upon receiving the notification, shall:

- Decide, in consultation with the Dam Safety Engineer and the appropriate plant or mine management responsibility holder(s), whether to undertake a general or partial evacuation of the mine site, based on current conditions.
- Decide, in consultation with both the Dam Safety Engineer and the appropriate plant or mine management responsibility holder(s), whether to begin drawing down the pond level in a controlled manner, as required.
- Put mining operations (men and heavy equipment) on alert or mobilize mine resources or private contractor's personnel and equipment to the site, to repair damages in the pond embankment, as required.
- Continue frequent monitoring of structures, embankments, and water levels for unusual or changed conditions. Implement appropriate additional response actions as necessary, based on changing conditions.
- Restrict access along roads threatened by a potential flood emergency.

Failure of Operating Equipment

In case of failure of operating equipment at the water control structure, Operations personnel shall contact the Dam Safety Engineer and determine:

- Probable cause of failure, durations, and effects on water control structure operation,
- Whether immediate assistance is required to remedy the problem,
- Whether temporary replacement or temporary alternatives are available, and
- Other pertinent facts.
- Report findings to the Dam Safety Engineer and assess the potential impacts of the situation on site operations and all stakeholders (public and private).

If an imminent deteriorating condition is evident, threatening the integrity or safety of the dam:

Immediately report the situation to the Fleet Control Foreman or designate directly.

Personnel who receive the notification of a potential flooding situation shall document the call, using the Initial Emergency Report Form, and shall:

- Notify the Mine Rescue Team Leader or designate and / or the Production Foreman or designate of the situation, as well as any other personnel required.
- The Mine Rescue representative or the Production Foreman or designate, will assume the role of the designated Incident Commander, as appropriate, based on the nature of what has occurred.

The Incident Commander upon receiving the notification, shall:

- Decide whether to undertake a general or partial evacuation of the plant or mine site, based on current conditions.
- Decide, in consultation with both the Dam Safety Engineer and the appropriate plant or mine management responsibility holder(s), whether to begin drawing down the pond level in a controlled manner, as required, using the normal discharge equipment, or, if that has failed, alternate pumping equipment.
- Continue frequent monitoring of structures, embankments, and water levels for unusual or changed conditions. Implement appropriate additional response actions as necessary, based on changing conditions.
- Restrict access along roads threatened by a potential flood emergency.



Springs, Seeps or Soft Areas

In the event of the development of new springs, seeps or soft areas, or any changes in the condition of existing areas, Operations personnel shall contact the Dam Safety Engineer and determine:

- Location of the spring, seep, or soft spot,
- Size of affected area,
- Estimated leakage discharge rate,
- Nature of the discharge (whether clear or muddy / silty / cloudy water), and
- Reservoir elevation.
- Report findings to the Dam Safety Engineer and assess the potential impacts of the situation on site operations and all stakeholders (public and private).

In the event of rapid increase or muddy / silty / cloudy appearance in seepage, the following shall be done immediately:

- Cover the areas with filter fabric.
- Ballast filter fabric with a thick layer of gravel or free draining material.
- Notify the Dam Safety Engineer.
- Consult with additional Dam Safety experts and Geotechnical consultants as required.

If an imminent deteriorating condition is evident, threatening the integrity or safety of the dam:

Immediately report the situation to the Fleet Control Foreman or designate directly.

Personnel who receive the notification of a potential flooding situation shall document the call, using the Initial Emergency Report Form, and shall:

- Notify the Mine Rescue Team Leader or designate and/or the Production Foreman or designate of the situation, as well as any other personnel required.
- The Mine Rescue representative or the Production Foreman or designate, will assume the role of the designated Incident Commander, as appropriate, based on the nature of what has occurred.

The Incident Commander upon receiving the notification, shall:

- Decide whether to undertake a general or partial evacuation of the plant or mine site, based on current conditions.
- Decide, in consultation with both the Dam Safety Engineer and the appropriate plant or mine management responsibility holder(s), whether to begin drawing down the pond level in a controlled manner, as required.
- Put mining operations and reclamation resources (men/women and heavy equipment) on alert or mobilize mine resources or private contractor's personnel and equipment to the site, to repair damages in the pond embankment, as required.
- Continue frequent monitoring of structures, embankments, and water levels for unusual or changed conditions. Implement appropriate additional response actions as necessary, based on changing conditions.



Abnormal Instrumentation Readings

During the taking of any instrumentation reading, the observer shall compare the current reading with previous readings. If any reading appears to be abnormal, the observer shall:

- Retake the reading and, if confirmed, determine:
 - o That instruments and/or measuring devices are in calibration,
 - Quantify change in reading from previous reading,
 - Reservoir and tailwater elevations,
 - o Weather conditions; and
 - o Other pertinent facts that may influence readings.
- Report observations to the Dam Safety Engineer who will:
 - o Consult with dam safety experts and/or geotechnical consultants.

If an imminent deteriorating condition is evident, threatening the integrity or safety of the dam:

Immediately report the situation to the Fleet Control Foreman or designate directly.

Personnel who receive the notification of a potential flooding situation shall document the call, using the Initial Emergency Report Form, and shall:

- Notify the Mine Rescue Team Leader or designate and the Production Foreman or designate of the situation, as well as any other personnel required.
- The Mine Rescue representative or the Production Foreman or designate, will assume the role of the designated Incident Commander, as appropriate, based on the nature of what has occurred.

The Incident Commander upon receiving the notification, shall:

- Decide whether to undertake a general or partial evacuation of the plant or mine site, based on current conditions.
- Decide whether to begin drawing down the pond level in a controlled manner, as required.
- Assess the potential impacts of the situation on site operations and all stakeholders (public and private).
- Put mining operations (men and heavy equipment) on alert or mobilize mine resources or private contractor's personnel and equipment to the site, to repair damages in the pond embankment, as required.
- Continue frequent monitoring of structures, embankments, and water levels for unusual or changed conditions. Implement appropriate additional response actions as necessary.
- Restrict access along roads threatened by a potential flood emergency.

Abnormal Geotechnical Conditions

The following are recommended operating procedures in the event of geotechnical distress of the structures resulting from wave erosion of the dykes, cracking and slope instability, settlement of the dyke crest, seepage and/or internal erosion, caving / sinkhole activity and partial collapse:

Inspect and quantify the extent and nature of the distressed area.



- Report observations to the Dam Safety Engineer who will:
 - Notify the Dam Safety Engineer, who will assess the potential impacts of the situation on site operations and all stakeholders (public and private).
 - Consult with appropriate dam safety experts, and / or geotechnical consultants.

If significant damage is detected and there is deemed to be an imminent threat to the integrity or safety of the dam:

Immediately report the situation to the Fleet Control Foreman or designate directly.

Personnel who receive the notification of a potential flooding situation shall document the call, using the Initial Emergency Report Form, and shall:

- Notify the Mine Rescue Team Leader or designate and / or the Production Foreman or designate of the situation, as well as any other personnel identified in the Notification Chart located in the Initial Response Section of this MERP.
- The Mine Rescue representative or the Production Foreman or designate, will assume the role of the designated Incident Commander, as appropriate, based on the nature of what has occurred.

The Incident Commander upon receiving the notification, shall:

- Decide whether to undertake a general or partial evacuation of the mine site, based on current conditions.
- Decide whether to begin drawing down the pond level in a controlled manner, as required.
- Mobilize mining operations or contractors (men and heavy equipment) for emergency repairs.
- Support and enhance critical unstable areas by building support berms with free draining materials, filling low areas on the dam crest, and repairing rip rap as required.
- Continue frequent monitoring of structures, embankments, and water levels for unusual or changed conditions. Implement appropriate additional response actions as necessary.
- Restrict access along roads threatened by a potential flood emergency.

Drawdown Procedures

As required, in a potential or imminent flooding situation, begin drawdown operations of the pond level in a controlled manner by:

- Activating the appropriate discharge pumps for the control structure affected, as required:
 - If water is being transferred to a Cooling Pond, notify the applicable personnel of the transfer.
 - o If transfer is initiated to another pond or reservoir, monitor the level of that pond as well, to ensure that pond remains integral.
 - o If discharge is into a waterbody, monitor the discharge for excess siltation. If water is contaminated, attempt to transfer to cooling pond instead.
- Operate pump and discharge line up to full capacity,
- Monitor pump for proper operation. Shutdown and repair or replace with an alternate pump of appropriate capacity if abnormal operating conditions are experienced.
- Monitor discharge lines, to ensure they remain integral and do not give way, or rupture.
- Continue frequent monitoring of structures, embankments, and water levels for unusual or changed conditions.
- Restrict access along roads threatened by a potential flood emergency.



Major Power Outage

In the event of a major power failure affecting any portion of the operating facilities, the employees within the operating areas need to be aware of the hazards of unexpected loss of power.

Though power and/or other utility outages are not uncommon in mining settings, they have the potential to create significant emergencies if appropriate backup and/or procedures are not in place to deal with such situations. The key to prevent power and/or utility outages from becoming an emergency situation is to perform process hazard analyses on all critical process areas and identify utility-critical areas/operations.

Operations should have emergency generators to power pumps and other equipment, as necessary to prevent unintentional releases and exposures in the event its primary source of power is interrupted. Alternatively, stand-by power may not be necessary if power outages do not lead to releases, both water and airborne. For example, if sufficient drain down time has been incorporated into the water balance to allow acquisition, installation, and activation of such equipment.

Potential Power Outage Emergency Hazards

- Localized safety hazards related to personnel responding to, or attempting to mitigate the hazard being presented at the mine site:
 - o Physical injury resulting from tripping or slipping, health concerns resulting from pre-existing conditions or other health related or work conditions.
 - o Electrocution if powered equipment is damaged due to contact with power source(s).
 - o Accidental conditions which result in the requirement for rescuing impacted personnel.
- Local safety hazards to mobile equipment responding to the site, or attempting to mitigate the hazard:
 - Power surges
 - o Power outages
 - Damage to electrical components.

Response to Power Outage

In the event of major power loss continuing for an extended period of time:

- Initiate appropriate shutdown or mitigation procedures and assess safety of personnel.
- Evacuate personnel, as required based on nature of effects due to power loss.
- Turn off electrical equipment and appliances in the affected area. Power restoration may cause damage to sensitive equipment due to power surge.
- Facilities with freezing temperatures should turn off and drain liquid lines which may freeze:
 - Fire Sprinkler System
 - o Standpipes
 - o Potable water lines
 - o Toilets
- Add Propylene Glycol to drains to prevent freezing.
- Equipment containing liquids that may freeze should:
 - o Be moved to heated areas
 - o Drained of liquids
 - Provided with auxiliary heat sources
- Obtain necessary emergency assistance if an emergency occurs as a result of the failure.

Major Power Outage, continued

Notify On-Shift Incident Commander



- Assemble rescue team as required and take necessary emergency actions based on the nature of the emergency.
- The IMT will take necessary steps to isolate area and assess nature of problem
- The IMT will contact support services required for any repairs necessary.
- Secure site and protect evidence, as required if additional investigation is needed.
- Return conditions to normal after power is restored:
 - Bring electronic equipment up to ambient temperature to prevent water condensation on circuitry.
 - o Fire and water piping should be checked for leaks from freeze damage.

Preparedness

Due to remoteness of the mine and on-site camp, its recommended that generators and/or battery backup systems be in place to ensure critical systems stay operating during a power outage.

General guidelines

- Test equipment regularly and maintain or repair if required.
- Keep adequate fuel for generators to operate 2-3 days if necessary.
- Monitor weather and pre-plan for a potential power outage.
 - o If there's potential for power outage due to poor weather, prepare generators and/or battery backup systems to be used.



Wall Failure / Slope Failure

Unexpected movement of the ground causes the potential to endanger lives, demolish equipment, or destroy property. This accounts for approximately 15% of all mine fatalities. The includes facilities resulting from bench and highwall failure, rock falls, waste dump and stockpile failures, and the collapse of unknown underground workings.

Future technologies may overcome the limitations of current monitoring equipment, but until that time, diligent inspections of the highwalls above workers is crucial. Understanding and recognizing warning signs of impending ground instabilities will hopefully reduce the injury and fatality rates at surface mining operations.

Response

In the event of an emergency, personnel will be evacuated and all personal shall be accounted for. If the structural integrity is compromised in some way, a rescue attempt shall be preceded by an inspection of a qualified and authorized person. If personnel are not accounted for, rescue plans will be developed and implemented.

The appropriate personnel will assess the failure and determine the response. The area is to be secured using the IMT or other site personnel to prevent personnel entering the hazard area.

The IMT will conduct the initial notifications of the failure and communicate with external providers if further assistance is required.

All Clear

Maintain involvement until the "All Clear" is communicated in conjunction with the IMT.

Prevention

There are several ways to reduce the hazards associated with slope failures:

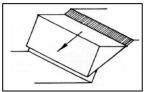
- 1. Safe geotechnical designs.
- 2. Secondary supports or rock fall catchment systems.
- 3. Monitoring devices for adequate advance warning of impending failures.
- 4. Proper and sufficient scaling of loose/dangerous material from highwalls.

At any surface operation, instability can be expected from minor bench raveling to massive slope failures

Diligent monitoring and examination of slopes for warning signs is imperative for protecting workers and equipment. Geotechnical designs can be improved to increase factors of safety and proper bench designs can be improved to minimize rock fall hazards. However, even slopes with conservative slope designs may experience unexpected failure due to the presence of unknown geologic structures, abnormal weather patterns, or seismic shock. Unanticipated movement of any amount of rock may cause severe disruptions to mining operations, pose major safety concerns, or contribute to large financial losses for companies.

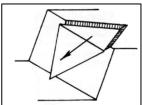
Even the smallest of failures can be problematic if benches fail that support main haul roads, or if facilities are threatened by displacement of the rock mass. Failure to scale highwalls at quarries can also have devastating consequences.

Types of Slope Failures



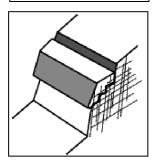
Plane Failure

Occur when a geologic discontinuity, such as a bedding plane, strikes parallel to the slope face and dips into the excavation at an angle steeper than the angle of friction.



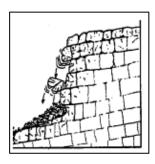
Wedge Failure

When the soil contains weak layers or joints that are created as the slope is constructed from two different, non-compatible materials. Wedge failure can occur in both infinite and finite slopes.



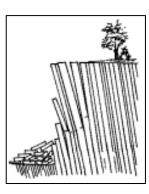
Step Path Failure

Similar to plane failure, but the sliding is due to the combined mechanisms of multiple discontinuities or the tensile failure of the intact rock connecting members of the master joint set.



Raveling

Weathering of material and expansion and contraction associated with freeze-thaw cycles are principle causes of raveling. This type of failure generally produces small rockfalls, not massive failures.



Toppling

Toppling can occur when vertical or near-vertical structures dip toward the pit. If this type of structure is present, the bench face height should be limited to a distance approximately equal to the bench width. This will help catch any toppling material and decrease the chances of impacting equipment working on the pit floor below.



Types of Wall Failure Failure of Open Pit Wall

Possible emergencies in the mine may occur as a result of collapse of the mine wall due to inappropriate design, presence of excessive amount of water, heavy vehicle accident, blasting accident, etc.



Failure of the Pit Wall

Evacuation of all employees in the mine. Notification of the management of the company and the relevant competent authorities. Stabilization plan development for defective area and action plan for restoration.

Determining Failure Modes

To determine if these basic failure modes are present, thoroughly map the geology. By plotting the orientation of the discontinuities and the cut face of the slope on a stereo net, potential slope stability problems can be recognized. Graphical representations of the data are also useful for eliminating structures which are unlikely to cause slope stability problems.

Recognizing Hazards

Even the most carefully designed slopes may be subject to instability. Acknowledging that slope failures may occur and knowing what the warning signs are will contribute to the safety of the operation.

Tension Cracks

The formation of cracks at the top of a slope is an obvious sign of instability. Cracks form when slope material has moved toward the pit.

Since this displacement cannot be detected from the pit floor, it is extremely important to frequently inspect the crests of highwalls above active work sites. Safe access should be maintained at all times to the regions immediately above the active mining.

Frequent inspections may be necessary during periods of heavy precipitation or spring run-off and after large blasts.





Abnormal Water Flows

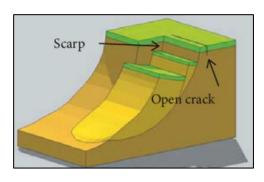
Sudden changes in precipitation levels or water flow may also precede slope failures. Spring run-off from snow melt is one of the most obvious examples of increased water flow that may have adverse affects on slopes. However, changes in steady flow from dewatering wells or unexplained changes in piezometer readings may also indicate subsurface movement that has cut through a perched water table or intersected a water bearing structure.

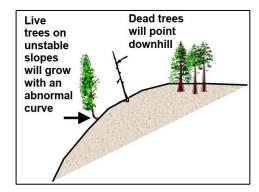
Changes in water pressure resulting from the blockage of drain channels can also trigger slope failures. Water can also penetrate fractures and accelerate weathering processes. Freeze-thaw cycles cause expansion of water filled joints and loosen highwall material. Increased scaling may be necessary during cold weather.

Scarps

A long steep slope or cliff at the edge of a plateau or ridge. This occurs where material has moved down in a vertical or nearly vertical fashion.

Both the material that has moved vertically and the face of the scarp may be unstable and should be monitored accordingly.





Bulges or Creep

Bulging material or "cattle tracks" appearing on a slope indicate creep or slow subsurface movement of the slope. Other indicators of creep can be determined by looking at vegetation in the area.

While most mines do not have vegetation on the slope faces, movement of trees at the crest of a slope can be an indicator of instability.

Rubble at the Toe

Fresh rubble at the toe or on the pit floor is a very obvious indicator that instability has occurred. An effort must be made to determine which portion of the slope failed, and whether more material may fail. One of the most dangerous situations that can occur is an overhang. If workers are not aware that a portion of the material below them has failed, they may unwittingly venture out onto an unsupported ledge.

Remedial measures such as scaling, supporting, or blasting the overhang or other hazardous rock may be necessary.



Monitoring Equipment

The type of instruments selected for a slope monitoring program depends on the particular problems to be monitored. A comprehensive monitoring system may include:

- Instruments capable of measuring rock mass displacement
- Ground water parameters
- Blast vibration levels

Some of the most common monitoring equipment may also be as simple as driving two stakes on either side of the crack and using a survey tape or rod to measure the separations.

Survey Network

The use of electronic distance measurement (EDM) equipment is a very common and effective method for monitoring slopes.

- Consists of target prisms placed on and around areas of anticipated instability and one or more nonmoving control points for survey stations.
- The angles and distances from the survey station to the prisms are measured on a regular basis to establish a history of movement.
- Surveys can be done manually by a survey crew or can be automated.
- Manufacturers generally publish the accuracy and error limits of their equipment.
- Index of refraction errors may occur as a result of atmospheric variations in temperature or pressure, and human error can be a factor with manual systems.
- Surveying instruments need to be carefully adjusted and correctly calibrated according to manufacturers' instructions to ensure equipment accuracy and reliability.
- It is extremely important that permanent control points for the survey stations are placed on stable ground and that the target prisms are securely anchored.
- Errors can cause a serious discrepancy in data, and steps need to be taken to ensure these errors remain negligible.
- The source of all errors for the surveying method must be less than the minimum required accuracy
 of the displacement measurements.

Tapes, Crack Meters, Pins

Measuring and monitoring the changes in crack width and direction of crack propagation is required to establish the extent of the unstable area. No matter what method is selected for measuring crack displacement, the devices should be marked with the dates of installation and show the magnitude and direction of movement. Monitoring at regular intervals is important. Care should be taken to keep personnel off the unstable portion of the slide when installing equipment or taking readings.

- The simplest method for monitoring tension cracks is to spray paint or flag the ends so that new cracks or propagation along existing cracks can be easily identified on subsequent inspections.
- Measurements of tension cracks may also be as simple as driving two stakes on either side of the
 crack and using a survey tape or rod to measure the separations. Stakes can become loose over
 time and cause inaccurate measurements. Multiple stakes can be installed to help maintain some
 reliability in measurements.
- Commercial crack gages with electrical readout are also available, but often in the case of mine slope problems, the cracks exceed the measurement limits of the instruments.

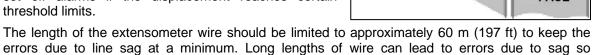


Wireline Extensometers

A common method for monitoring movement across tension cracks is with a portable wire-line extensometer.

- A wire is anchored in the unstable portion of the ground, with the monitor and pulley station located on a stable portion of the ground behind the last tension crack.
- The wire runs over the top of a pulley and is tensioned by a weight suspended from the other end. As the unstable portion of the ground moves away from the pulley stand, the weight will move and the displacements can be recorded either electronically or manually.
- Electronic monitoring equipment can be programmed to set off alarms if the displacement reaches certain threshold limits.

be taken to adjust for thermal expansion of the wire.



- Extensometers are sensitive to movements of 1 mm so simultaneous temperature readings should
- Birds often land on the wires of extensometers. This can contribute to a large number of false alarms and wildly inaccurate readings. Provisions for keeping wildlife away from the instrumentation should be made at operations where this may be an issue.

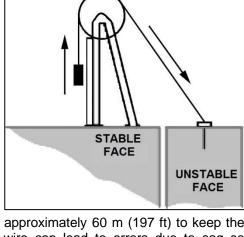


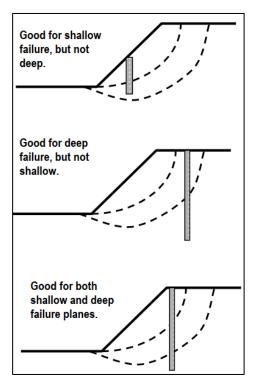
An inclinometer consists of a casing that is placed in the ground through the area of expected movements. The end of the casing is assumed to be fixed so that the lateral profile of displacement can be calculated. The casing has grooves cut on the sides that serve as tracks for the sensing unit. The deflection of the casing, and hence the surrounding rock mass, are measured by determining the inclination of the sensing unit at various points along the length of the installations. Information collected from inclinometers can be used to:

- Locate shear zones.
- Determine whether shearing is planar or rotational.
- Determine whether movement along a shear zone is constant, accelerating, or decelerating.

The proper placement for inclinometers to monitor both shallow and deep seated failure planes. If the bottom of the inclinometer is not in stable ground, the instrument may "float" in the failure zone and give erroneous readings. Excessive horizontal movement may deflect the casing so much that the sensing torpedo will not be able to pass the bend to take readings. Manufacturers will provide tables of instrument accuracy.

The use of small diameter is recommended, highly sensitive (1:10,000) inclinometers in rock slopes. If taking manual readings, two measurements (with the probe rotated 180 degrees between measurements) should be taken to reduce errors.







Time Domain Reflectometry (TDR)

Time Domain Reflectometry is a technique in which electronic pulses are sent down a length of a coaxial cable which has been grouted in a drillhole. When deformation or a break in the cable is encountered, a signal is reflected giving information on the subsurface rock mass deformation. While inclinometers are more common for monitoring subsurface displacements, TDR cables are gaining popularity and have several advantages over traditional inclinometers:

- Lower cost of installation.
- Deeper hole depths possible.
- Rapid and remote monitoring possible.
- Immediate deformation determinations.
- Complex installations possible.

Piezometers

Piezometers are used to measure pore pressures and are valuable tools for evaluating the effectiveness of mine dewatering programs and the effects of seasonal variations.

- Excessive pore pressures, especially water infiltration at geologic boundaries, are responsible for many slope failures.
- Data on water pressure is essential for maintaining safe slopes since water behind a rock slope will decrease the resisting forces and will increase the driving forces on potentially unstable rock masses.
- Highwalls should be visually examined for new seeps or changes in flow rates as these are sometimes precursors to highwall failure.
- Pit slopes should be thoroughly examined for new zones of movement after heavy rains or snowmelts.

Borehole Extensometers

A tensioned rod extensometer is used to detect and monitor changes in distance between one or more anchors in a borehole and the borehole collar. Changes in the distance between the anchor and the rod head provide the displacement information for the rock mass. Extensometers of this type are best used to monitor known structural features which will have a major influence on slope stability. These instruments are fairly expensive when compared to other instrumentation options, and are therefore, not suitable for surveillance of large areas of the pit.

Implementing a Monitoring Plan

Sufficient, suitable monitoring must be provided to detect instability at an early, noncritical stage to allow for the initiation of safety measures. Monitoring "after the fact" does little to undo the damage caused by unexpected failures. Determining the objective of a monitoring plan is a simple, but crucial step in the instrumentation process. The purpose of a monitoring plan is to:

- Maintain safe operational practices for the protection of personnel, equipment and facilities.
- Provide warning of instability so action can be taken to minimize the impact of slope displacement.
- Provide crucial geotechnical information to analyze the slope failure mechanism and design the appropriate corrective measures.



The following steps should be taken when planning the instrumentation portion of the monitoring program:

- 1. Understand the mechanisms that may cause instability.
- 2. Define and prioritize the geotechnical information required.
- 3. Establish monitoring locations.
- 4. Predict the magnitudes of movement and other parameters at these locations.
- 5. Establish an instrumentation budget.
- 6. Select instrumentation based on steps 1-5 above.

When selecting instrumentation, incorporate some level of redundancy in the system to cross-check instrument performance and eliminate errors. Redundant or over-lapping measurements will also provide a back-up in the case of instrument failure. Automated equipment is generally more accurate than manual equipment since some "human" error is removed. Automated systems also provide added flexibility in the sampling rate, and therefore can monitor more frequently than manual readings. Another distinct advantage of the automated systems is their ability to trigger alarms if certain threshold limits are reached. However, these systems are generally more expensive than manual systems, and the electronics may be more sensitive.

Other items to keep in mind when selecting equipment is the amount of personnel training that is needed and the time requirements for data collection. Personnel may require highly technical training to calibrate and maintain complex electronic systems. Sometimes installing a greater number of cheaper, reliable instruments is more useful than installing a few expensive, highly sensitive instruments. Instruments should be placed where they will be the most effective. Estimating the movement expected in a particular area should help ensure that the limits of the instrument are not exceeded. There may also be environmental limitations (extreme heat or cold, etc.) that determine whether a particular instrument will work at an operation. All of these factors need to be evaluated against the primary objectives of the monitoring program.

Data Reduction & Analysis

All slopes will deform in response to mining. The deformation will vary depending on:

- Slope geometry
- The geology
- Rock mass properties
- Ground water conditions

Monitoring instruments are useful for collecting a large amount of data, but knowing what data is pertinent, will guide the necessary course of action.

- Measure simple, obvious movements first surface displacements are especially useful for determining the mechanism responsible for the instability and the extent of the failure surface.
- Plotting the rate of movement is the most important variable to track.
- If the rate of movement decreases, the slope may have temporarily stabilized. If the rate of movement increases, slope failure may be pending and more frequent readings of the site should be taken.



Slope Stabilization Methods & Pre-Planned Response to Movement

Even with diligent geologic mapping, careful geotechnical designs, and adequate monitoring programs, the chances for instability still exist. With today's instruments it is neither feasible nor practical to monitor every possible failure at an open pit mine.

- If material does fail, the mine should have a pre-planned response to the movement.
- If a slope failure is eminent, personnel must immediately be pulled out of the hazardous area. Operating procedures should be in place to establish what the threshold values of movement are, and how an evacuation scenario would be communicated to the workers.
- Standard operating procedures should also define those employees responsible for doing pre-shift
 inspections of highwalls, and define which personnel are responsible for collecting and compiling
 data from the monitoring instruments.
- Slope failures very rarely occur without some warning, and all workers need to be able to recognize potential hazards and act accordingly.
- If the failure is not immediately threatening to personnel, a variety of other actions can be taken in response to the movement.
- The selection of remedial measures taken depends on the nature of the instability and the operational impact. Each case should be evaluated individually with respect to safety, mine plans, and costbenefit analyses.

Let the Material Fail

If the failure is in a non-critical area of the pit, the easiest response may be to leave the material in place. Mining can continue at a controlled rate if the velocity of the failure is low and predictable and the mechanism of the failure is well understood. However, if there is any question about the subsequent stability, an effort should be made to remove the material. Large-scale failures can be difficult and costly to clean up.

Often, a mining company will choose to leave a step-out in the mine design to contain the failed material and continue mining beneath the step-out. The value of the ore that is lost needs to be evaluated against the costs of clean-up to determine if this is a feasible solution. The size of the blasts may also need to be reduced to minimize impacts on the unstable zone.

To prevent small-scale failures from reaching the bottom of the pit, both the number of catch benches and the width of catch benches can be increased. Catch fences have also been installed at some operations to contain falling material.

Support the Material

If allowing the instability to fail is not an option, artificially supporting the failure may be a solution. Some operations have successfully used reinforcement such as bolts, cables, mesh, and shotcrete to support the rock mass. The use of such supports can be very expensive. However if the overall angle of the highwall can be steepened and clean-up costs are reduced, the added expense of reinforcement may be justified.

A careful study of the geologic structures must be performed to select the proper reinforcement (i.e. length of bolts or cables, thickness of shotcrete, etc.) Bolts that are too short will do little to prevent slope stability problems from continuing.

In some cases, reinforcement has only served to tie several small failures together, creating a larger failure. Another potential solution to stop or slow down a slope failure is to build a buttress at the toe. The buttress offsets or counters the driving forces of the slope by increasing the resisting force.

Short hauls of waste-rock often make this an attractive and economical alternative for stabilizing slope failures.



Remove the Hazard

If a slope continues to fail, and supporting the slope is not a feasible alternative, steps need to be taken to remove the hazard.

- Often, flattening the slope to a more favorable angle with respect to the local geology will solve the problem.
- When catchment systems are not available, proper and sufficient scaling methods should be employed on a regular basis to remove hazards associated with small rock falls.
- Removing, or unweighting, the top portion of a slide may also decrease the driving forces and stabilize the area. However, warn that this option is generally "unsuccessful" and cite situations involving high water pressure where unloading actually decreased the stability of the remaining material.
- Since water pressure creates slope stability problems, dewatering using horizontal or vertical wells is a powerful means of controlling slope behavior and minimizing hazards.
- Surface drainage and diversions should also be used to keep surface runoff away from tension cracks and open rock mass discontinuities near the slope face.

Future Monitoring Technologies

Because of the enormous surface area of many open-pit mines, several varieties and scales of instabilities can occur. Complete vigilance to monitor each and every potential failure block is neither feasible, nor economical, and is certainly not attainable using today's most common point displacement monitoring techniques.

Many of the current monitoring methods are also difficult to implement at quarries and surface coal mines, where steep highwalls and lack of benching limit access to areas above the working floor.

Additionally, as mining progresses, it is necessary to monitor different sections of the pit walls. Continually relocating devices is not only costly and time consuming but can also be dangerous especially on unstable slopes.



Water Treatment Plant Failure / Shutdown

Water treatment plants are systems that filter and treat water from various sources to create potable drinking water. Plant failure or shutdowns due to power outages can cause significant issue for their users.

The two primary area's of concern with non-functioning water facilities are:

- Water-borne pathogens: Micro-organisms such as bacteria, protozoa, and viruses. Most cause infection and illness by growing in a person's digestive system. Symptoms can include cramps, diarrhea, vomiting, muscle aches, weight loss, fever, and chills. Severe cases can result in kidney failure, long-term illness and even death.
- Chemical hazards: Well water can pick up contaminants such as heavy metals, arsenic, nitrates, pesticides, gasoline, etc. Some occur naturally and others are a result of human activity. The effect of these substances on people depends on the chemical property and the dose (immediate and long-term). The owner/operator of a water treatment system should consult with a local Drinking Water Officer (DWO) to determine testing and treatment needs. Refer to the Area Specific Information for health authority contact information.

Notification of Threats

You must notify the DWO of any threats or potential threats (e.g., spills/releases of chemicals, manure, farm waste, garbage, road construction and forestry activities) to drinking water as soon as you become aware of them. When you become aware of a threat to the system and the DWO cannot be reached right away, users of the water supply system must be notified immediately of the possible hazard. Once contacted, the DWO will provide guidance based on the notification levels below.

Notification Levels

- Water Quality Advisory: Used when a health threat from the water supply system is higher than
 considered normally acceptable, but is not serious enough to warrant, or will not be resolved by, a
 boil water notice. The advisory will usually describe actions that can be taken to reduce risks.
- Boil Water Notice: Used when testing reveals E. coli or other coliform organisms in the water supply, and/or the system fails to meet drinking water treatment objectives, and the associated health threat from the water supply system can be effectively addressed by boiling the water.
- Do Not Use Water Notice: Used when a significant health risk or threat exists in the water supply system that cannot be adequately addressed by a water quality advisory or boil water notices. (e.g., oil/ pesticide spill, microcystin detected in the drinking water etc.).

DWO Authority

DWOs have the authority to make requests or orders to water suppliers. Water suppliers must comply with those requests or orders. These may include:

- Floodproofing your well.
- Conducting a water source and system assessment.
- Addressing cross-connection issues.
- Developing a drinking water protection plan.



Water Treatment Plan Failure / Shutdown, continued

Water Treatment

Why is treatment Necessary?

There are three main types of pathogenic microorganisms that pose risks to human health in water: viruses, bacteria, and protozoa. These pathogens have many recreational, industrial, agricultural and natural sources. They can contaminate surface water and "ground water at risk of pathogens" (GARP), as well as water in the distribution system. When people consume water contaminated with pathogens, consequences can include serious long-lasting illnesses or even death. This is why all water suppliers using surface water and/or GARP sources must provide disinfection.

No single action or process can address all the possible threats to drinking water safety. A "multi-barrier approach" is a system of procedures, processes, and tools that when used together and applied from source to tap, can reduce the risks of drinking water threats.

Water disinfection is only one part of this multi-barrier approach. Filtration, disinfectants and other forms of water treatment are effective ways for treating pathogens and other hazards in water. Finally, the distribution system needs protection from microbial regrowth, contaminant intrusion or backflow/back siphonage.

Treatment of Water

There are five general steps to treating water. This is usually referred to as primary treatment. Each water supply system's circumstances and needs are unique and it is not always necessary to use all five steps:

- Coagulation: Coagulation is considered a pre-treatment step and is the first step involved in the chemical clarification of water (the other two steps are flocculation and sedimentation). It involves adding a chemical (e.g., aluminum sulfate) to the water to encourage suspended particles to cling together.
- 2. Flocculation: This is the next step in the process of chemical clarification and also considered a pretreatment step. It involves the addition of polymers to the water that clump the small particles together to form "flocs."
- 3. Sedimentation: This mixture of water and flocs is next pumped into a settling tank that allows the flocs to settle to the bottom. Once this sedimentation occurs, the water can be pumped to the next section of processing.
- 4. Filtration: There are various means of achieving physical filtration of unsettled flocs, contaminants and pathogens. Filtration systems can make use of several different materials to achieve the desired result. For example, slow sand filtration uses various layers of sand and gravel to filter water. Membrane technology and biologically active carbon filtration are other means of physically removing contaminants and pathogens from water.
- 5. Disinfection: All surface water and GARP in B.C. must be disinfected. Disinfection inactivates a microorganism by destroying the cell wall or interfering with its metabolic processes. This can be achieved by adding chemicals (e.g., chlorine or ozone), using heat, or ultraviolet (UV) light radiation at germicidal wavelengths.

Chlorine is the most commonly used means of achieving disinfection because it is relatively inexpensive, and effective against bacteria and viruses. However, chlorine has limited effectiveness against the protozoa Cryptosporidium. Often, more than one form of disinfection is used in sequence as a multi-barrier approach to address risks from pathogens and contaminants in water.

Each step, as discussed above, can be achieved through a combination of various methods and technologies with each having advantages and disadvantages. Source water quality, cost, and number of connections must be considered in the design of a water supply system's treatment process. What might be appropriate for a large water supply system might not be appropriate for a small system. Consult with your DWO and public health engineer before choosing the combination that is appropriate for your small water system.



Water Treatment Plan Failure / Shutdown, continued

Other processing steps that may be worth exploring for some systems include: pre-sedimentation, aeration and re-carbonation, adsorption (e.g., using activated carbon), ion exchange, adding soda or lime to soften water, and adding fluoride to protect against tooth decay.

Drinking Water Treatment Objectives

Treatment systems for surface water and ground water at risk of pathogens (GARP) are expected to achieve at least the following objectives to reduce the risk of water-borne illness:

- 4-log (99.99%) reduction or inactivation of enteric viruses;
- 3-log (99.9%) reduction or inactivation of Giardia and Cryptosporidium;
- Less than or equal to 1.0 nephelometric turbidity unit (NTU) of turbidity; and
- No detectable E.coli, fecal coliform and total coliform.

These objectives are achieved through a multi-barrier approach that consists of at least two treatment processes. Specific details of each of these objectives are described in further detail below.

What is a Log Reduction?

A "log reduction" is a mathematical method of demonstrating the difference between the number of "live" pathogens that you have in your treated water compared to your raw water. It demonstrates the effectiveness of your treatment system.

One log equates to a 10-fold reduction; therefore:

- 1-log reduction = number of pathogens in raw water ÷ 10
- 2-log reduction = number of pathogens in raw water ÷ 100
- 3-log reduction = number of pathogens in raw water ÷ 1000
 - 99.9% reduction or inactivation or inactivation of protozoa (giardia and cryptosporidium)
- 4-log reduction = number of pathogens in raw water ÷ 10,000
 - o 99.99% reduction or inactivation of enteric viruses

Annual Reports

The *Drinking Water Protection Regulation* requires that an annual report be made available to all water supply system users within six months of the end of the calendar year (before July). The report must contain the results of monitoring required by the regulation, operating permit or DWO.

In addition, the *Drinking Water Protection Act* requires the following information to be made public in accordance with the regulation, and any terms and conditions placed on the operating permit by the DWO:

- The water supplier's emergency response and contingency plan.
- Results of monitoring required by the regulation, operating permit or DWO, subject to any applicable time limits established by the regulation.
- If applicable, its current water source and system assessment.
- If applicable, its current assessment response plan.
- Other information required to be made public by the regulation, its operating permit or DWO.



Water Treatment Plan Failure / Shutdown, continued

Monitoring

Bacteriological and chemical water sample monitoring is required by the Drinking Water Protection Regulation. The regulation (Schedule B, section 8) requires systems serving less than 5,000 people to take at least four E. coli and total coliform samples per month. However, variations on this requirement may be specified by a DWO and may appear on the operating permit based on the history of the systems, or site conditions.

The monitoring frequency of chemical sampling is specified by the DWO. This frequency typically ranges between one and five years, depending on the nature of the source. In addition, specific parameters such as arsenic may require testing more frequently when they are a concern.

Operator Training

Certified operator training is required to operate a water supply system, but there is an exception to the regulation. Small water systems are not required to meet operator training certification requirements unless this is specifically stated in the operating permit from the local health authority. The DWO can specify what type of training is required, based on the size and complexity of the water supply system.

A certified operator is accredited by the Environmental Operators Certification Program (EOCP). This person may be able to provide service to several water supply systems if reasonably close to their site locations.



Animal Encounters

First Responders to Animal Attacks

In the event of witnessing or identifying a scene as an attack, it is important to avoid harm to yourself. If equipped with deterrents, an attempt to scare away any remaining animals on scene is optional. In most cases any animals who have recently engaged in an attack are unpredictable therefore it is advised to keep clear and wait until the scene is clear. Steps to be considered:

- Assess the immediate area for personal safety and determine the type of incident
- If cause of injury is unknown, use your gas monitor to ensure there aren't any air-borne hazards.
- Ensure all animals have vacated the scene.
- If not, use any available noise deterrents (Honk Horn, Rev Engine, yell etc.)
- If possible, call or radio for assistance and emergency services.
- Calling an applicable wildlife agency is an effective alternative; however, if confronted with a fast paced scenario such as this, the RCMP will be able to direct your call appropriately.
- Once the area is safe, assess the individuals' injuries and administer any necessary first aid. If the victim is conscious, always ask for his/her consent before doing so.
- Stay with the victim until help arrives:
 - o As shock to the victim may be a factor after an attack, using a calm voice and catering to the individuals' requests as best possible is beneficial. For example; covering the victim with a blanket, providing drinking water for the victim, ensuring the victim that help is on the way, etc.
 - o Minimize the victim's movements until emergency services have arrived as the extent of harm to the individual is unknown until assessed by a licensed health care representative.
- It is important to document the time and actions taken if a scenario like this presents itself as it will
 aid you and your company in showing what actions have been taken and how the situation has been
 responded to.
- Notify your supervisor of the incident.
- You or your supervisor must contact the applicable wildlife regulatory agency to report the incident.

Bears

There are no hard and fast rules about what to do when you confront a bear. Bears react to humans in different ways in different situations. A bear's reaction depends on the following: sex, age, health; the season; whether the bear is hungry; whether bear cubs are present or whether there is an escape route available to the bear. Never harass or chase a bear!

There are three possible scenarios that are most likely to occur:

- 1. A wandering bear. While it is unlikely that a bear will wander into an area and near workers, we must be prepared to deal with this situation. Any bear seen on the job site will cause an immediate notification of the Incident Commander. In addition, all workers within 500 metres of the animal are to seek immediate shelter within a vehicle or building. The Incident Commander shall assess the situation, observe the bear for its intent, and determine a proper course of action to be taken. At no time will the bear be approached by any workers for any reason other than at the direction of the Incident Commander.
- 2. A located occupied den. A den occupied by a bear will cause an immediate cessation of work and removal of personnel within 500 metres of the den and notification of the Incident Commander. At the discretion of the Incident Commander, the appropriate Environment Fish and Wildlife agency may be notified to determine the best course of action to be taken.



3. Denning bear disturbed. The company understands that disturbing a hibernating bear is unsuitable for both the bear and for the workers. Upon discovery or disturbance of a hibernating bear all workers will immediately retreat from the area to a distance of not less than 500 metres and into immediate shelter within a vehicle or building. This situation will cause an immediate notification of the Incident Commander.

On the Trail

Bear encounters on the trail can be dangerous, especially if the bear is surprised or if it is a female with cubs. The bear may consider you a threat and either run away or attempt to remove you as a threat. If you encounter a bear on a trail:

- Stop! Try to stay calm and quiet. Do not make any sudden moves or loud noises. Avoid direct eye
 contact with the bear; however, never take your eyes off the bear.
- Size up the situation. Is it a black bear or a grizzly? Are there cubs present and where are they in relation to you and the bear? Did you disturb the bear during feeding? Where is the rest of your party? (Always stay together as a group; a bear is less likely to attack a group of people than an individual).
- Do not run from the bear. You cannot outrun it! Black bears can reach speeds of 55km/hr.
- Talk quietly and slowly back up leaving the way you came; give the bear enough time and room to leave on its own. Invading the bears space will invoke its "fight or flight" response. Grizzly bears are most likely to fight while Black bears are most likely to choose flight. Avoid any rapid movements and move up wind so the bear can catch your scent and determine you are not a threat.
- If the bear keeps coming at you, climb the tree as high as you can. Remember, some grizzlies and all black bears can climb trees; but if you climb a tree the bear may feel less threatened.

In Case of Attack (general)

Try to defend yourself on a steep slope or grade; in doing so, you can ensure that any bear will at least have a difficult time standing erect, thereby reducing his full weight force. Bears are also front-heavy, creating an offset in balance when downing slopes or grades.

- Do not run from the bear. You cannot outrun it. A bear will often make a "bluff" charge, in which it turns away at the last moment. Running away from such a charge will trigger a more aggressive attack.
- If the bear continues the attack, spray bear ("pepper") aerosol in the animal's eyes. This may cause the bear to stop the attack and give you an opportunity to escape.

Note: Bear spray must be kept on your person within easy reach, or it will not be of use. Bear spray is not a repellent, but a weapon that is only effective in the animal's eyes and nose. It will not repel bears from a sprayed area. In fact, there is evidence to suggest that bears are attracted to objects covered with pepper spray. Read the instructions, understand how to use the spray, and test it to be sure of its range and accuracy.

- If no escape is possible and the bear has knocked you to the ground—roll yourself into a "cannonball" position and play dead. Cover your neck and head with your hands and arms. Stay in this tucked position until the bear leaves.
- If a black bear is attacking you, or you are attacked at night by either species, consider it a predatory attack and fight back with everything you have.



Defensive Attack

- Bears will engage in a defensive attack when feeling threatened or cornered. This type of attack
 occurs when a bear is protecting her young, or the carcass of its latest kill. The bear will show signs
 of stress, like huffing, pawing the ground, exposing its teeth, body swaying and pinning its ears back.
 The bear in this type of attack will often make "bluff" charge, in which it will turn away at the last
 moment or veer off its path.
- In this type of attack, play dead to show the bear you are not a threat.
 - o If wearing a pack, leave it on for protection
 - Lie face down on the ground, legs splayed (spread) so the bear cannot easily turn you over
 - o If rolled over, quickly turn back onto stomach
 - o Clasp hands around the back of your neck
 - o Do not shout or act aggressive
 - o Remain quiet and still
 - o Be prepared to wait until the bear realizes you are not a threat.
- If the bear continues to attack, fight for your life, aiming your assault at the bears head, nose, and eyes.

Predatory attack

- Bears will show no signs of stress during this type of attack. The bear will stalk you and swiftly attack without a warning or "bluff" charge.
- In this type of attack, act aggressive to show the bear you will not be easy prey
 - Do not be submissive
 - Face the bear, never taking your eyes off of it
 - Don't attempt to run away
 - Scan for any near-by cover and possible weapons (stick and stones)
 - o Prepare your deterrent
 - Make yourself as large as possible
 - Raise your arms and stomp your feet
 - o Use rapid arm and leg movement
 - o Shout loudly
 - Remove your pack
 - o DO NOT PLAY DEAD
- If the bear continues to attack, fight for your life, aiming your assault at the bears head, nose, and eyes.

In Camp

Bears entering a camp may be coming to feed on human food and garbage, based on their past experiences in camps. Such bears are especially dangerous because they have become human habituated and no longer fear people. It is important if a bear wanders into your campsite to provide it with a negative stimulus to prevent it from returning and becoming human habituated (screaming, noise deterrents etc.). If your campsite is clean, with all attractants properly stored, a bear may lose interest and move on. If a bear comes into your camp, refer to the points in ON THE TRAIL. If your vehicle is nearby, get in it as soon as possible.



Cougars

Conflict between cougars and humans is extremely rare. Although a cougar attack is highly unlikely, it always pays to be prepared. Information and awareness are your best defenses.

- Cougars are most active at dusk and dawn. However, they will roam and hunt at any time of the day or night and in all seasons.
- During late spring and summer, one to two-year old cougars become independent of their mothers.
 While attempting to find a home range, these young cougars may roam widely in search of unoccupied territory. This is when cougars are most likely to conflict with humans.
- Cougars have four toes with three distinct lobes present at the base of the pad. Claws are retractable, so they usually do not leave imprints.
- Generally, cougars are solitary. If tracks show two or more cougars traveling together, it probably indicates a female with cubs.
- Cougars seem to be attracted to children, possibly because their high-pitched voices, small size, and erratic movements make it difficult for cougars to identify them as human and not as prey.

Cougar Safety

- Avoidance is the best line of defense.
- Keep a radio playing.
- Do not attract or feed wildlife, especially deer or raccoons. These are natural prey and may attract cougars.
- Roaming pets are easy prey.
- Bring pets in at night. If they must be left out, confine them in a kennel with a secure top.
- Do not feed pets outside. This not only attracts young cougars but also many small animals, such as mice and raccoons, that cougar's prey upon.
- Place domestic livestock in an enclosed shed or barn at night.
- Hike in groups of two or more. Make enough noise to prevent surprising a cougar.
- Carry a sturdy walking stick to be used as a weapon.
- Watch for cougar tracks and signs. Cougars cover unconsumed portions of their kills with soil and leaf litter. Avoid these food caches.
- Cougar cubs are usually well hidden. However, if you do stumble upon cougar cubs, do not approach, or attempt to pick them up. Leave the area immediately, as a female will defend her young.

If You Meet a Cougar

- All cougar encounters should be considered predatory. Act big and confident. Make direct eye contact, be loud and attempt to intimidate.
- Never approach a cougar. Although cougars will normally avoid a confrontation, all cougars are unpredictable. Cougars feeding on a kill may be dangerous.
- Always give a cougar an avenue of escape.
- Stay calm. Talk to the cougar in a confident voice.
- Pick all children up off the ground immediately. Children frighten easily and their rapid movements may provoke an attack.
- Do not run. Try to back away from the cougar slowly. Sudden movement or flight may trigger an
 instinctive attack.
- Do not turn your back on the cougar. Face the cougar and remain upright.

- Do all you can to make yourself seem larger and as intimidating as possible. Don't crouch down or try to hide. Pickup sticks or branches and wave them about.
- Any cougar seen on the job-site will cause an immediate notification of the Incident Commander. In
 addition, all workers within 500 metres of the animal are to seek immediate shelter within a vehicle
 or building. The Incident Commander shall assess the situation, observe the cougar for its intent, and
 determine a proper course of action to be taken. At no time will the cougar be approached by any
 workers for any reason other than at the direction of the Incident Commander.

If a Cougar Behaves Aggressively

- Arm yourself with a large stick, throw rocks, and speak loudly and firmly. Convince the cougar that
 you are a threat, not prey.
- If a cougar attacks, fight back! Many people have survived cougar attacks by fighting back with anything, including rocks, sticks, bare fists, and fishing poles.

Cougars are a vital part of our diverse wildlife. Seeing a cougar should be an exciting and rewarding experience, with both you and the cougar coming away unharmed. At the discretion of the On-Site Group Supervisor, the appropriate Environment Fish and Wildlife agency may be notified to determine the best course of action to be taken.

Large Hooved Animals (Ungulates)

This family is comprised of several hooved omnivores common to Canadian lands. Unknown to most, ungulates cause more yearly fatalities then all predatory species combined. However, this is mainly due to vehicular accidents as opposed to acts of aggression. This class refers to:

- Bison
- Moose
- Mule and White tailed deer
- Elk
- Caribou

Ungulate Safety

- Generally speaking they prefer not being near people.
- The best line of defense is avoidance.
- Although physical size and appearance varies significantly, temperaments have been noted to be fairly similar between most species of ungulate.
- Mating season for most ungulates is during the fall months with the young being born in the spring;
 at both of these periods females and particularly males will become more aggressive and territorial.
- Like all wildlife, keeping a safe distance and never feeding the animals is advised.

If You Meet an Ungulate

The following 7 steps are suggested if experiencing a close encounter:

- 1. Avoid making similar noises, such as coughing, groaning, grunts, etc.
- 2. Do not approach the animal.
- 3. Stay calm and increase the distance between you and the animal while looking for an escape.
- 4. Run to safety once close enough.



- 5. Use noise deterrent if available.
- Climb a tree if possible.
- 7. Report the incident to a work authority.

If It Behaves Aggressively

If confronted by an ungulate that feels threatened by you, consider it to be a dangerous situation.

• Look for an avenue of escape.

If knocked down:

- Curl up in a ball, protect head and neck with arms, and remain as still as possible. This is known as the "cannonball" position.
- Do not try to escape until the animal has moved a safe distance away.

Wolves

Wolves generally avoid human interactions, unless they have become human habituated through repeated exposure to humans without any negative stimulus. It is not normal for wolves to attack or pursue humans. Please do your part to keep wolves where they belong, in the wild. As human population continues to grow, wolves are now considered an endangered species in Canada. In an attempt to keep wolves non-habituated, if seen, ensure all garbage has been properly disposed of and use noise to deter/scare the animal(s) away.

Wolf safety

- Wolves are notoriously intelligent animals; generally hunting in groups or packs surrounding their prey.
- Wolves have ranges of up to 400km.
- Wolves may breed anytime throughout the year. However, pups are mainly born between April-June at which time the entire pack will aggressively defend their young.
- Wolves are considered timid towards humans. Attacks are more likely if a wolf feels threatened, is sick, or assess their prey maybe injured and therefore more susceptible to attack.
- Secure all food items and never feed any other wildlife. Deer and small mammals can attract larger predators such as wolves.
- Howling is a form of communication for wolves. If heard within a close proximity, it is advised to find shelter in a vehicle or building.

If you meet a wolf

In the unlikely event of a wolf or wolves threatening humans, here is what to do.

- Stay calm
- Never make sudden movement; back away slowly, never turning your back on the wolf.
- Leave the wolf an avenue of escape.
- Raise your voice and speak firmly.
- If the wolf continues to approach, wave your arms in an attempt to make yourself look bigger.
- Make use of any rocks, sticks, camping gear, fists, or feet to fend off an attack, Try to protect your neck and head from attacks.



Finding a wolf carcass

Wolves are an endangered species; in the event of finding a wolf carcass, take these following steps:

- Do not disturb or move any evidence.
- If possible, cover the carcass with a secured tarp or blanket in an attempt to preserve it.
- Once reported to your supervisor, call the appropriate provincial wildlife agency as they will determine the best course of action to be taken.

Bees and Wasps

The presence of native wild bees, and many species of wasps and hornets will be noted by all personnel working on the project.

Head-nets will be required PPE for all personnel when working in areas where large concentrations of bees, wasps, or hornets have been identified.

All personnel will inform the Incident Commander of any known allergy to, or past reaction to bee, wasp, or hornet stings.

If a "nest" is detected:

- All personnel will leave the area immediately.
- Call in the location of the "nest" to the Incident Commander.
- The area will be flagged as a hazard and its location written down for marking on the hazard map.

If a sting or attack occurs the following procedure will be followed:

- Remove the stinger within 30 seconds if possible.
- Do not squeeze the wound as this will release more venom.
- Wash the wound with soap and water.
- Apply cold pack.
- Watch for any of these signs and symptoms of allergic reaction and notify Incident Commander immediately if detected: rash, tightness of the chest and throat, swelling of the face, neck, and tongue, excessive sweating, dizziness, and / or difficulty breathing.

EpiPens

Adrenaline (epinephrine) is a natural hormone released in response to stress. It is a natural "antidote" to the chemicals released during severe allergic reactions triggered by drug allergy, food allergy or insect allergy. It is destroyed by enzymes in the stomach, and so needs to be injected. When injected, it rapidly reverses the effects of a severe allergic reaction by reducing throat swelling, opening the airways, and maintaining blood pressure.

Use of adrenaline for treating anaphylaxis is First Aid.

IMPORTANT: The information provided is of a general nature and should not be used as a substitute for professional advice. If you think you may suffer from an allergic or other disease that requires attention, you should discuss it with your Incident Commander.



Warning / direction for EpiPen use:

- Never put thumb, fingers, or hand over the orange tip. (Tip colours vary by brand. Other colours are generally black and green.)
- Do not remove grey safety release until ready to use.
- Do not use if solution is discoloured or red flag appears in clear window as it may be expired.
- Do not place any other foreign objects in carrier with auto-injector, as this may prevent you from removing the auto-injector for use.

Steps for EpiPen use:

- 1. Unscrew the yellow or green cap off of the EpiPen carrying case and remove the EpiPen auto-injector from its storage tube.
- 2. Grasp unit with the black tip pointing downward.
- 3. Form fist around the unit (black tip down).
- 4. With your other hand, pull off the gray safety release.
- 5. Hold black tip near outer thigh.
- 6. Swing and jab firmly into outer thigh until it clicks so that unit is perpendicular (at a 90° angle) to the thigh. (Auto-injector is designed to work through clothing.)
- 7. Hold firmly against thigh for approximately 10 seconds. (The injection is now complete. Window on auto-injector will show red.)
- 8. Remove unit from thigh and massage injection area for 10 seconds.
- 9. Call for Help and seek immediate medical attention.
- 10. Carefully place the used auto-injector (without bending the needle), needle-end first, into the storage tube of the carrying case that provides built-in needle protection after use. Then screw the cap of the storage tube back on completely and take it with you to the hospital emergency room.

Most of the liquid (about 90%) stays in the auto-injector and cannot be reused. However, you will have received the correct dose of the medication if the red flag appears in window.

Immediately after EpiPen use:

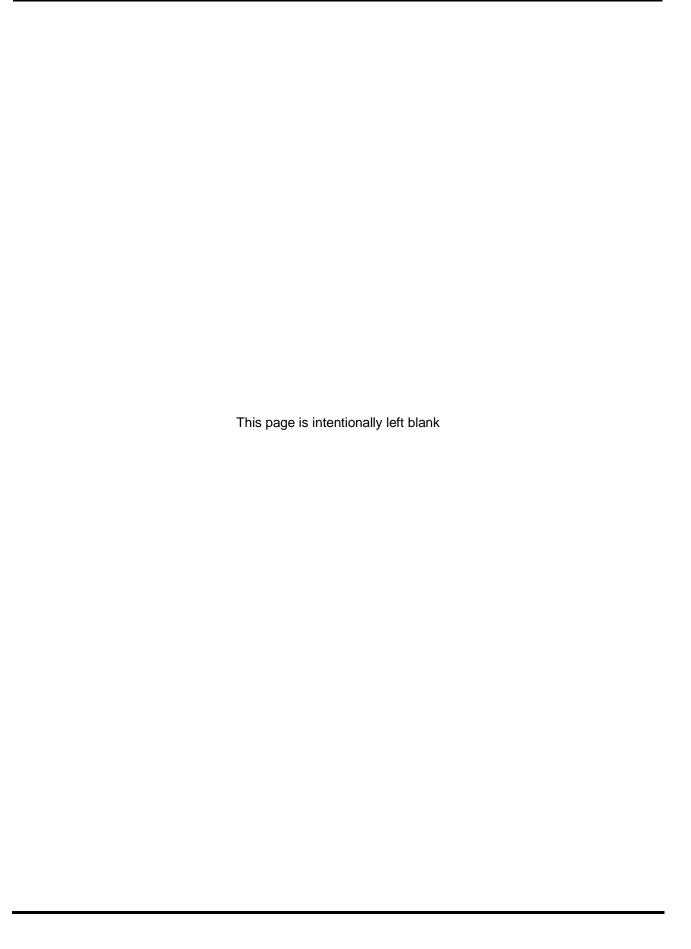
- Go immediately to the nearest hospital emergency room or call 911. You may need further medical attention. Take your used auto-injector with you.
- Tell the doctor that you have received an injection of epinephrine in your thigh.
- Give your used EpiPen to the doctor for inspection and proper disposal.



Section 5: External Agencies

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Government Consultations

First Nations

The Blackwater mine site is located within the traditional territories of Lhoosk'uz Dené Nation (LDN), Ulkatcho First Nation (UFN), Skin Tyee Nation and Tsilhqot'in Nation. The Kluskus and Kluskus-Ootsa FSRs and Project transmission line cross the traditional territories of Nadleh Whut'en First Nation (NWFN), Saik'uz First Nation (SFN), and Stellat'en First Nation (StFN; collectively, the Carrier Sekani First Nations [CSFNs]) as well as the traditional territories of the Nazko First Nation (NFN), Nee Tahi Buhn Band, Cheslatta Carrier Nation and Yekooche First Nation (EAO 2019a).

Throughout the environmental assessment (EA) process, the Environmental Assessment Office (EAO) consulted with LDN, UFN, WFN, SFN, StFN [collectively, the Carrier Sekani First Nations (CSFNs)] and NFN according to the deeper end of the consultation spectrum described in 2004 by the Supreme Court of Canada in Haida Nation v. British Columbia (Minister of Forests). The EAO consulted with Skin Tyee Nation, Tsilhqot'in Nation, Cheslatta Carrier Nation, Nee Tahi Buhn Band, and Yekooche First Nation at the lower end of the Haida consultation spectrum.

The EAO notified the Skin Tyee Nation, Tsilhqot'in Nation, Cheslatta Carrier Nation, Nee Tahi Buhn Band, and Yekooche First Nation of key milestones in the EA process. The EAO also invited these nations to meet to discuss any Aboriginal Interests potentially affected by Blackwater and shared the relevant sections of the EAO's draft Assessment Report (Part C – Indigenous Consultation Report) for their review and comment. The EAO did not receive any requests to meet or comments on Part C of the Assessment Report, with the exception of the Tsilhqot'in National Government, who commented that it had no further concerns.

Lhoosk'uz Dené Nation and Ulkatcho First Nation

The EAO engaged UFN and LDN in a collaborative manner throughout the EA review that was guided by a 2016 Memorandum of Understanding (EAO 2019a).

The EAO and the Impact Assessment Agency of Canada (formerly the Canadian Environment Assessment Agency) (Agency) collaborated with UFN and LDN on proposed conditions in the provincial environmental assessment certificate (EAC) and the federal Decision Statement (DS) and an assessment of the potential impacts of the Project on UFN and LFN. As part of the EAO and the Agency's collaboration with the UFN and LDN during the Project's EA, UFN and LDN provided a detailed report setting out their perspectives of the impacts from Blackwater to UFN and LDN (Appendix G to EAO's Assessment Report; EAO 2019a).

The Chiefs for UFN and LDN submitted letters of support to the EAO to share their final conclusions regarding the EA, adequacy of consultation and accommodation, and their consent to the issuance of the EAC (EAO 2019a). In response to the UFN/LDN letter, the EAO advised the Province had committed to negotiate an Economic and Community Development Agreement (ECDA) for Blackwater with the LDN and UFN. Under this agreement, the Province would outline how it intends to share mineral tax revenues from Blackwater with LDN and UFN if Blackwater is developed and operated. Negotiations on the ECDA are ongoing and are led by LDN and UFN and provincial representatives. The Province also communicated that it would be taking a collaborative approach with LDN and UFN on mine permitting and over the life of mine.

There has been a trilateral Participation Agreement in place with Artemis, LDN and UFN since April 2019.



Government Consultations, continued

Carrier Sekani First Nations

The EAO engaged the NWFN, SFN and StFN in a collaborative manner throughout the EA review which was guided by the CSFNs Blackwater Collaboration Plan (EAO 2019a). The EAO and Agency collaborated with the CFSNs on proposed conditions in the provincial EAC and the federal DS. As part of the Collaboration Plan, the CSFNs, EAO, Agency collaboratively developed a report that sets out CSFNs' perspectives on the impacts of the Blackwater Project to CSFNs' Aboriginal rights, title, and interests (EAO 2019a).

At the conclusion of the EA review, the CSFNs advised the CSFNs and the EAO it had reached consensus on proposed conditions, and that in particular, the CSFNs valued the incorporation of Yinka Dene Water Law. In response to concerns raised by CSFNs with respect to economic accommodation and compensation, the Province met with CSFNs to discuss their concerns and committed to continue to work with the CSFNs on an economic benefits package in relation to Blackwater.

At the time and in response to the CSFNs' concerns, New Gold committed to continuing negotiations with CSFNs with the goal of reaching a mutually-acceptable "participation agreement" that will include accommodative measures and other benefits, including discussions on financial compensation, business and employment opportunities arising from the Project, environmental matters, and implementation and communication protocols. An agreement has not yet been reached by the parties.

Stakeholders and the Public

Fraser Lake, Quesnel, the City of Prince George, and the Regional Districts of Bulkley-Nechako and Cariboo. In addition, there was engagement with other potentially affected or interested stakeholders including tenure holders and private landowners, commercial and non-commercial land users, service providers, interest groups, and non-government organizations. Stakeholders and the public were also provided with opportunities to review comment on documents produced during the EA review.

Pursuant to EAC Condition 37, BW Gold has established a Community Liaison Committee (CLC) to provide information to Artemis on Project effects in members' communities and mitigation measures to address potential social and economic effects. Committee members include the District of Vanderhoof, Village of Fraser Lake, UFN, LDN, NWFN, SFN, STFN, City of Quesnel, Electoral Area I of Cariboo Regional District, Electoral Area F of Regional District Bulkley Nechako, Northern Health, Nechako Environment and Water Stewardship Society and College of New Caledonia. The CLC will be in place throughout construction, operations and the first five years of closure.



Provincial Notification Matrix

British Columbia			Initial Responders			Lead Agencies				Supporting Agencies & Other Government Contacts						
Notification Requirements for Key Government Agencies	Agency or Resource	Ambulance Services	Fire Department	IP - Royal Canadian Mounted	.C - Emergency Management BC 2	EMLI - Ministry of Energy, Mines and Low Carbon Innovation 3	Local Authorities 4	NHA - Northem Health Authority	WorkSafe BC 5	MOE - Ministry of Environment 7	Technical Safety BC 6	C - Environment & Climate nge Canada	MOTI - Ministry of Transportation & Infrastructure	CANUTEC	- Department of Fisheries and ans	
Incident Type		Amb	Fire	RCMP - Police	EMBC	EMLI Low (Loca	NHA	Worl	MOE	Tech	ECCC - E Change	MOT	CAN	DFO - Do	
Hazardous Substance Release			а	✓	✓	1	✓	✓	✓	✓		✓	С		е	
Spills / Transportation Incidents (Unrefined Products)			а	✓	✓	✓	✓	✓	✓	✓	<u>✓</u>	✓	С	d	е	
Spills / Rail or Trucking Incidents (Refined Products)*			а	✓	1	1	✓	b	✓	✓	<u> </u>	✓	С	d	е	
Serious Injury or Death as a Result of Mining Activity		✓.		✓	✓.	✓			✓							
Missing Person				✓		1										
Fire / Explosion / B.L.E.V.E.		✓.	✓	✓	✓	✓	✓	✓.	✓	✓		✓	С			
Pressure Vessel or Piping Incident				✓		1			✓		✓	✓				
Electrical Incident				✓		✓			✓		✓					
Motor Vehicle Accident (Serious Injury or Death)		✓		✓		1			✓							
Motor Vehicle Accident (No injuries)				✓		✓										
Security Incidents				✓		1			✓							
On - Site Incident Involving E2 Regulated Substance			а	✓		✓		b	1	1		✓			✓	

Phone numbers for the agencies listed above are located in the Area Specific Information

29-Sep-22

[✓] Compulsory contact

^{*} Refer to the British Columbia Release Reporting Requirements chart included in the ERP.

_ Technical Safety BC only requires reporting of rail related accidents, incidents and spills. No other transportation related emergencies need to be reported.

EMBC to notify the Ministry of Environment for any incident which affects the water, air, or land environment, or any white or green space in the province.

EMBC to notify Environment & Climate Change Canada (ECCC) immediately as required for incidents involving regulated substances at E2 registered facilities, incidents involving PCBs or any spills on First National Parks, into river or lake systems containing fish, or onto railway right-of-way.

EMBC to notify Ministry of Forests, Lands and Natural Resources Operations, Northern Health Authority, affected municipalities and all other level of government and industry; depending on the ECC code level in their SOPs.



Provincial Notification Matrix, continued

- a) Contact the local fire department if there is potential for secondary fires resulting from the ignition of spilled liquids or escaping gases.
- b) Contact the Northern Health Authority if the incident affects public health, e.g., contaminated drinking water.
- c) Contact the Ministry of Transportation and Infrastructure (MOTI) and the RCMP if the emergency intersects with a 1, 2 or 3 digit Provincial or Secondary highway (e.g., Hwy 2, Hwy 47, Hwy 837). MOTI and RCMP have the authority to shut down highways.
- d) Contact the Canadian Transport Emergency Centre (CANUTEC) when a highway is shut down, there is an injury or fatality, there is lost, stolen or unlawfully interfered with dangerous goods (except Class 9), the incident involves infectious substances, there is an accidental release from a cylinder that has suffered a catastrophic failure, where the shipping documents display CANUTEC's telephone number, where a railway vehicle, ship, aircraft aerodrome or an air cargo facility is involved, when a facility is closed, evacuation/shelter-in-place procedures take place as a result of the transportation of dangerous goods, containment has been damaged and integrity compromised, or the centre/stub sill of a tank car is broken or there is a crack in the metal ≥ 15 cm (6"). CANUTEC can also provide guidance on handling procedures for toxic material releases.
- e) Contact the Department of Fisheries and Oceans for a release of any substance deleterious to fish into a fish bearing water body.
- 1 In the event of a fatality, request that the RCMP contact the Medical Examiner. The RCMP must be notified in the case of lost, stolen, or misplaced explosives, radioactive materials, or infections substances.
- 2 Notify Emergency Management BC (EMBC) for all spill and non-spill incidents to receive a Dangerous Goods Incident Report (DGIR) number. EMBC will notify the Ministry of Environment and will provide a representative to coordinate the provincial response.
- Notify the Ministry of Energy, Mines and Low Carbon Innovation (EMLI) in the event of (a) any accident resulting in loss of life, (b) any dangerous occurrence (DO) as specified in section 1.7.3, the manager shall inform an inspector, the OHSC, and the local union or worker representative as soon as practicable, but no later than 4 hours after an event under paragraph (a) or 16 hours after an event under paragraph (b), and within one week send a written notification to an inspector for an event under paragraph (a) or (b). In any case of any accident resulting in a worker seeking medical aid, the manager shall provide a monthly report to an inspector, the OHSC, and the local union or worker representative.
 - Dangerous Occurrences to be reported includes: (1) unexpected major ground fall or subsidence, whether on surface or underground, which endangers people or damages equipment or poses a threat to people or property, (2) cracking or subsidence of a dam or impoundment dike, unexpected seepage or appearance of springs on the outer face of a dam or dike; loss of adequate freeboard, washout or significant erosion of a dam or dike, any of which might adversely affect the integrity of such structures, (3) any accident involving a mine hoisting plant and including sheaves, hoisting rope, shaft conveyance, shaft, shaft timber, or headframe structure, (4) unexpected inrush of water, mud, slurry, or debris, (5) premature or unexpected explosion of explosives, gas or any dust, (6) significant inflow or release of explosive or other dangerous gas, (7) unplanned stoppage of the main underground ventilation system, (8) a mine vehicle going out of control, (9) outbreak of fire if it endangers persons or threatens or damages equipment and all underground fires, (10) electrical equipment failure or incident that causes or threatens to cause injury to persons or damage to equipment or property, and (11) any other unusual accident or unexpected event which had the potential to result in serious injury.
- 4 Local authorities include regional district disaster services, first nations, national park authorities, and the local police.
- Ensure any workplace conditions that present an immediate hazard to other workers are addressed, ensure first aid and medical treatment for the worker, and then notify WorkSafeBC of the incident. The requirement to immediately report a serious injury or fatality is separate from the requirement to report injuries for claims purposes. Failure to immediately notify WorkSafeBC will be considered a breach of section 172 of the Workers Compensation Act. The employer must immediately report the following incidents, injury or not: Any incident that kills, causes risk of death, or seriously diving incident or decompression sickness, a major leak or release of a dangerous substance, a major structural failure or collapse of a structure, equipment, construction support system or excavation, or any serious mishap. Must also report incidents that requires the employee to seek medical attention or cause time-loss from work.
- 6 Ministry of Environment was formerly known as Ministry of Water, Land and Air Protection.
- 7 Technical Safety BC is to be notified immediately in cases of Boilers, Pressure Vessels, Piping and Fittings, Electrical & Gas incidents resulting in a moderate, major, and fatal injury or moderate, major, or severe property damage. All other incidents must be reported within 24 hours (or as soon as practical). Rail accidents where a person sustains a serious injury or is killed as a result of being on board or getting on or off the rolling stock, or coming into contact with any part of the rolling stock or its contents, or the rolling stock is involved in a grade crossing collision or a derailment, sustains damage that affects its safe operations, or causes or sustains a fire or explosion, or causes damage to the railway, that poses a threat to the safety of any person, property or the environment, or any dangerous good is released.

*EMLI - Energy, Mines and Low Carbon Innovation

☐ Provide emergency medical assistance, as required.

After the Incident

Northern Health Authority

genc

of

Before the Incident

Northern Health is the regional health authority responsible for providing health services to 300,000 people over an area of 600,000 square kilometers in the province of British Columbia. Services include:

☐ Acute (hospital) Care

☐ Public Health (Protection, Preventive and Population Health services

☐ Mental Health and Addictions

☐ Home and Community Care

☐ In the event of a major emergency/disaster, Northern Health will provide health care services within its capacity, and will activate its emergency response management plan(s).

☐ Participate with industry, local authority and other partners in the development of their Emergency Response Plans as it relates to health authority roles and responsibilities.

Participate in stakeholder training and exercises associated with activation of an Emergency Response Plan, in which Northern Health or HEMBC have a role and responsibility.

The Police and Community Safety Branch of the Ministry of Justice will work with EMBC to:

☐ Prepare, promulgate and implement orders relating to law enforcement and internal security.

☐ Provide through the jurisdictional police force:

☐ Advice to local authorities respecting the maintenance of law and

☐ Reinforcement of local police services

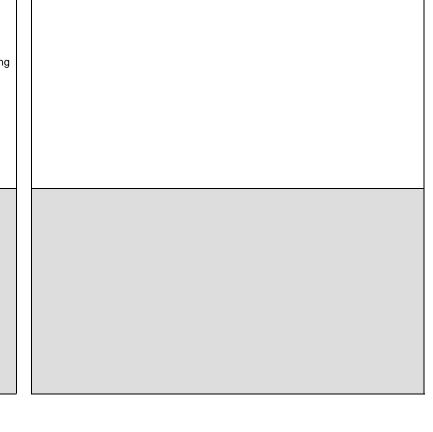
☐ Security control of emergency areas; and

☐ Traffic and crowd control

☐ The Ministry of Justice provides legal services to the government. Policy direction and legislative changes are made in consultation with the Ministry of Justice. During emergencies or disasters the Ministry of Justice may be called on to assist with risk management and provide expertise. This could include providing advice to provincial ministries and government corporations on legal matters relating to the preparation and promulgation of emergency orders, regulations, declarations and contractual arrangements.

During the Incident

- ☐ Activate internal emergency response management plans related to ongoing provision of its services
- ☐ Provide acute care and emergency services at existing Northern Health hospitals/health centres.
- Uvork with BC Emergency Health Services (Ambulance) and the BC Patient Transfer Network to transport patients to the appropriate levels of care.
- ☐ Apply and enforce the Public Health Act, and associated regulations.
- Provide advice/information to the stakeholders on the existing or potential public health effects of an incident (including drinking water safety, air quality, environmental contaminants, communicable disease prevention, re-occupancy of evacuated areas,
- ☐ Provide advice/information on the best methods for monitoring health effects from an incident.
- ☐ Assist in development of (joint) messaging for public information on emergency incidents.
- ☐ Provide guidance to stakeholders and local authorities on public health considerations in operating reception and evacuation centres, and group lodging facilities.
- ☐ Jurisdictional police forces to task search and rescue services for missing persons on land and in inland waters.
- ☐ Before, during and after an emergency the Ministry of Justice could be called upon to provide expertise, technical advice and/ or policy direction regarding police and correctional services.
- ☐ The Minister of Justice has overall responsibility for emergency management in the province. In the event of a disaster, the Minister may:
 - ☐ Declare a provincial state of emergency
 - ☐ Make a formal written request for federal assistance or aid from the Government of Canada
 - ☐ Direct the establishment of M-DEC
 - ☐ Inform his/her colleagues of the situation, and
 - ☐ Be available for media interviews



After the Incident

Before the Incident During the Incident ☐ Provide regulatory oversight and monitor the situation to ensure that the Before, during and after an emergency the Ministry of Environment could be called upon to provide expertise, technical advice Responsible Party (RP) is taking appropriate actions. and/or policy direction regarding: ☐ Environmental emergency response (including hazardous materials) Can liaise with MFLNRO to provide: ☐ Air, land and water quality standards ☐ Species and ecosystem protection policy. ☐ Pollution prevention and waste management ☐ Water protection and sustainability policy ☐ Water and air monitoring and reporting Environ Conservation and resource management enforcement □ Environmental assessment □ Environmental monitoring ☐ Parks, wilderness and protected areas. ☐ Provide regulatory oversight and monitor the situation to ensure that the Responsible Party (RP) is taking appropriate actions. ☐ May provide a representative to the Incident Command Centre, the Off-Site Command EOC and the EMLI Emergency Ministry of Operations Centre (EOC) and / or the Provincial Emergency Operations Centre (PREOC) on a 24-hour basis. In a larger scale incident, based on risk, additional ministry resources such as IMTs (Incident Management Teams) may be deployed to establish unified command and monitor, augment, or take over the response if the RP fails to take appropriate action as deemed necessary by the EERO or Provincial Incident Commander. ☐ May assist the RP to ensure that other required agencies and affected stakeholders are contacted. ☐ May provide assistance with hazardous waste management. May conduct sampling for monitoring and enforcement purposes. ☐ Five key agencies are housed within the Ministry of Forests: Wildfire Before, during and after an emergency the Ministry of Forests could be called upon to provide expertise, technical advice and/ Management Branch, Dam Safety, Flood Safety, GeoBC and the or policy direction regarding River Forecast Centre. □ Forest stewardship policy ☐ Develop, deliver and promote innovative and effective wildfire management ☐ Land use planning ☐ Water use planning and authorizations practices to clients. ☐ Maintain a 24 hour emergency contact number where resources can be □ Drought management accessed for a response related to Emergency Response Plans. ☐ Dam and dike safety and regulation ☐ The Ministry of Forests is identified to provide personnel, equipment, supplies, ☐ Flood plain management telecommunications equipment, aviation support and weather information to ☐ GeoBC and information management assist in emergency response operations. ☐ Pests, disease, invasive plants and species The Ministry of Forests and Range is the designated key agency for wildfires. □ Wildfire management Before, during and after an emergency the Ministry of Transportation and Infrastructure (MoTI) could be called upon to provide ☐ Maintain a 24 hour emergency contact number where resources can be accessed for a response related to Emergency Response Plans. expertise, technical advice and/or policy direction regarding: ☐ In the event of an emergency, the Highway Department's Operations, ☐ Highway construction and maintenance Maintenance and Re- construction team plays an important role to ensure the ☐ Safety and protection of provincial road and bridge infrastructure public is safe and transportation routes are available for accessing emergency ☐ Transportation planning and policy services. ■ MoTI can: ☐ Ministry of Transportation and Infrastructure oversees provincial highways ☐ Authorize the closure of provincial transportation routes, including highways and inland ferries, where the safety of identified as emergency response routes - a network of pre-identified routes the public is at risk. that can best move emergency services and supplies to where they are needed ☐ Assist in public notification through the DriveBC website, as well as posting advisories on overhead message in response to a major disaster. boards along designated routes. ☐ Disaster Response Routes (DRRs) are a critical part of the overall emergency ☐ Coordinate and arrange for transportation, engineering and construction resources. transportation system. ☐ Rebuild and restore provincial highways that are impacted by an emergency. Responsible for the construction, maintenance and operation of public roads. ☐ Technical Safety BC (formerly BC Safety Authority) is an independent, self-☐ Technical Safety BC implements a business continuity plan in the event of a natural disaster. This plan ensures that Technical funded organization mandated to oversee the safe installation and operation of Safety BC resumes safety services as soon as possible. technical systems and equipment across the province. ☐ Though Technical Safety BC is not a first responder, they will provide technical support including inspection services to the ☐ In addition to issuing permits, licenses and certificates, we work with industry to recovery team relating to the technical equipment and systems covered by the Safety Standards Act (e.g., gas, electrical, elevating reduce safety risks through assessment, education and outreach, enforcement, devices, boiler and pressure vessel technologies) after first ensuring the safety of its employees. ☐ Starting in the planning phase and through collaboration with other agencies, Technical Safety BC can provide most value to the and research. public and best support the other agencies. WorkSafeBC is the BC Health and Safety Regulator. In addition to providing a As required by the Workers Compensation Act (WCA Sec 68), employers must immediately report the following types of incidents to WorkSafeBC at 1-888-621-7233 (whether there is an injury or not): no-fault insurance system and providing when work-related injuries or diseases occur compensation and support to workers in their recovery, rehabilitation, and ☐ Any incident that kills or seriously injures a worker safe return to work; WorkSafeBC assists workers in creating and maintaining ☐ A major leak or release of a dangerous substance healthy and safe work workplaces, with Proactive roles which include: ☐ A major structural failure or collapse of a structure, equipment, construction support system, or excavation ☐ Providing health and safety information to employers, workers, and the public ☐ A fire or explosion that had a potential for causing serious injury to a worker ☐ Establishing standards and guidelines for occupational health and safety ☐ Any blasting accident that results in injury, or unusual event involving explosives (required by regulation) ☐ Educating employers, supervisors, and workers on prevention of work-☐ A diving incident that causes death, injury, or decompression sickness requiring treatment (required by regulation) related injury and illness. Conducting work site inspections to help employers comply with health and This requirement is in addition to the requirement of reporting workplace injuries or disease for claims purposes. safety regulations. Collaborating with provincial and federal agencies and ministries on matters of occupational health and safety

□ Work with appropriate local and federal entities to facilitate the restoration of



☐ Providing access to prevention resources for workers and employers

Participate in event debriefings. ☐ Complete a "lessons-learned" process based on the scope of their involvement

and the outcome.

roadways and utilities.

After the Incident

☐ Technical Safety BC tracks and investigates incidents and hazards that are reported to inform awareness and prevention initiatives ☐ Technical Safety BC does not investigate all reported incidents and may not

follow-up with a notification unless there is an intention to investigate.

☐ Technical Safety BC will contact duty holders within 24 hours of the next regular business day following the report of an incident if more information is required or an investigation is planned to occur.

conducted within 48 hours and full investigations completed within 30 days of the following types of incidents:

is required to be reported under section 68 (specified above).

resulted in injury to a worker requiring medical treatment, did not involve injury to a worker, or involved only minor injury not requiring

medical treatment, but had a potential for causing serious injury to a worker,

Prompt investigation of incidents must be conducted to identify causation and

prevent recurrence. The WCA (sec 69) requires preliminary investigations to be

was an incident required by regulation to be investigated.

The investigation process must be carried out by persons knowledgeable about the type of work involved and, if they are reasonably available, with the participation of the employer or a representative of the employer and a worker representative. Full investigations must be submitted to WorkSafeBC.

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Before the Incident

- ☐ Provide public health measures, including epidemic control and immunization programs.
- ☐ Provide and coordinate ambulance services and triage, treatment, transportation and care of casualties.
- ☐ Provide the continuity of care for patients evacuated from hospitals or other health institutions and for medically dependent patients from other care facilities.
- ☐ Provide standard medical units consisting of emergency hospitals, advanced treatment centres, casualty collection units and blood donor packs.
- Monitor potable water supplies.

Health

of

Agriculture

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Ministry

BC

HEM

- ☐ Inspect and regulate food quality with the assistance of the Minister of Agriculture.
- ☐ Provide critical incident stress debriefing and counselling services.
- ☐ Provide support services for physically challenged or medically disabled people affected by an emergency.
- ☐ Maintain a 24 hour emergency contact number where resources can be accessed for a response related to Emergency Response Plans.
- ☐ Provide input on public health issues related to a petroleum incident.

Emergency management support roles for all hazards (upon request of Local Authority, First Nation, EMBC, or other requesting agency):

- ☐ Provide advice to farmers, aqua-culturalists and fishers on the protection of crops, livestock and provincially managed fish and marine plant stocks.
- ☐ Coordinate the emergency evacuation and care of poultry and livestock.
- ☐ Inspect and regulate food quality.
- ☐ Identify food and potable water supplies.
- ☐ Assist the Minster of Health in the inspection and regulation of food

Health Emergency Management BC (HEMBC) is a program under the Provincial Health Services Authority (PHSA). HEMBC provides the expertise, education, tools, and support specifically for the BC Health Sector to effectively mitigate, prepare for, respond to, and recover from the impacts of emergency events; ensuring the continuity of health services. There is a HEMBC team in each BC health authority. HEMBC-North deals specifically with Northern

☐ Maintain a 24-hour emergency/on call contact number for notification and activation of the health system in Northern BC.

During the Incident

Before, during and after an emergency the Ministry of Health could be called upon to provide expertise, technical advice and/or policy direction regarding:

- ☐ Health service delivery
- ☐ Public health planning and response
- ☐ Community and home support services
- ☐ Mental health
- ☐ Communicable disease prevention
- ☐ During an emergency the Ministry of Health will provide the continuity of care both for patients evacuated from hospitals or other health institutions and for medically dependent patients from other care facilities; The Ministry will also provide emergency psychosocial services.
- ☐ Ensure appropriate Health entities have been notified of the incident.
- ☐ Ensure appropriate Executive and Public Health personnel have been notified of the incident.
- ☐ Carry out evacuation of medically dependent and vulnerable populations, as needed.
- ☐ Transport incident casualties as required.
- ☐ Triage and provide medical care to incident casualties as required.
- ☐ Decontaminate incident casualties that present to health care facilities, as needed.
- ☐ Relay health hazard information to the public.
- ☐ Monitor water and air quality, as it relates to public health.
- ☐ Coordinate the public health response to the incident.
- ☐ Address the psychosocial aspects of the aftermath of an event.
- ☐ Arrange with Health Canada and the Public Health Agency of Canada for federal support, if needed.

The designated lead provincial ministry for planning and response before, during and after an emergency for:

- □ Plant diseases
- Diseases and epidemics as specified below:
- - □ Pest infestations
 - ☐ Animal diseases
- Participate in event debriefings.

☐ Participate in event debriefings.

involvement and the outcome.

Complete a "lessons-learned" process based on the scope of their involvement and the outcome.

After the Incident

□ Complete a "lessons-learned" process based on the scope of their

Continue with public health and environmental health monitoring as required.

☐ Continue to address the psychosocial aspects of recovery.

- ☐ For emergency events that require immediate connection with Northern Health, please call HEMBC on call (24/7) -855-554-3622. HEMBC will notify / activate the appropriate Northern Health programs (ie. Public Health, Acute Care etc.) based on the nature of the event / emergency. Please include this number in industry ERPs for the use of permit holders in
- contacting Northern Health on an emergency basis. 🗖 Notify/activate the appropriate Northern Health programs (i.e. Public Health, Acute Care, etc.) based on the nature of the incident/emergency event.
- Participate in event debriefings.
- □ Complete a "lessons-learned" process based on the scope of their involvement and the outcome.



Environment & Climate Change Canada's Environmental Emergencies Program During an environmental emergency, The National Environmental Emergencies Centre (NEEC) is the focal point for ECCC. ☐ ECCC can conduct post-emergency assessments. (EEP) protects Canadians and their environment from the effects of environmental ☐ Provide specialized advice in shoreline clean-up assessment techniques (SCAT). ECCC's services during an environmental emergency: emergencies through provision of science-based expert advice and regulations. The key Acts and Regulations that govern ECCC's role in environmental ☐ Provide Advise on mitigation and cleanup measures.. □ Collaborate with federal, provincial, territorial and international environmental protection agencies to enable rapid sharing of information emergencies that allow it to deliver its mandate are: *ECCC ☐ Convene and chair a Science Table of experts and stakeholders to develop consensus based advice to the Lead Agency. ☐ Canadian Environmental Protection Act, 1999 ☐ Identify environmentally sensitive areas and priorities (sensitivity and resource at risk mapping). ☐ Fisheries Act—Pollution Prevention Provisions; ☐ Advise on mitigation and cleanup measures. ☐ Migratory Birds Convention Act, 1994; ☐ Provide support and guidance in the assessment of oiled shorelines to prioritize their protection and cleanup (Shoreline Cleanup ☐ Statutory Notification Requirements—EC's Environmental Notification Assessment Technique (SCAT)). System. Advice on the fate and behavior of the spilled product. ☐ Environmental Emergencies Regulations. ☐ Advice on sampling and laboratory analysis. ☐ Provide weather forecasting and spill dispersion modelling to identify where these substances are likely to move in the environment. ☐ Provided expertise on the migratory bird resources and species at risk, including on-site assessment and determination of wildlife impact. ☐ Can conduct post-emergency assessments. ☐ Work closely with ECCC, The Canadian Coast Guard and other provincial The Canadian Coast Guard is the lead federal agency for ensuring appropriate ☐ Any amount of hydrocarbons entering a waterway frequented by fish or occupied by waterfowl is deemed to be in contravention of the response to all ship-source and unknown mystery spills in Canadian waters and Federal Fisheries Act and must be reported to the Department of Fisheries and Oceans. environmental agencies waters under international agreements. □ Work together with provincial environment protection agencies and may be initially notified by ECCC. ☐ Establishes appropriate and nationally consistent level of preparedness and ☐ May send personnel to the site if there has been or could potentially be an impact to fish or fish habitat. response services in Canadian waters. ☐ Monitors and investigates all reports of marine pollution in Canada in conjunction with other federal departments. ☐ Design and develop related regulations, policies, strategies and tools. ☐ Maintains communications with the program's partners, including Transport Canada and ECCC, to ensure a consistent coordinated ☐ Review, assess and monitor activities associated with fish habitat to ensure approach to marine pollution incident response. their compliance with the Fisheries Act and Species at Risk Act. ☐ Aids in search and rescue operations. ☐ Conduct environmental assessments under the Canadian Environmental Assessment Act. ☐ Design, develop and implement communication and education strategies. NAV Canada is a private company who coordinates the safe and efficient ☐ As requested by the permit holder company, the Flight Information Centre will issue a NOTAM (Notice to Airmen) ☐ Rescind the NOTAM. movement of aircraft in Canadian domestic airspace and international airspace ☐ To close air space beyond an airport (e.g. above a sour gas release), Refer to Transport Canada on back side of this page. assigned to Canadian control. Flight Information Centre (FIC) - FIC Services Each Flight Information Centre is responsible for providing its particular service area with the following services, which pilots rely upon for safe flight planning and operations: ☐ Emergency ☐ Aviation Weather Briefing ☐ Flight Planning ☐ En-route Flight Information Services ☐ Remote Aerodrome Advisory Services (RAAS) ☐ Sets national standards to keep the environment healthy, keep water and air During a health emergency or disaster, Health Canada and the Public Health Agency of Canada are responsible for supporting □ Work collaboratively with the provinces and territories to test ways in which the pollution low and Canadians safe emergency health and social services in the provinces and territories. Canadian health care system can be improved and ensure its sustainability for the ☐ Maintains a nationwide network of radiation monitoring stations and can act if ☐ Under Chemicals Management Plan, assess health risks from chemicals used in manufacturing and agriculture and require users to prove they actually need the chemicals to make their products ☐ Sets strict rules on how chemicals are used in order to limit human exposure. ☐ Preparedness exercises are designed to test how well the plans and procedures work during simulated emergency situations. Such exercises help the government identify strengths as well as any problems or inadequacies in preparedness plans and procedures so that these can be addressed before, not after, an actual emergency. The Centre for Emergency Preparedness and Response (CEPR) is responsible ☐ In an emergency situation, the Office of Emergency Response Services (OERS) is responsible for supporting emergency health and ☐ Work with Health Canada to test ways in which the Canadian health care system social services in the provinces, territories or abroad. It manages the National Emergency Stockpile System (NESS), which includes can be improved and ensure its sustainability for the future. c Health of Canada ☐ Developing and maintaining national emergency response plans for the medical, pharmaceutical and related emergency supplies. The Office is responsible for the federal response to emergencies that have Public Health Agency of Canada and Health Canada. health repercussions; this includes the deployment of health emergency response teams (HERT). ☐ Assessing public health risks during emergencies. ☐ If a public health emergency grows beyond one province and/or territory, the Public Health Agency of Canada usually gets involved. ☐ Contribution to keeping Canada's health and emergency policies in line by collaborating with other federal and international health and security agencies. ☐ The health authority in the Government of Canada on bioterrorism, emergency health services and emergency response. Agency ☐ Strengthen intergovernmental collaboration on public health and facilitate national approaches to public health policy and planning. ☐ Manages emergency preparedness and emergency response plans and keeps them up to date. Develops and runs exercises to train emergency workers. ☐ Develops and delivers training courses that teach health workers how to respond to emergencies.

During the Incident

Federal Agency Ro

Revised September 2022

After the Incident

Before the Incident

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Before the Incident **During the Incident**

☐ Maintain a 24 hour emergency telephone service.

*CANUTEC

☐ Regulate the handling, offering for transport and the transport of dangerous goods by all modes in order to ensure public safety.

- ☐ Federal regulations require that CANUTEC be contacted in the event of an incident or accident involving dangerous goods and infections substances.
- ☐ Maintains records of over 3 million Safety Data Sheets (SDS).

Aviation Operations Centre (AVOPS)

- ☐ Federal regulations require that AVOPS be contacted if there is imminent and immediate threat to aviation and public safety.
- ☐ Public Safety Canada works with provincial and territorial officials to ensure first responders and emergency management personnel are well-prepared through education, support and exercises.
- Responsible for promoting and coordinating the preparation of departmental emergency management plans as well as coordinating the government's response to an emergency through the Government Operations Centre (GOC).

*CANUTEC

- ☐ Assist emergency response personnel in handling dangerous good emergencies including advice on
 - ☐ Chemical, physical and toxicological properties and incompatibilities of the dangerous goods
 - ☐ Health hazards and first aid
 - ☐ Fire, explosion, spill or leak hazards
 - ☐ Remedial actions for the protection of life, property and the environment
 - □ Evacuation distances
 - ☐ Personal protective clothing and decontamination
- □ CANUTEC staff does not go to the site of an incident, however, should on-site assistance be required, CANUTEC can assist in the activation or industry emergency response plans.
- ☐ Provide communication links with the appropriate industry, government or medical specialists.

Aviation Operations Centre (AVOPS)

- ☐ To close air space beyond an airport in a defined area (e.g. above a sour gas release), AVOPS can be contacted by the permit holder company.
- ☐ Public Safety Canada houses the Government Operations Centre at the hub of the national emergency management system. It's an advanced centre for monitoring and coordinating the federal response to an emergency.

After the Incident

*CANUTEC

☐ Maintain voice communication and written information records for two years for the protection of all parties.

Aviation Operations Centre (AVOPS)

☐ Rescind the NOTAM and re-open air space that was closed due to emergency.

☐ In the event of a large-scale natural disaster where response and recovery costs exceed what individual provinces and territories could reasonably be expected to bear on their own, PS provides financial assistance to the provincial and territorial governments through the Disaster Financial Assistance Arrangements (DFAA). Assistance is paid to the province or territory - not directly to individuals or communities. The provincial or territorial governments design, develop and deliver disaster financial assistance, determining the amounts and types of assistance that will be provided to those who have experienced losses.

*Transportation Safety Board Mandate

The Canadian Transportation Accident Investigation and Safety Board Act provides the legal framework that governs TSB activities. Our mandate is to advance transportation safety in the marine, pipeline, rail and air modes of transportation by:

- a conducting independent investigations, including public inquiries when necessary, into selected transportation occurrences in order to make findings as to their causes and contributing factors;
- identifying safety deficiencies, as evidenced by transportation occurrences;
- making recommendations designed to eliminate or reduce any such safety deficiencies; and
- reporting publicly on our investigations and on the findings in relation thereto.

As part of its ongoing investigations, the TSB also reviews developments in transportation safety, and identifies safety risks that they believe the government and the transportation industry should address to reduce injury and loss.

To instill confidence in the public regarding the transportation accident investigation process, it is essential that an investigation accident so interest when investigating accidents, identifying safety deficiencies, and making safety recommendations. As such, the TSB is an independent agency, separate from other government agencies and departments, that reports to Parliament through the President of the Queen's Privy Council for Canada. Our independence enables us to be fully objective in making findings as to causes and contributing factors, and in making transportation safety recommendations.

In identifying the causes and contributing factors of a transportation incident, it is not the function of the Board to assign fault or determine civil or criminal liability. However, the Board does not refrain from fully reporting on the causes and contributing factors merely because fault or liability might be inferred from the Board's findings. No finding of the Board should be construed as assigning fault or determining civil or criminal liability. Findings of the Board are not binding on the parties to any legal, disciplinary, or other proceedings.

*Indigenous Services Canada, Regional Operations and First Nations and Inuit Health Branch

Since the Government of Canada's renewed commitment to a stronger relationship with Indigenous peoples in Canada, measures were initiated to effect a shift in the way the Government delivers services to Indigenous peoples. This included the creation of two new departments, which was announced on December 4, 2017. The two newly created departments, Crown-Indigenous Relations and Northern Affairs Canada (ISC), are intended to improve the delivery of services while accelerating movement towards self-government and selfdetermination of Indigenous peoples.

As part of the departmental transition, both the former Regional Operations (RO) part of Indigenous and Northern Affairs Canada (INAC) and all of First Nations and Inuit Health Branch (FNIHB) of Health Canada have been absorbed into the newly created Indigenous Services Canada (ISC). RO and FNIHB work closely and collaborate towards the provision of emergency preparedness and response activities to First Nations communities in Canada.

In regards to First Nations emergency management, the role of RO is to liaise, communicate, cooperate, coordinate and collaborate with First Nations and public, private, and non-government sector partners in support of on reserve emergency management service delivery. ISC-RO supports First Nations in the four pillars of emergency management through service agreements with partners such as provincial emergency management agencies and the Red Cross.

FNIHB carries out the public health preparedness and response activities related to natural and man-made disasters. This includes Communicable Disease Control and Environmental Public Health Services. In addition, FNIHB administers Non-Insured Health Benefits to First Nations clients, which includes extended coverage for medical transportation, pharma-care, medical devices and mental health supports. During an emergency, FNIHB works with First Nations leadership and health service providers to ensure health needs of First Nations communities are met.

*RO - Regional Operations

Provincial specific FNIHB roles & responsibilities will be found in this section of the ERP, if applicable or as appropriate.





Section 6: Forms

Documentation During and After an Incident

Form Descriptions

Incident Command System (ICS) Forms

ICS 201 Incident Briefing

ICS 202 Incident Objectives

ICS 203 Organization Assignment List

ICS 204 Assignment List

ICS 207 Incident Organization Chart

ICS 208 Safety Message / Plan

ICS 209 Incident Status Summary

ICS 211 Check-In / Out List

ICS 214 Activity Log

ICS 215 Operational Planning Worksheet

ICS 215A IAP Safety Analysis

ICS 221 Demobilization Checkout

ICS 230 Meeting Schedule

ICS 231 Meeting Summary

ICS 233 Incident Open Action Tracker

Emergency Forms

A1 Mine Incident Preliminary Reporting Form

A2 Incident Action Plan Checklist

A3 Threatening Call / Bomb Threat

A4 STARS Landing Zone Card

Resident Forms

- **B1** Reception Centre Registration Log
- **B2** Resident Compensation Log
- **B3** Resident Contact Log
- B4 Roadblock Log
- **B5** Evacuation Notice
- B6 Early Notification / Voluntary Evacuation Phone Message
- B7 Shelter-In-Place Phone Message
- **B8** Evacuation Phone Message

Media Forms

- C1 Preliminary Media Statement
- C2 Media Contact Log
- C3 Government Agency Contact Log
- C4 Media Centre Site

Other Forms

Confined Space Entry Permit

Confined Space Entry Permit

Confined Space Entry Log

TDG 30 Day Follow-up Report

Avalanche Operations Plan







Documentation During and After an Incident

All personnel are required to document their actions on the ICS 214 – Activity Log throughout the duration of the incident. Additionally, note takers should be assigned to take notes at meetings and to document the discussions, decisions, overall activities, etc. at the Incident Command Post (ICP) and Emergency Operations Centre (EOC). The status of any changing documents such as status boards, wall charts, laminated maps with mark-ups, etc. should be captured prior to each set of new changes. It is essential that all documentation is correctly dated, and time stamped to provide the correct order and time of events.

It is imperative that accurate documentation is kept throughout the duration of an incident for record keeping purposes. Records kept may be used for legal, investigation, audits, historical and/or analytical purposes. All documentation must be held throughout construction, operation, and for 25 years following the end of decommissioning of the project.

It is the Documentation Units responsibility to collect documentation (forms, checklists, event logs, etc.) from response team members and maintain a consistent system for organizing the data.

Form Descriptions

The Incident Command System uses a series of standard forms and supporting documents that convey directions for the accomplishment of the objectives and distributing information. Listed below are the standard ICS form titles and descriptions of each form utilized.

Further ICS forms can be found through the ICS Canada website: http://www.icscanada.ca/en/forms.html.

Standard ICS Form Title	ICS Form Description						
ICS 201 Incident Briefing	Provides the Incident Command and General Staffs with basic information regarding the incident situation and the resources allocated to the incident. This form also serves as a permanent record of the initial response to the incident.						
ICS 202 Incident Objectives	Describes the basic strategy and objectives for use during each operational period.						
ICS 203 Organization Assignment List	Provides ICS personnel with information on the units that are currently activated and the names of personnel staffing each position.						
ICS 204 Assignment List	Informs Division and Group supervisors of incident assignments.						
ICS 207 Incident Organization Chart	A complete picture of the organizational structure for the incident.						
ICS 208 Safety Message / Plan	Expands on the Safety Message and Site Safety Plan.						
ICS 209 Incident Status Summary	Summarizes incident information for staff members and external parties, and provides information to the Public Information Officer for preparation of media releases.						
ICS 211 Check-In/Out List	Used to check in personnel and equipment arriving at or departing from the incident. Check-in / out consists of reporting specific information that is recorded on the form.						
ICS 214 Activity Log	Provides a record of unit activities. Unit Logs can provide a basic reference from which to extract information for inclusion in any afteraction report.						



Form Descriptions, continued

Standard ICS Form Title	ICS Form Description
ICS 215 Operational Planning Worksheet	Documents decisions made concerning resource needs for the next operational period. The Planning Section uses this Worksheet to complete Assignment Lists, and the Logistics Section uses it for ordering resources for the incident. This form may be used as a source document for updating resource confirmation on other ICS forms such as the 209 Incident Status Summary.
ICS 215A Incident Action Plan Safety Analysis	Used to communicates to the Operations and Planning Section Chiefs the potential hazards identified by the Safety Officer. It identifies mitigation measures to address the identified hazards.
ICS 221 Demobilization Checkout	Ensures that resources checking out of the incident have completed all appropriate incident business, and provides the Planning Section information on resources released from the incident.
ICS 230 Meeting Schedule	To record information about the daily scheduled meeting activities.
ICS 231 Meeting Summary	Provides more detailed information concerning the attendees and notes from a particular meeting.
ICS 233 Incident Open Action Tracker	Used by Command Staff to track time sensitive tasks / actions assigned to incident personnel.

Emergency Form Title	Emergency Form Description						
A1 Mine Incident Preliminary Reporting Form	Point driven form used to document initial incident information prior to notifying regulator.						
A2 Incident Action Plan Checklist	A checklist of other forms and information required to accurately create an incident action plan.						
A3 Threatening Call / Bomb Threat	Detailed point driven form used to document incoming phone calls pertaining to personnel threats and bomb threats.						
A4 Stars Landing Zone Card	An information card utilized if medical evacuation is required via STARS Air Ambulance.						

Resident Form Title	Resident Form Description
B1 Reception Centre Registration Log	Log used by Reception Centre Rep to record information from evacuees being received at the reception centre. Can also be faxed to reception centre in case a representative has not been identified or cannot make it before evacuees start arriving.
B2 Resident Compensation Log	Detailed spreadsheet for expenses incurred by evacuees so that compensation may be properly dealt with.
B3 Resident Contact Log	A log used by various company personnel to record contact made with residents, whether they're sheltered / evacuated and if assistance is required.
B4 Roadblock Log	A log used by designated Roadblock personnel to identify details about vehicles and persons entering or exiting a hazard area.
B5 Evacuation Notice	A document to be left in doors / windows of surface developments that are unable to be contacted as a way to issue evacuation instructions



Form Descriptions, continued

Resident Form Title	Resident Form Description
B6 Early Notification/Voluntary Evacuation Message	A script and document filled out by Telephoner personnel issuing calls to residents for early notification and voluntary evacuation purposes.
B7 Shelter-In-Place Message	A script and document filled out by Telephoner personnel issuing calls to residents with shelter-in-place instructions.
B8 Evacuation Phone Message	A script and document filled out by Telephoner personnel issuing calls to residents with evacuation instructions.

Media Form Title	Media Form Description
C1 Preliminary Media Statement	A generic script used by the Media Spokesperson to issue media statements until which time more detailed information is known and can be issued.
C2 Media Contact Log	A log used to identify what media outlets/persons have contacted the company and their contact information.
C3 Government Agency Contact Log	A log used to identify what government agencies have been notified about the incident.
C4 Media Centre Site	A document to distribute to media outlets/persons about the location for further media enquiries and press releases as well as details to get there.

Other Form Title	Other Form Description						
Confined Space Entry Rescue Plan	A pre-entry emergency plan to ensure that rescue personnel who need to enter a confined space can do so safely.						
Confined Space Entry Permit	A permit form to complete prior to entering a confined space for any reason.						
Confined Space Entry Log	A basic log to complete for entry, exit, time and air quality readings.						
TDG 30 Day Follow-up Report	A Transport Canada form to be completed and submitted 30-days after a transportation related incident.						
Avalanche Operations Plan	A detailed document to complete outlining the plan for rescuing casualties after an avalanche.						



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ICS 201 Incident Briefing Form



Incident Name:																											
Date/Time Initiated:																											
Prepared By:				ICS Position:																							
Level	of E	mer	ger	псу		□ L	.eve	l 1			Lev	/el 2	2	☐ Level 3				□ Level 4			□ Level 5						
Map S			on l	ho 6	Irou	m o	r o#	ach	od I	hore																	
Note. I	νιαμ	is C	arr	Je u	llaw	/11 0	all	acri	eu i	lere																	
Situat	ion	Sui	mm	ary	: (W	/rite	de	scr	iptio	on c	or a	ttac	h A	1)													
Safety	/ Bri	ofi	od:																								
Salety		CIII	ıy.																								

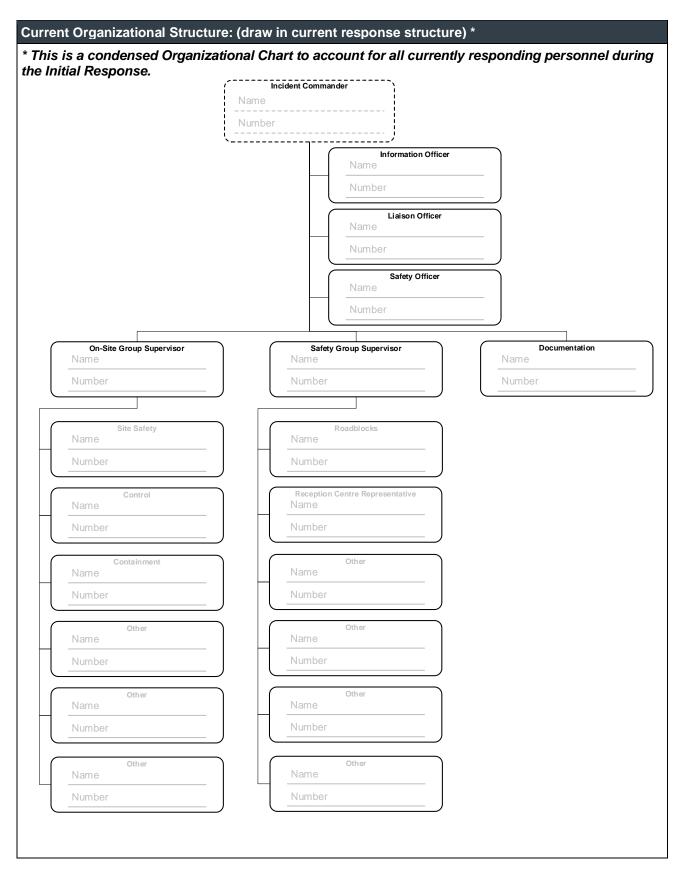
ICS 201 Incident Briefing Form



Current and Planned Objectives:									
Priorities: (1) Life Safety (2) Incident Stabilization (3) Environment & Property									
1. Ensure Safety of Personne	l:	4. Minimize Economic Impacts:							
☐ 1a. Identify hazard(s).		☐ 4a. Consider tourism and local economic impacts.							
☐ 1b. Establish site control (hot security).	zone, warm zone, cold zone, &	☐ 4b. Protect Blackwater and other private assets, as resources permit.							
☐ 1c. Isolate hazard area and Ir	nitiate Site Safety Actions.	 4c. Establish damage claims process (Blackwater Gold internal process). 							
☐ 1d. Consider evacuations if no	eeded.	Keep Stakeholders and Site Informed of Response Activities (Starting at Level 2 Emergencies):							
☐ 1e. Establish helicopter restric	ctions.	☐ 5a. Provide forum to obtain stakeholder input and concerns.							
☐ 1f. Monitor air in impacted are	eas	☐ 5b. Provide stakeholders with details of response actions.							
☐ 1g. Develop safety plan for peare conducted.	ersonnel and ensure safety briefings	☐ 5c. Identify stakeholder concerns and issues, and address as practical.							
2. Control the Source:		☐ 5d. Provide timely safety announcements.							
☐ 2a. Complete emergency shu	tdown.	☐ 5e. Conduct regular news briefings.							
☐ 2b. Conduct firefighting.		☐ 5f. Conduct public meetings, as appropriate.							
☐ 2c. Initiate temporary repairs.		☐ 5g. Blackwater Legal department must be involved.							
3. Manage a Coordinated Res		** All communication, both internal and external, needs to be under legal privilege.							
☐ 3a. Complete or confirm notifi									
☐ 3b. Establish a unified comma (command post, etc.).	and organization and facilities								
 3c. Ensure mobilization and to personnel and equipment. 	racking of resources and account for								
☐ 3d. Complete documentation.									
Current and Planned Action	ons, Strategies and Tactics:								
Time:	Actions:								
HHMM									
HHMM									
HHMM									
HHMM									
HHMM									
HHMM									
HHMM									
HHMM									
ННММ									

Section 6: Forms Page 2 of 6





Note: Refer to ICS 207 Incident Organization Chart in Section 6: Forms (Blue Tab) for full command structure.

ICS 201 Incident Briefing Form

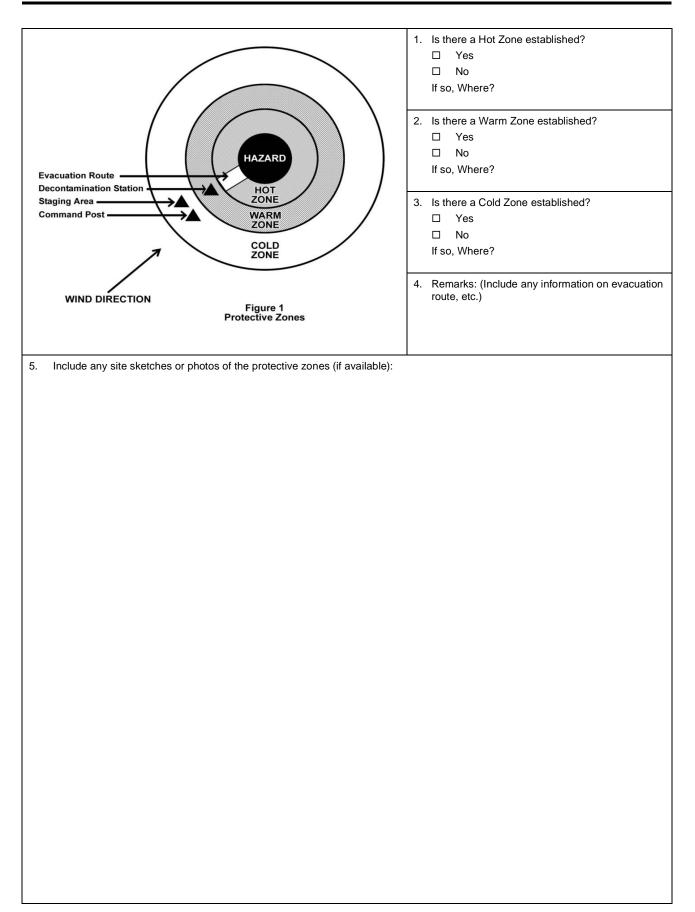


Resources Summary:											
Resource(s)	Time Called	ETA	On-Site	Notes (Location/Assignment/Status)							
External Notification	s: (Governmen	t, Local	Authorities	s, First Nations, etc.)							
Agency	Time Called			Notes							
EMLI											
EMBC											
Cariboo R.D.											
R.D. of Bulkley-Nechako											
Lhoosk'uz Dene Nation											
Ulkatcho First Nation											
Other		_									
Other											
Other											
Other											

ICS 201 Incident Briefing Form



Si	te Safety and Hazard Control Analysis									
Si	Site Control									
1.	Is Site Control set-up? ☐ Yes ☐ No	Is there an On-Scene Command Post? If so, where?	∃ Yes	□ No						
3.	Have all personnel been accounted for? ☐ Yes ☐ No ☐ Don't Know	Injuries: Fatalities: Unaccounted: Trapped:								
4.	Are observers involved or rescue attempts planned? Observers: □ Yes □ No Rescuers: □ Yes □ No	5. Are Decontamination areas setup?	∃Yes	□ No						
Ha	azard Identification, immediate signs of: (if yes,	explain in remarks)								
1.	Electrical line(s) down or overhead? ☐ Yes ☐ No	2. Unidentified liquid or solid products visible?	∃ Yes	□ No						
3.	Wind direction across incident: ☐ Towards your position Wind Speed: ☐ Away from your position	4. Is a safe approach possible?	∃Yes	□ No						
5.	Odours or smells? ☐ Yes ☐ No	6. Vapours visible?] Yes	□No						
7.	Holes, ditches, fast water, cliffs, etc. nearby? ☐ Yes ☐ No	8. Fire, sparks, sources of ignition nearby?	∃Yes	□ No						
9.	Is local traffic a potential problem? ☐ Yes ☐ No	10. Product placards, colour codes visible?	∃ Yes	□ No						
11.	Other Hazards?	12. As you approach the scene from the upwind sic a change in the status of any of the above?		u note No						
13.	Remarks:									
Ha	azard Mitigation: have you determined the neces	sity for any of the following?								
	Hazard Mitigation: have you determined the necessity for any of the following? 1. Entry Objectives:									
2.	Warning sign(s), barriers, colour codes in place? ☐ Yes	s □ No								
3.	Hazardous material being monitored?									
4.	Protective gear / level:	4a. Gloves:								
	4b. Respirators	4c. Clothing:								
	4d. Boots:	4e. Chemical cartridge change frequency:								
5.	Decontamination 5a. Instructions: 5b. Decontamination equipment and materials:									
6.	Emergency escape route established? ☐ Yes ☐ No Route?									
7.	Field responders briefed on hazards? ☐ Yes ☐ No									
8.	Remarks:									
Pro	otective Zones: record initial control perimeters (see Figure 1)									



ICS 202 Incident Objectives



Incident Name:								
Date / Time Initiated:								
Prepare	Prepared by: ICS Position:							
Genera	l Control Objectives for the Incident:							
1								
2								
3								
4								
5								
Weathe	er Forecast:							
Genera	l Safety Message:							
Note: Create and prioritize SMART (Specific, Measureable, Attainable, Realistic, & Time-Sensitive) objectives that address the incident issues and utilize the solutions identified on the Operations Briefing								
page.								



ICS 203 Organization Assignment List



Incident Name				Operational Period (Date/Time)					
				From: To:					
Incident	Commander(s)			Operations Section					
Αg	gency	IC	Deputy	-	Chief				
					Deputy				
				Staging Area I					
				On-Site Group					
				Su	upervisor				
S	Safety Officer		1		Lead				
	Assistant				Lead				
Inform	nation Officer				Lead				
	Assistant				Lead				
Li	aison Officer				Lead				
	Assistant								
				Safety Group					
					upervisor				
Agency F	Representatives				Lead				
Agency	Name				Lead				
					Lead				
					Lead				
					Lead				
				Branch - Division	/ Group				
				Branch	Director				
					Deputy				
Planning	Section			Division/Group	Lead				
	Chief			Division/Group	Lead				
	Deputy			Division/Group	Lead				
Re	sources Unit			Division/Group	Lead				
5	Situation Unit			Division/Group	Lead				
Enviro	nmental Unit								
Docum	entation Unit			Branch - Division	/ Group				
Demob	ilization Unit			Branch	Director				
Technica	al Specialists	·			Deputy				
				Division/Group	Lead				
				Division/Group	Lead				
Logistics				Division/Group	Lead	-			
	Chief			Division/Group	Lead				
	Deputy			Division/Group	Lead				
	Supply Unit								
	acilities Unit			Finance / Admin Section					
	Support Unit				Chief				
	ications Unit				Deputy				
	Medical Unit				ime Unit				
	Food Unit			Procuren					
				Compensation / Cla					
				(Cost Unit				
	By: (Resources U	nit\				Date/Time			

ICS 203 Organization Assignment List

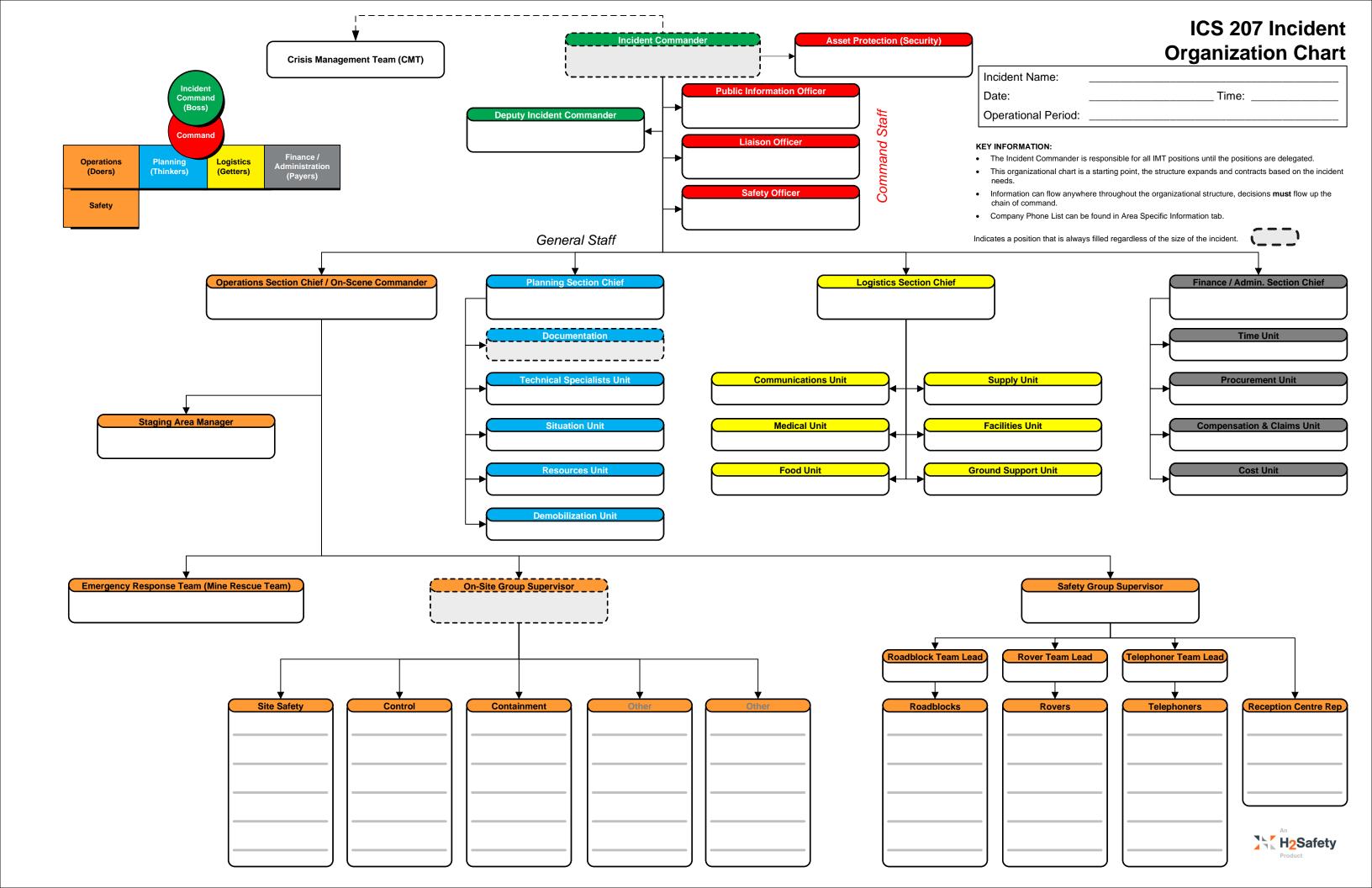


ICS 204 Assignment List



Branch:					Division / (Group / Stag	ging:		
Incident Nam	ne:				Operational		Tin	ne	
						Date		ne	
Division / Gro	oup / Stag	ing			10.				
					Division/G	roup Super	visor		
Branch Direc	tor				Staging A	rea Manage	r		
Resources /	Assigned	to This Period							
Resoure Identifie		Leader	No. of Persons	Cel	Contact Reportir I #, radio freq. Etc. Equipment			ocation, Sp. Supplies, R	ecial emarks
Work Assign	ments:	-	1						
Special Instru	uctions:								
Division / Gr	oup Com	munications Summa	ıry						
Functi	ion	Frequencies	System	Chan.	Func	tion	Frequencies	System	Chan.
Command	Local Repeat				Logistics	Local Repeat			
Div. / Group					Ground to A	-			
Prepared By:	:	<u> </u>	1		3.00.10 107			Date:	Time:
(Resource U	nit Leader)						-	
oignature.									





ICS 208 Safety Message / Plan



Incident Name:	Operational Per	iod:
	From: Date	Time
	To: Date	Time
Safety Message/Expanded Safety Message, Safety	Plan Site Safety	Dian:
Sarety Message/Expanded Sarety Message, Sarety	Plan, Site Safety	Plan:
Site Safety Plan Required? ☐ Yes ☐ No		
Approved Site Safety Plan(s) Located At:		
Prepared By:		Data Branaradi
(Name and Position)		Date Prepared:
Signature:		Time Prepared:
-		



ICS 209 Incident Status Summary



Incident Name	э:			Location	Location of Incident:						
Date / Time Ir	nitiated:				(LSD / NTS)					
Prepared by:				ICS Posit	ICS Position						
Incident Deta	ils:										
Gas readings:		LEL		Other		Other					
Level of Eme											
Severity:	☐ Level ′			□ Level 3	☐ Level 4	☐ Level 5					
Affect Mediu ☐ Air	m: (Check a	all that a	ppiy) □ Soil	☐ Other – Sp	ocify:						
Location of I		elect on		□ Other – Sp	еспу.						
☐ On-Site Un	<u> </u>	51001 0111	<u> </u>	Above Groun	d	☐ Off-Site					
☐ Other – Sp											
Incident Type	e: (Check a	ll that ap	oply)								
☐ Gas Releas	se		☐ Liquid R	elease		☐ Fire / Explosion					
☐ Severe We	ather		☐ Property	/ Damage		☐ Worker Injury/Fatality					
☐ Vehicle/Tra	nsportation		☐ Security	(theft, threat,	terrorism)	☐ System Disturbance/Outage					
☐ Other – Sp	ecify:										
Physical Pro		neck all t									
Is incident off-	site?		1	stimate quanti	ty:	□ No					
☐ Explosives			☐ Hazardo			☐ Flammable Liquid					
☐ Flammable	Solid			/Peroxides		☐ Poisonous					
□ Infections			☐ Radioad	tive		☐ Corrosive					
☐ Other – Sp	•	/0 !		.,							
□ Worker Saf	<u> </u>	•	es)		ve blank)						
	• • •				etura lace of	production, work stoppage)					
☐ Other – Sp		/OI daille	age to equipmen	it or illinastruc	iture, 1033 or	production, work stoppage)					
Area Informa											
Land Type:	□ Private	Land	□ Crowr	Land Name	e:						
Area Type:	☐ Forest		l Muskeg [□ Farmland	☐ Reside	ntial Other					

Section 6: Forms

ICS 209 Incident Status Summary



Access:	☐ Helicor	oter 🗆	ATV	□ 4V	VD	□ 2W[)	□ Unknown	
Name of road	the asset is	located o	on:						
KM where the	incident oc	curred:							
Distance to ne	earest reside	ence/publ	ic facility:						
Nearest City/	Town/Open	Camp:							
Weather Con	ditions:								
Weather Cond	ditions [l Clear	□ Clo	oudy	□ Othe	er:			
Wind Direction	n N	I NE	- NW	E	SE	S	SW	W	
Wind Strength	n [] Calm	□Мс	derate	☐ Stro	ng	☐ Gusty	1	
Temperature	٥(С							
Public / Work					I				
☐ First Aid	☐ Hospita		☐ Fatality		☐ Other	Specif	y:		
Notification:	<u> </u>	gencies	as require	d)		Nuthority	//Cirot		
□ 911 (RCMP, Fire, EMS)			ılator (EML	l)	☐ Local / Nations)	Authority	/ (FIISt	☐ Health Auth	ority
☐ Occupation & Safety (OH		☐ Eme	rgency ement Ager)CV	☐ Ministry of Transportation			☐ Western Ca Spill Services	
☐ Workers'	☐ Workers' ☐ En		rgency Pesnonse		☐ Transportation			Opini Gervices	(**************************************
•		Assista (ERAC)	nce Canada		Dangerou			☐ CANUTEC	
` '		□ Othe			☐ Other			□ Other	
Refer to the			ication Matrix and External A						Specific
Agency Notif		ormation	for comple	te list (of agencie	s requi	ring cont	act.	
			0	-44 NI			Contoo	. Ne see la au	Notified
Agei	icy Name		Col	ntact Na	ame		Contact	Number	(Y/N)
									-
									-
0 " 1									
Notes:	II completed	C3 Gover	nment Agei	ncy Con	tact Logs t	rom res _l	ponders fo	or full documents	ation.
Notes.									

ICS 209 Incident Status Summary



Roadblock Location	ns:						
Roadblock Number	Name	Locat	ion/LSD				
	completed B4 Roadblock Logs f	rom responders for full	documentation.				
Notes:							
Reception Centres							
Name	Lo	ocation	Phone Number				
	eted B1 Reception Centre Registrati	on Logs from responders f	or full documentation.				
Notes:							



ICS 211 Check-In / Out List



Incident Name:							
Date / Time Initiated:							
Prepared by:				ICS Position:			
Check-in Location		Staging Area] ICS Res. Unit	Other:		
Name of Company	Date of Check-in	Supervisor Name	Total # of Personnel	Incident Assignment	Assigned	Available	Date of Check-out
Notes:							

ICS 211 Check-In / Out List



ICS 214 Activity Log



Incident Name	ə:				
Date / Time In	nitiated:				
Prepared by:			Position / Title:		
Personnel As	ssigned				
	Name	ICS Pos	sition	Location	
Activity Log					
Time			Actions		



ICS 215 Operational Planning Worksheet



Incid	ent Nar	me:				0	perational	l Period:									
						To	o: Date_			Time	 	To: [Date		_ Time		-
Branch	Division, Group, or Other	Work Assignments & Special Instructions	Resources											Overhead Position(s)	Special Equipment & Supplies	Reporting Location	Requested Arrival Time
			Req.					<u> </u>	<u> </u>		<u> </u>						
			Have	<u> </u>				<u> </u>	<u> </u>	<u> </u>	<u> </u>		i 				
			Need				<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>						
			Req.					<u> </u>									
			Have					<u> </u>		ļ	<u> </u>						
			Need					<u> </u>									
			Req.				<u> </u>	<u> </u>	<u> </u>	 	<u> </u>						
			Have														
			Need				1	<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>				
			Req.						<u> </u>								
			Have					<u> </u>									
			Need					<u> </u>	<u> </u>	ļ	<u> </u>		<u> </u>				
			Req.			<u> </u>	1	<u> </u>	<u> </u>	ļ	<u> </u>		<u> </u>				
			Have				1	<u> </u>	<u> </u>	ļ	<u> </u>						
			Need				1	<u> </u>									
			Req.					<u> </u>									
			Have				<u> </u>	<u> </u>	<u> </u>	¦ 	<u> </u>		ļ 				
			Need					<u> </u>									
			Req.					1									
			Have														
			Need														
	Total Resources Required:											Prepared b	y:				
		Total Resources - Have Hand:													Position/Tit		
		Total Resources Need to Order:	0												Signature:		



ICS 215a Incident Action Plan Safety Analysis



Incident Name:							Date / 1	ime Initia	ated:		
Prepared by:							ICS Position:				
Division or Group	Potential Hazards							Controls (e.g., PPE, buddy system, escape routes)			
	Type of Hazard	Type of Hazard	Type of Hazard	Type of Hazard	Type of Hazard	Type of Hazard	Type of Hazard	Type of Hazard	Type of Hazard		





ICS 221 Demobilization Checkout



Incident Name / N	Number:					Date / Time:		Demob. Number:		
Unit/Personnel Re	eleased:									
Transportation Ty	rpe / Number:									
Actual Release D	ate / Time:							Manifest Completed?	□ Yes □ No	
Destination:			Notify:	□HQ	☐ Agency	□ Region	☐ Area		Dispatch	
			Name:							
		_	Date:							
Unit Leader resp	onsible for mance rating									
Unit / Personnel										
You and your resources have been released subject to Sign-Off from the following:										
Demobilization Ur	nit Leader – Chec	k the appr	opriate box							
Logistics Section	n									
☐ Supply Unit										
☐ Communication	ns Unit									
☐ Facilities Unit										
☐ Ground Suppo	rt Unit Leader									
Planning Section	n									
☐ Demobilization	Unit									
Finance/Admin S	Section									
☐ Time Unit										
Other										
Remarks:										
_	,	Prepare	d By:				Signature:			
Page	of	(Name a	and Position)							



ICS 230 Meeting Schedule



Incident Name):		Operational Period:						
			From: Date)	Time				
	dule (Commonly-held	meetings are inc	luded)						
Date / Time	Meeting Name	Purpo	se	Attendees		Location			
Prepared by: (Situation Unit Leader)	ı		Date / Tir	ne:				



ICS 231 Meeting Summary



Incident Name:	Meeting Date / Time:
Meeting Name:	
Meeting Location:	
Meeting Facilitator:	
Attendees:	
Notes: (with summary of decisions and action items)	
Prepared by:	Date / Time:

ICS 233 Incident Open Action Tracker



Incide	ent Name:						
No.	ltem	For	Status	Start Date	Briefed	Target Date	Actual Date
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

ICS 233 Incident Open Action Tracker



No.	ltem	For	Status	Start Date	Briefed	Target Date	Actual Date
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

Section 6: Forms Page 2 of 2

A2 Incident Action Plan Checklist



IAP Checklist Items:	Comments:
☐ ICS 202 – Incident Objectives	
☐ ICS 207 – Incident Organizational Chart	
☐ ICS 209 – Incident Status Summary	
☐ ICS 215 – Operational Planning Worksheet	
☐ ICS 215A – IAP Safety Analysis	
☐ ICS 230 – Meeting Schedule	
☐ ICS 233 – Incident Open Action Tracker	
□ Map:	
□ Map:	
□ Other:	
□ Other:	
□ Other:	
Notes:	

A2 Incident Action Plan Checklist



A3 Threatening Call / Bomb Threat

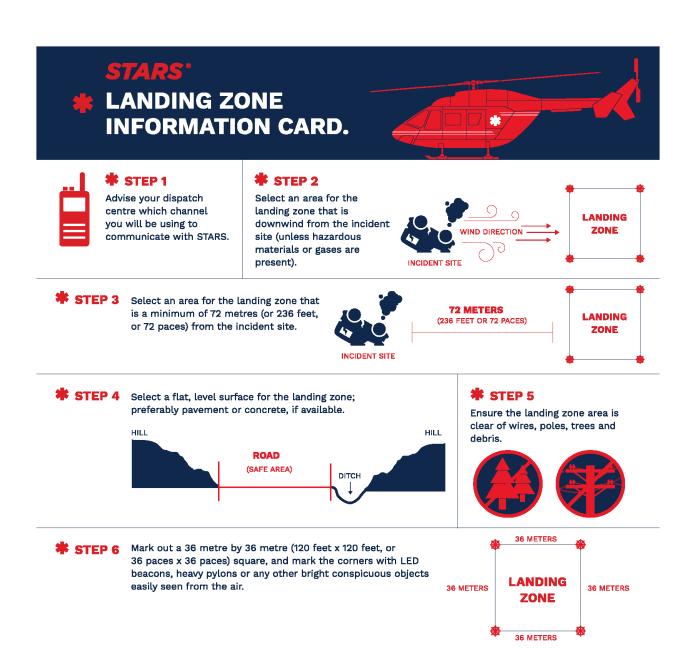


				1						1		
Date:					Time Call	Recei	ved:			Time Call R	eported:	
Perso	n Receiving	Call:					What/W	/hom Cal	I Dire	ected To:		
Caller	's Sex: 🔲 I	Male	□F	emale	☐ Unkı	nown	Approxi	mate Ag	e:			
Acce	nt: Yes	☐ No	Тур	e:	Familiar vo	oice:	☐ Yes	☐ No	Wh	10:		
Threa	it (Exact Word	ding):		·								
Tips:	Signal so Do not ha	errupt can be keep con ask quant in a sk qua	aller. aller to estion oformato to ca or dis	alking. ns belov ation as all your sconne		or; giv	re him / h e even after	er this in the calle	r hai	ngs up.		
When	nb threat, as will the boml and time)			ng que	stions:							
`	e is it located	?										
Why	did you place	it?										
What	kind of bomb	is it?										
What	does it look li	ike?										
What	is your name	?										
Wher	e are you call	ling from	1?									
Was t	he caller fam	iliar with	comp	pany fa	cilities, or e	emplo	yees? (e.g	g.: nickna	mes	, familiarity witl	n staff, etc	.) Yes No
Did ca	aller appear fa	amiliar w	vith bu	uilding /	facility by	the de	escription	of the bo	mb lo	ocation?	☐ Yes	□ No
Ident	ifying Chara	cteristic	s of (Caller								
	Voice			Speecl	า		Language	;		Manner		Background
	Loud		☐ F	ast			Excellent			Calm		Office Machines
	Soft		□ s	Slow			Good			Angry		Factory Machines
	High Pitched Deep Raspy Pleasant Intoxicated			Distinct Distorte Stutter Nasal Slurred	d		Fair Poor Foul Lang Accent	juage	00000	Rational Irrational Coherent Incoherent Deliberate /	_ _ _ _	Street Traffic Airplanes Trains Animals Party
	IIIOAICAICU			Julieu						Serious Emotional		Atmosphere Music
	<u> </u>	authoriti around th ckages. E	es as s eir imr Evacua	nediate ite buildi		ave em is for u				Laughing Nervous	_ 0	Voices Quiet
Name	of the super	visor firs	t notif	fied:								

A3 Threatening Call / Bomb Threat







₩ STEP 7

Brief STARS crew via radio or cell phone and stand at the middle of the upwind side of the landing zone with the wind at your back.

Monitor radio frequency to communicate with the STARS team.

As the helicopter approaches, go down on one knee and DO NOT MOVE from your position.

Do not approach the helicopter at any time unless escorted by the STARS crew.

LANDING ZONE HAND SIGNALS



ALL CLEAR TO LAND ALL CLEAR TO DEPART ABORT LANDING







* STEP 1

Identify yourself and confirm the Landing Zone Officer is present with the landing zone secure.

* STEP 4

State what marking the corners of the landing zone: LED beacons, heavy pylons or any other bright conspicuous objects easily seen from the air.

STEP 2

Communicate the location of the landing zone using N/E/S/W to reference the accident scene or other landmarks.

* STEP 5

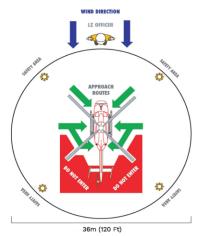
Communicate the wind direction and approximate speed.

***** STEP 3

Identify the type of surface for the landing zone (field, road, other).

* STEP 6

Identify the hazards in the area of the landing zone such as wires, poles, trees, or hazardous materials using N/E/S/W in reference to the landing zone.



STARS LANDING ZONE

SPECIAL CONSIDERATION

Remove any loose debris and indicate if there is snow or dust in the landing zone. If dusty, water down the landing zone if possible prior to the helicopter's arrival. As marshaller, maintain your position at the middle of the upwind side of the landing zone, knees and **DO NOT MOVE** from your position as the helicopter lands.

If you have any questions or comments regarding this landing zone information card or would like to watch our landing zone video, please visit **www.stars.ca**



INDUSTRY EMERGENCY LINE 1-888-888-4567

This number can also be used to provide a landing briefing to the STARS crew if radio communications are not available.

WE ARE ALL STARS®

B1 Reception Centre Registration Log



Due to travel and time constraints, the company may not always be able to have a company employee at the Reception Centre before evacuees begin arriving. In this case this cover page can be included with the forms on the next 2 pages and sent to a representative at the Reception Centre to provide them with guidance on how to register and track evacuees until a company representative arrives.

Evacue	e registration guidelines		
[Insert (Company Name] requires your assistance with receiving eva-	cuees at the following Reception Centre:	
Your co	mpany contact is:		
Name:	Position:	Contact Number:	Fax Number:
1) 2) 3) 4) 5)	Record all evacuees as they arrive on the forms provided. Provide all evacuees with the statement below and any oth Provide the evacuees with food and lodging as required. Record if any evacuees choose to leave the Reception Cer Continually update the company of any residences arriving	ntre (name, contact number, where are they going, etc	c.).

B1 Reception Centre Registration Log



Date:		Responder Name:	
Page	of	Responder Position:	Responders Phone No.:

Resident	Name (list all	Name (list all names in party)			Arrival	Denart	Destination	
ID	First	Last	# Of Number A Occupants arrived		time	Depart time	phone # (where they can be reached)	Comments

B2 Resident Compensation Log



							•			
Resid	lent's Name:		Home A	Address:			Home T	elephone #	:	Location of Land (LSD):
							Busines	s Telephon	ne #:	
Number of Residents Evacuated:		Evacua	ted to:			Telepho	one # While	Evacuated:		
			•							
No.	Date	Location	Trans.	Accom.	Meals	Phone	Sundry	Total	Details	of Expense
	Total Repo	rted Expenses								
Approv	ved By:	_		'	<u>'</u>	Da	ate:	<u>'</u>		

Section 6: Forms Page 1 of 2

B2 Resident Compensation Log



Resident's Name:		Home Address:			Home T	elephone #	:	Location of Land (LSD):		
							Busines	s Telephon	e #:	
Number of Residents Evacuated:		ts Evacuated:	Evacuated to:				Telepho	ne # While	Evacuated:	
lo.	Date	Location	Trans.	Accom.	Meals	Phone	Sundry	Total	De	etails of Expense
	Total Repo	rted Expenses								

Section 6: Forms Page 2 of 2

B3 Resident Contact Log



Date:		Responder Name:	
Page	of	Responder Position:	_ Responders Phone No.:

 -	Builter	Desire (ID	01 -14 15	Number	of people	Assistance or	Comments
Time	Resident name	Resident ID	Shelter / Evacuate	Inside	Outside	transportation required?	
			O Shelter O Evacuate			O Yes O No	
			O Shelter O Evacuate			O Yes O No	
			O Shelter O Evacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	

Section 6: Forms Page 1 of 2



				Number	of people	Assistance or	
Time	Resident name	Resident ID	Shelter / Evacuate	Inside	Outside	transportation required?	Comments
			O Shelter O Evacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			ShelterEvacuate			O Yes O No	
			O Shelter O Evacuate			O Yes O No	

Section 6: Forms Page 2 of 2

B4 Roadblock Log



Date:		Responder Name:	
Page	of	Responder Position:	_ Responders Phone No.:

Only emergency responders should be allowed to enter the hazard area.

Vehicle Type	License plate # and province / state	Name of driver (if available)	# of people in vehicle	Time entering Zone	Time Exiting Zone	Comments (record all vehicles turned away)



Vehicle type	License plate # and province / state	Name of driver (if available)	# of people in vehicle	Time entering zone	Time Exiting zone	Comments (record all vehicles turned away)



DATE:		
TIME:		

EVACUATION NOTICE

[Insert Company Name] has an emergency at its nearby location.

As a safety precaution, please leave the area in a (north / east / south / west) direction and proceed to the Reception Centre located at

[Insert Company Name] representatives will be available at the Reception Centre to address your questions or concerns.

For assistance, call [Insert Company Name] at

Thank you for your cooperation.



B6 Early Notification / Voluntary Evacuation Phone Message



Before calling, determine a safe evacuation route for the residents to travel, away from the emergency hazard area, upwind, if possible, towards the reception centre.

Hello, this	s is	(your name)	calling fro	om	(company name	<u>.</u>
Is this the	(nam	e of residence / bu	isiness)	_at	(telephone numbe	<u>?</u>
(com	pany name)	is responding to	a (potential) ei	mergency at _	(location)	_ in your area.
		this time. All efforts provide you with an e			ne problem and this	ohone call is
To help us	s understand a	and your immediate	needs we need	d to know:		
How man	ny people are	at your location no	ow?			
	Adults					
Do you w	vish to leave y	our residence at t	his time?			
If Yes	Please travel	in a <u>north / east / s</u>	outh / west di	rection to our 1	eception centre loca	ited at:
If No					ephone for outgoing or when the problem	
If you hav	If you have urgent questions, please contact <u>(company name)</u> at <u>(telephone number)</u> .					
Thank yo	ou for your co	operation.				

(Pass on all information regarding this call to the Safety Group Supervisor immediately)

B6 Early Notification / Voluntary Evacuation Phone Message



B7 Shelter-In-Place Phone Message



Hello, this	s is of company name)				
Is this the	e <u>(name)</u> residence at <u>(telephone number)</u> ?				
(com	pany name) is responding to a (potential) emergency at(location) in your area.				
	safety, it is extremely important that you, and those with you, stay indoors until the potential longer exists, or you are advised to evacuate.				
To help u	s understand your immediate needs, we need to know:				
How mar	ny people are at your location now?				
	Adults				
	Children				
	nyone in your household that you cannot contact to inform them of the situation and advise them doors or stay out of the area?				
	☐ Yes ☐ No				
If Yes	Whom?				
	Location of the person(s)				
	We will send someone to find them as soon as possible.				
Do you h	nave the "Shelter-in-Place" instructions previously provided to you by <u>(company name)</u> ?				
	☐ Yes ☐ No				
If Yes	Please follow the Shelter-in-Place instructions located inside the resident pamphlet.				
If No	Verbally walk the resident through the Shelter-in-Place instructions on the next page.				
Do you understand what I have told you?					
Is there an alternate number we can contact you at?					
If you have any urgent questions, please contact <u>(company name)</u> at <u>(telephone number)</u> .					
Thank you for your cooperation.					

(Pass on all information regarding this call to the Safety Group Supervisor immediately)



Shelter-In-Place Instructions

For your safety:

- Immediately gather everyone indoors and stay there
- Close and lock all windows and outside doors
 - If convenient, tape the gaps around the exterior door frames
- Leave open all inside doors
- 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 and gas stoves
 - Sucks in outside air, such as:
 - Heating, ventilation, and air conditioner (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
- Avoid using the telephone, except for emergencies, so that you can be contacted by company emergency response personnel
- Call the company emergency numbers 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
- Do not leave your residence, even if you see people outside, until you are told to do so
- After the hazardous substance has passed through the area you will receive an "all-clear" message from the company emergency response personnel. You may also receive, if required, instructions to:
 - Ventilate your building by opening all windows and doors; turning on fans and turning up thermostats. During this time the air outside may be fresher and you may choose to leave your building while ventilating.
 - Once the building is completely ventilated return all equipment to normal settings & operation.
- Do not leave your sheltered location or attempt to start any vehicle until a company representative advises you that the area is safe.

If you are unable to follow these instructions, please notify company emergency response personnel.

B8 Evacuation Phone Message



Before calling, determine a safe evacuation route for the residents to travel, away from the emergency hazard area, upwind if possible, towards the reception centre.

Hello, this	s is	(your name)	of	(company name)	
				(telephone number)	
(Comp	any name)	_ is responding to a	(potential) emergency at _	(location) in your area.	
			at you and your family leav tion to our reception centre	e your residence immediately and e located at:	
To help u	s understand	your immediate nee	ds, we need to know:		
How mai	ny people are	at your location n	ow?		
	Adults				
	Children				
	anyone in your ate away from		cannot contact to inform th	nem of the situation and advise ther	n
	☐ Yes ☐	2 No			
If Yes	Whom?				
	Location of	the person(s)			
	We will send	someone to find the	em as soon as possible.		
Do you r	require evacua	ation / transportati ☑ <i>N</i> o	on assistance?		
If Yes			st you. Please stay indoors rrive to evacuate you.	s and close all doors and windows	
If No	Provide the	resident with:			
	□ Directio	ons to safely travel	to the reception centre		
	☐ A list of etc.)	fitems to bring wit	h them to the reception c	entre (medications, cell phone,	
	☐ An idea	of how long they	may be expected to stay a	at the reception centre	
	☐ The opt	tion to bring their h	ouse pets to the reception	on centre	
			you are unable to make it t e can contact you if necess	to the reception centre for any reaso sary.	on.
Is there a	n alternate nu	mber we can contac	ct you at?		
arrangen				estions you may have and will make id everything I have told you? Are y	
-	ve any urgen ou for your co		contact (company i	name) at (telephone number).

(Pass on all information regarding this call to the Safety Group Supervisor immediately)



C1 Preliminary Media Statement



Date:(YY/MM/DD)	Responder Name:				
Responder Position:	Responder Phone No.:				
Trooperide: Trong tro.					
This is the information I can give you so far:					
At <u>(time – 24hr local clock)</u> on (date), <u>a(n) (fire, e)</u> occurred at the Company's <u>(location name)</u> site, location in the company's <u>(nearest town or city)</u>	cated <u>(distance)</u> kilometres <u>(east / west /</u>				
Presently, (number of personnel) workers are being tree the injured cannot be released until their families have been on the injured cannot be released until their families.					
The (mine) has been (shut down, isolated)					
Company staff have been activated and are directing empublic, our workers, and the environment.	nergency response procedures to protect the				
The cause of the(fire, explosion, substance release, sp. damage is available. As information becomes available, new Office.					
Any further inquiries should be directed to the Crisis Manage a later time.	ement Team, who will issue a press release at				
Contact:					
Offic	ce:				
Fa	JY.				
Note: Only the Corporate Media Spokesperson designated any specific information to the public or the media. Refer to for the generic media statement to be used by all other response.	page 3 of Section 3: Communications & Media				



C2 Media Contact Log



Date:		Responder Name:					
Page	of	Responder Position:	Responders Phone No.:				
If you feel	you are not the ap	propriate person to be answering the media agencies questions	, use the following series of statements.				
		"[Insert Company Name] has an Information Officer t	o answer all media questions."				
"May I request the following information to expedite your request?" (complete the form below).							
"Thank you. [Insert Company Name] appreciates your cooperation and I will pass on this information to the appropriate person."							

Time	Call To	Call From	Media Outlet	Reporter / Contact Name	Telephone Numbers		Demonto / Information Demoined
Time					Work	Fax	Remarks / Information Required

Document all key events, conversations, and meetings on this form. Where lengthy notes are necessary, use additional copies or the back of the page.

Section 6: Forms Page 1 of 2

C2 Media Contact Log



Time	Call To	Call From	Media Outlet	Reporter / Contact Name	Telephone	Numbers	Remarks / Information Required
	0				Work	Fax	

Section 6: Forms Page 2 of 2

C3 Government Agency Contact Log



Date:		Responder Name:	
Page	of	Responder Position:	Responders Phone No.:
If you feel	you are not the ar	opropriate person to be answering the media agencies questions	, use the following series of statements.
		"[Insert Company Name] has a Government Liaison t	o answer all media questions."
		"May I request the following information to expedite your r	equest?" (complete the form below).
	"Thank you. [In:	sert Company Name] appreciates your cooperation and I wi	Il pass on this information to the appropriate person."

Time	Call To	Call From	Aganay	Contact Name	Telephone Numbers		Remarks / Comments	
Time	Call 10	Call From	Agency	Contact Name	Work	Fax	Remarks / Comments	

Document all key events, conversations, and meetings on this form. Where lengthy notes are necessary, use additional copies or the back of the page.

Section 6: Forms Page 1 of 2

C3 Government Agency Contact Log



Time	Call To	Call From	Agency	Contact Name	Telephone	Numbers	Remarks / Comments
Tille	Call 10	Call FIOIII	Agency	Contact Name	Work	Fax	Remarks / Comments

C4 Media Centre Site



Location	
City / Town:	
Contact	
Name:	
Home #:	
Map or Direct	ione to Site
Map or Direct	ions to site



CONFINED SPACE ENTRY RESCUE PLAN



Rescue Team Lead: Rescue Team	Phor	ne:
Member: Rescue Team	Phor	ne:
	Phor	ne:
M = l	Phor	ne:
Member:	Phor	ne:
Rescue Team Member:	Phor	ne:
RESC	CUE EQUIPMENT ON LOCATION (PROVIDE DETAILE	D SUMMARY)
	COMMUNICATION PLAN (PROVIDE DETAILED SUMM)	ARY)
Task	RESCUE PROCEDURES (PROVIDE SCENARIOS) Hazards	Mitigation
Task	RESCUE PROCEDURES (PROVIDE SCENARIOS) Hazards	Mitigation
Task		Mitigation

CONFINED SPACE ENTRY PERMIT



Permit Issuer:		Phone:				
Permit Receiver:		Phone:				
		CONFINED SPACE				
	REASON FOR ENTRY	INTO CONFINED SPACE				
	HAZARD A	SSESSMENT				
Additional PPE	Intrinsically Safe	LOTO – Blanked	SOP/JSA Reviewed			
Barricades in Place	Equipment Lighting – Battery	LOTO – Blinded	Space Cleaned			
Communication – Cell	Operated Lighting – Electric	LOTO – Disconnected	Space Cooled			
Phone						
Communication – Radio	Lighting – Light Sticks	LOTO – Double Block / Bled	Space Depressurized			
Communication – Verbal	Lighting – Natural	LOTO – Vented	Space Emptied			
Continuous Gas Testing	LOTO - Cribbing	LOTO – Pneumatic	Space Purged			
Designated Smoking Area	LOTO – Cribbing	LOTO – Radiation	Space Taped Off / Roped Off			
Double Insulated Tools	LOTO – Electrical	LOTO – Thermal	Ventilation – Mech. Exhaust			
Entry Attendant Required	LOTO – Fluids	MSDS Reviewed	Ventilation – Mech. Fresh			
Equip. Grounded / Bonded	LOTO – Gases	Muster Area Established	Ventilation – Natural			
Fire Fighting Equip. Required	LOTO – Gravity	Rescue Equip. Required	Warning Signs in Place			
Fire Watch Required	LOTO – Hydraulic	Shoring/Sloping/Trench Box	Other – Details Below			
	SPECIAL IN	STRUCTIONS				
	DEDMIT A OKAN	OW! FROEMENT				
We have reviewed and unders		OWLEDGEMENT and will maintain the conditions of th	e Permit throughout the job.			
Any other employees or sub-c	ontractors who will, or may work	on this job shall have a complete u				
	der the conditions of this permit. O Work is there is a reason to be	lieve that an unsafe act is about to t	ake place, or an unsafe			
condition exists. Job Ci	row.	Rescue	Team			
		Team Member:				
Entry Attendant:		Team Member:				
Authorized Entrant:		Team Member:				
Authorized Entrant:		Team Member:				
Authorized Entrant:		Team Member:				
		ZATION AND ISSUE				
Permit Receiver:						
Area Left Clean and Tidy		CLOSURE Job Completed	Job Not Completed			
	<u> </u>		oob Not Completed			
Permit Receiver:						

CONFINED SPACE ENTRY LOG

A-	
	Blackwater
ARTEMIS	Mine

Date:	Time:
Location:	
Attendant:	

ENTRANT LOG						
Name	Time In	Time Out	Name	Time In	Time Out	

ATMOSPHERIC MONITORING									
Time	O ₂ (%)	LEL (%)	H ₂ S (ppm)	Toxic (ppm)	Time	O ₂ (%)	LEL (%)	H ₂ S (ppm)	Toxic (ppm)

TRANSPORTATION OF DANGEROUS GOODS 30-DAY FOLLOW-UP REPORT

PART I: REPORTING TIMELINE						
Please provide applicable date				FOR INTERNAL USE ONLY		
Date of initial report to CANUTE	EC (yyyy-mm-dd):			Road, Rail or Marine Reports		
30-Day Follow-up Report subm	ission date (yyyy-mm-dd):		Release	d Pologo		
30-Day Follow-up Repor	t		Anticipate	d Release		
	30-Day Follow-up Report			Air Report		
	Follow-up Report submitted	(vvvv-mm-dd):		O Dangerou	s Goods Accident or Incident	
PART II: CONTACT INFORMAT	· · ·	(7777 227				
2. Information of the person comp						
Consignor Consign	-	t Operator	Other			
First Name	Last Name	Title				
Telephone (999-999-9999)	Company Name					
Address			City		Province/Territory	
					·	
Country	Postal Code (Z9Z 9Z9)	Email			<u> </u>	
	, ,					
3. Information on the Consignor,	l Consignee and Carrier/Aircı	raft Operator				
Consignor						
First Name	Last Name		Title			
Telephone (999-999-9999)	Company Name		l			
Address			City		Province/Territory	
Country	Postal Code (Z9Z 9Z9)	Email	<u>I</u>			
Consignee						
First Name	Last Name		Title			
Telephone (999-999-9999)	Company Name					
Address			City		Province/Territory	
Country	Postal Code (Z9Z 9Z9)	Email	I			
Carrier/Aircraft Operator	L	I.				
First Name	Last Name		Title			
Telephone (999-999-9999)	Company Name		I			
Address	I		City		Province/Territory	
Country	Postal Code (Z9Z 9Z9)	Email	1		I	



PART III: INCIDENT INFORMATION							
4. Please indicate the date and time of	the incident						
Date (yyyy-mm-dd)			Time (24-hour system)				
5. Geographic location of the incident							
Address							
City	City Province/Territory Postal Co			GPS Position			
	,						
If the incident occured by rail, please in	I dicate the milepost and subd	l ivision	If the incident name	happened on First Nations Territory, please indicate the Territory			
Origin of consignment			Destination of	consignment			
Same address as consignor	Same address as consi	gnee	Same add	ress as consignor Same address as consignee			
Other (please provide address):				ase provide address):			
			"	,			
C. Coornantia Area (Chook anticara ha							
6. Geographic Area (Check only one bo	•	_		Maria de la companya del companya de la companya de la companya del companya de la companya de l			
Urban Mixed use – residential, commercia	•	○ Rur Sma		es, agricultural lands Wilderness/Remote Little or no population			
7. Mode of Transport (Check all applica	ble boxes)			_			
Road	Rail		Air	Marine			
8. If MARINE was checked on question fixed facility	7, please indicate the position	on of the ves	sel and the nex	t location at which the vessel will be at anchor or alongside a			
Position			Next location				
9. Phase of Transport (Check only one	box)						
In-Transit Consignment moving between origi			Consignment is being packed or loaded into a means of transport at origin				
Unloading Consignment is being unpacked or	unloaded from a		Consignment is in short term storage pending transportation				
means of transport at destination							
10. Type of Incident (Check all applicab	ole boxes)						
Collision/Sideswipe Moving vehicles striking an object, a	animal, or another vehicle		Derailment Railcar leaving the rail tracks				
Ran off road Vehicle enters a soft shoulder, ditch	n or similar area		Overturn Vehicle turning on its side or upside down				
Loadshift Shifting of the consignment within a	vehicle		Dropped Means of containment falling unexpectedly				
Struck Means of containment being struck	by another object		Other (Please specify):				
11. Type of Release (Check all applicate	ole boxes)						
Spill Quick, immediate discharge, emissi	on or escape		Leak Slow, spor	radic or continuous discharge, emission or escape			
Explosion Violent sudden release of energy from means of containment producing a shock wave that may result in fragment projection and/or fire ball			Fire Burning substances combined with oxygen to typically produce flame, heat and smoke				
BLEVE Boiling Liquid Expanding Vapour Ex	xplosion		Vapour Dispersion in air of particles of a substance that is liquid or solid in its normal state				
Venting Controlled release of gas into the environment			Distressed	ed Release I means of containment that is not leaking, venting or otherwise ts contents			



12. Informat	ion on the Dangero	us Goods										
UN Number	•		Primary Class	Subsid Class(Packing Group or Category	Before the	ntity in MOC Release or ed Release	Units (kg, L, etc.)		timated Quantity Released (if applicable)	Units (kg, L, etc.)
13. Means o	f Containment											
-	ide a description of	the means of	f containmen	it involved	d in tl	he incident by	/ completing	the appropri	ate forms from	Annex	E of the Guide (TF	P15294)
	ONSEQUENCES											
14. Consequ	uences of the incide	nt (Check all	applicable b	oxes)								
NOTE: Refe	er to the Guide for m	ore informati	on on how to	o complet	te thi	s section						
Human		(e.g. produc		, equipm	nent)	En	vironmental	(e.g. contan	ination of wate	erway,	ground, air)	
	ion of people and b	_										
	n Evacuation as a r		`	Yes) No						
	Shelter in place as a		incident? () Yes	() No						
if Yes , pleas	se complete the follo							I				
	on of People and /Shelter in Place	Includes I buildings (te Residence nouses and oused as dwe tirement hom	other Ilings		Public Buil udes libraries churches, gov buildings,	, hospitals, ernment	Includ	Vorkplace les warehouse acility, etc.	,	Public (Outside) Areas Includes parks, playgrounds, parking lots, etc.	
Estimated newacuated	umber of people											
Estimated no sheltered in	umber of people n place											
Estimated no buildings e	vacuated											
Size of Evac	cuation area (square	e meters)	Du	ration of	Evac	cuation (hours	3)		Duration of Shelter in place (hours)			
16. Injuries a	and/or deaths											
Were there a	any injuries and/or o	deaths?	Yes (pleas	se comple	ete th	ne following ta	able) () No				
Minor Injuri	ies Yes	○ No										
	injured requiring in Dangerous Goods	mmediate fir	1	ment at t					Total			
Moderate In	njuries Yes	○ No	<u> </u>									
Number of	injured requiring in	mmediate er	nergency tr	eatment	in ho	ospital and re	elease short	ly after				
Attributed to	Dangerous Goods		Att	ributed to	incio	dent			Total			
Major Injuri	es Yes	○ No	,					!				
	injured requiring in Dangerous Goods			with overnight hospitalization Attributed to incident					Total			
Deaths	○ Yes	○ No	1									
Number of Attributed to	deaths Dangerous Goods	3	Att	Attributed to incident					Total			



17. Please indicate an es	stimate of costs	in Canadian	dollars associated	with the	incident, as applicable			
NOTE: Refer to the Guid	le for more inform	mation on ho	w to fill this sectio	n				
Material loss of dangerous goods	Damage incur the carrier	red by	Property damage		Emergency response cost	Clean-up	cost	Total cost
18. Infrastructure closure	and duration (p	lease use ac	Iditional sheets for	r multiple	closures)			
Was there an infrastructu	ure closure as a	result of the	incident?	Yes	○ No			
If Yes, please complete t	the following tab	le						
			Туре				Dura	ation of the closure (in hours)
					whole or in part for arrivipment situated thereor			
Air cargo facility – F	Facility used to re	eceive or trai	nsfer cargo carried	d or to be	carried by an aircraft			
Facility – Permanent dangerous goods	t or temporary b	uilding or a p	ortion of a building	g or equi	oment used in loading o	r unloading	of	
Railway – Tracks use	ed by trains							
Waterway – Navigab	ole body of water	r through whi	ich a ship or boat	can move	e			
Roadway – The strip multiple lane freeway		nich motor ve	hicles circulate, su	uch as di	rt road, numbered provi	ncial highwa	ay or	
Runway – the strip of	of ground on a la	inding field th	nat aircraft use for	landing o	or takeoff			
19. Geographic location	of closure							
Address								
City		Province/Ter	ritory	Postal	Code (Z9Z 9Z9)	GPS Posi	tion	
If the incident occured by	/ rail, please indi	icate the mile	epost and subdivis	sion	Name of facility, road,	railway or v	vaterway	
20. ERAP Requirements	,							
Was an ERAP required u	under Part 7 of th	ne <i>Transpor</i>	tation of Danger	ous Goo	ds Regulations?	O Yes	○ No	
If Yes, please complete t	the following tab	le						
ERAP Reference Number	er		ERAP	Holder				
Address								
					1			
City		Province/Ter	ritory		Postal Code (Z9Z 9Z9	9)	Telephone of I	ERAP Holder (999-999-9999)
Email	1							
Level of Response (chec	k all that apply)							
No response	First responders	s on scene	Phone call	to ERAP	holder Employe	ee from ER/	AP holder	Team from ERAP holder
Other:								



PART V: INCIDENT DESCRIPTION	
21. Please describe:	
The sequence of events that led to the incident The means of containment damage or failure, including the size/location of hole	es. cracks. etc.
The actions taken at the time it was discovered	,,
What was done to mitigate the effects of the release	
Contributing factors (e.g. human error, mechanical, equipment, packaging, infra The physical environment (e.g. residential, commercial, industrial, etc.)	astructure, external, weather, etc.)
The physical environment (e.g. residential, commercial, industrial, etc.) The road's appearance (e.g. flat, straight, inclined, curved, intersection, etc.)	
• Timeline of event (e.g. how long it lasted, time of release or discovery, time of f	irst responder arrival, etc.)
Communications with first responders and with your organization	
Photographs and diagrams should be submitted, as required, for clarification. Es necessary.	timate the duration of the release, if possible. Please use additional sheets if
NOTE: Refer to the Guide for more information on how to complete this section	
PART VI: INCIDENT DESCRIPTION – AIR ONLY	
22. Please describe:	
Any serious jeopardy to persons on any aircraft or aircraft itself	
Any damages to property or environment	
• The route by which the dangerous goods were to be or have been transported,	including the name of any aerodromes along the route
Aircraft Operator	Air Cargo Facility





AVALANCHE OPERATIONS PLAN

Task #:		Task Name:					1	For Op	Period	#:		ı	Avalanc	ne Safety	Officer:		
Date:		Time:		Valid Until Da	te:			Valid U	Intil Tin	ne:			Prepare	d By:			
Location:				L				Descrip	otion:								
Access/Egress:																	
Operational Objectives	:						I										
WEST-IFF STATION OF	SCENIATIONS																
WEATHER STATION OB	SERVATIONS				Te	emperatu	ire			Snowfal	I						
Weather Site	Elevation	Time	Sky Cover	Precip. Type & Intensity	Present	Max	Min	H2D (cm)	HN24 (cm)	HST (cm)	Date Reset (HST)	HS (cm)	Rain/l Gauge & Time	(mm)	and Direction Pre		Barometric Pressure and Trend
FIELD WEATHER OBSER	RVATIONS	1	l														
											Snowfal	l					
Field Weather Location	Elevation	Date	Time	Sky Cover	Prec & Int	ip. Type tensity		Air erature	HIN (cm)	HIN Time Period	HST (cm)	HST Time Period	HS (cm)		Speed & ection	Addition	al Observations
WEATHER FORECAST																	



AVALANCHE OPERATIONS PLAN

NEARE	ST NEIG	HBOUR INPU	T/INFOEX														
AVALA	NCHE A	CTIVITY															
SNOW	/PACK																
AVALA	ANCHE PI	ROBLEMS															
			• Type		De	scription	1		Layer Depth	Sensitivity to	Si	ze	Asp (clock	ect wise)	Elev	ation	Spatial
	NCHE PR	ROBLEMS Avalanche	: Туре		De	escription	n		Layer Depth (cm)	Sensitivity to Triggers	Si	ze To			Elev	ation To	Spatial Distribution
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Layer	Name	Avalanche	туре		Des	escription	n		Depth (cm)	Triggers	From	То	(clock	wise)		I	
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Revised 2020/01/29

Destructive Size



AVALANCHE OPERATIONS PLAN

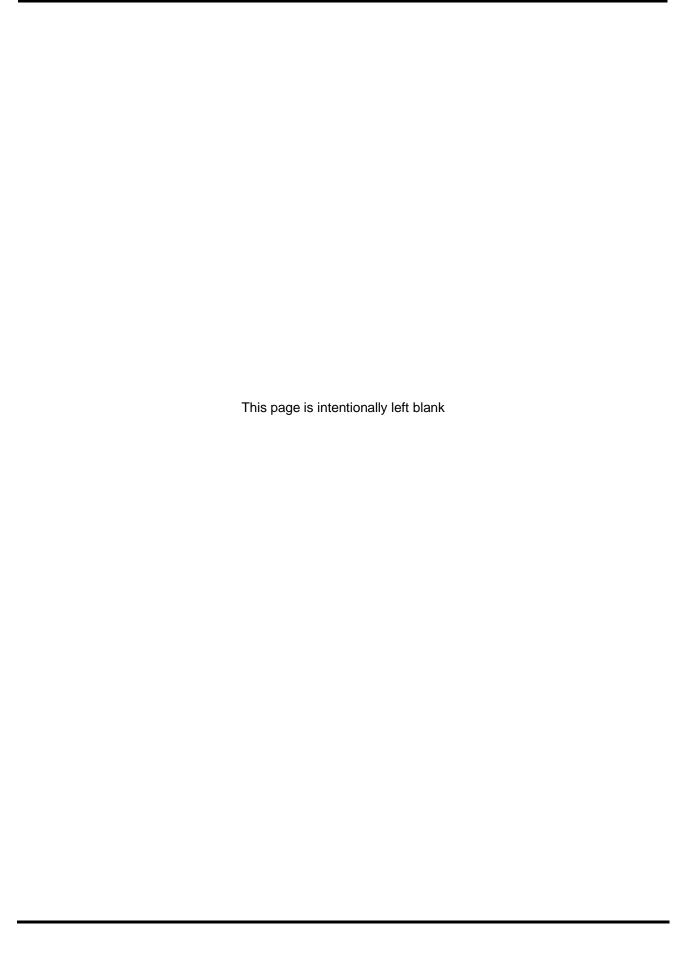
	ition(s) / Elevation Band(s)	41ING3	Avalanche	Hazard Rating		Comments a	and Res	striction	าร		
1		Low	Moderate	Considerable	High/Extreme or Unknown						
2		Low	Moderate	Considerable	High/Extreme or Unknown						
3		Low	Moderate	Considerable	High/Extreme or Unknown						
AVA	LANCHE TERRAIN EX	KPOSURE SCA	ALE CLASSIFIC	ATION:				AVALA	NCHE INCIDENT DETAILS:		
	Simple	Challenging		■ Complex	☐ Unknow	n		Avala	nche Incident Involment Form Attached?	☐ Yes	□ No
TFRE	RAIN USE AND REST	RICTIONS (i.e	e. critical locat	ions, locations	of concern. clos	ed areas, safe	locatio	ons. acc	ress/egress. etc.)		
	LANCHE SAFETY ME										
AVAI	LANCHE TECHNICIA	N OBJECTIVE	<u>s</u>								
AVA	LANCHE DANGER ID	ENTIFICATIO	N / MITIGATI	ON AND RISK (CONTROL CHECK	LISTS					
REFE	RENCE DESCRIPTIO	N						ASSIGN	IMENT CHECKLIST		
	PUBLIC AVALANCHE E	BULLETIN							TEAM ASSIGNMENT		
	WEATHER FORECAST								TEAM ASSIGNMENT BRIEFING		
	AVALANCHE PATH SU	IMMARY									
	DANGERATOR							SAFETY	MEASURES		
									Personal Protective Equipment (Transceiver, Sh	hovel, Probe)	
SUPF	PLEMENTARY REFER	ENCES							Explosive Strike Team		
	AVALANCHE ATLAS's								Helicopter Based Signal Search - Barryvox Exter	rnal Transceiver	
	LOCAL AVALANCHE P	ROFESSIONAL							Helicopter Based Rescue Effort - Class D Fixed I	Line Helicopter Support	
	Name:		-						Rapid Intervention Team		
	Name:		_								



Appendices

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This plan defines the emergency response process related to all hazards affecting petroleum operations. This Mine Emergency Response Plan (MERP) outlines the process for an Level-1, Level-2, Level-3, Level-4, and Level-5 emergency for any jurisdiction or incident type.

Plan Objectives

The primary objective of this MERP is to define the incident management system and organizational structure, process, and tools to respond effectively to all incidents regardless of size or complexity. It has been designed to be intuitive and have natural process flow utilizing the Incident Command System (ICS) and to comply with applicable regulations, standards, and industry best practices.

Purpose

This MERP clearly defines emergency response team roles, functions, and duties to protect people, environment, and assets during an incident. This plan clarifies the following:

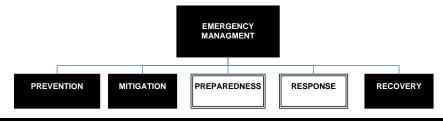
- Overall Incident Command System (ICS) response organization.
- Incident Command System (ICS) Roles and responsibilities.
- Guidance to determine the Level of Emergency.
- Mechanisms to activate the MERP.
- Notification /communication requirements to stakeholders (public / government / responders).
- Documentation tools for accurate records management of events and decisions during an event.
- Guidance for post-emergency actions.

The intent of this MERP is to define effective measures in place to:

- Notify and protect the workers and the public.
- Minimize environmental impact.
- Minimize asset and property loss.
- Regain steady state of operations.
- Minimize emergency response time.
- Maximize response effectiveness.
- Coordinate with government agencies and stakeholders.
- · Minimize business and reputational impact.

This manual outlines the framework, tools, and reference materials to facilitate a prompt, safe, efficient, and properly managed response to all incidents regardless of size or complexity. Therefore this plan provides employees and contractors with practical tools that will guide them through the Preparedness and Response principles of Emergency Management.

Emergency Management Process Flow



Training Requirements

The company requires a training plan for all individuals named in the MERP to ensure key personnel will know how to undertake their responsibilities in the event of an emergency. All personnel must be able to state verbally what their duties are in an emergency. The Human Resources department will record and track all training undertaken by employees and notify them of due dates for refresher training.

- All employees will receive MERP training as part of their onboarding and orientation to the site and specific to their job duties. MERP refresher training will occur annually to ensure all employees are current of the plan and their responsibilities during an emergency situation.
- Contractors who come to the site for the first time will also receive MERP training as part of their initial orientation training.
- All short-term visitors will receive MERP training as part of the initial site orientation training.

An annual drill will be carried out to test both the systems and the personnel involved in emergency response. This annual system drill will be used as an opportunity to test the entire ICS system and the people involved and to determine procedures that need improving. The outcome of all drills will be recorded and reported as necessary. After-action discussions will occur to assess the efficacy of the drills and the results recorded and procedures updated to reflect findings that can improve emergency response.

Periodic and random evacuation drills will also be conducted for all on-site personnel.

First Responder training and period refresher training will be given to those who wish to participate in the program and first aid classes will be given to all employees. The company will encourage Indigenous nations and Indigenous Monitors to participate in First Responder training and become part of the mine rescue team.

Practice Drills

The company will test procedures and evaluate performance of personnel in practice drills on a regular basis to develop and build upon a reliable response system. Simulation exercises will occur annually as per the federal *Environmental Emergency Regulations*, at a minimum, and will cover all actions ranging from the moment of discovery to the marshalling and deployment of emergency response teams, and include setting up both the ICP and EOC, and establishing communications.

Specific drills include the involvement of surrounding or downstream communities and Indigenous nations, for emergencies when they may affect them.

A record of drills performed, and learnings is kept on file and reviewed to improve emergency response procedures.

Prior to conducting emergency response drills where external parties are involved, the company will make enquiries to Indigenous groups and stakeholders to ascertain whether there is interest in participating or observing the emergency response drills. If there is interest, efforts will be made to allow for their participation.

Training Matrix

Frequency / Action	As Required	Semi- Annually	Annually*	Every Three (3) Years**	Every Five (5) Years***
		Training			
Employee Orientation New / Transfer	✓				
On-the-job Training / Refresher Training	✓		✓		
Response Discussion During Pre-Job Meetings	✓				
Drills	✓		✓		
Tabletop Exercise			one of these exercises		
Communication / Partial Mobilization Exercises			(medium level +)		
Major (Full Scale) Exercise	✓			✓	✓
Post Incident (Actual) Review	✓				
MERP Review / Self Audit	✓		✓		

^{*} Must be held annually.

^{**} CSA Z246.2-18 requires Major Exercises be held every three (3) years.

^{***} Environment & Climate Change Canada (ECCC) requires Major Exercises be held every five (5) years for facilities with E2 required substances.

Plan Maintenance

Responsibility

The permit holder is responsible to ensure that an MERP is created, maintained regularly, and any updates are disseminated to the regulatory agency and other plan holders as required. In order for this to occur the following responsibilities are designated:

- Each individual plan holder is responsible for ensuring their assigned manuals are current, all updates are applied / downloaded / inserted, and any errors or omissions are reported to a supervisor.
- The Emergency Preparedness Coordinator is responsible for ensuring that a semi-annual review of their MERP is conducted. The MERP Revision Request Form is located in this section and can be used to track this information and provide documentation in the case of an MERP assessment.
- Any requests for revisions to this plan should be forwarded to the Emergency Preparedness Coordinator for review. These revisions will be discussed with H₂Safety Services Inc. Any significant changes including those resulting from exercises and incidents will require immediate updates sent out to all plan holders; less significant changes will be implemented during the MERP's next annual update.
- The company's Emergency Preparedness Coordinator is responsible for ensuring that the plans and distribution lists are updated, training is performed, and new projects are included in the plan. Information in this plan will be verified and updated at least once a year.
- Old manuals must be sent to H₂Safety Services Inc. or destroyed. If a plan holder no longer requires their manual (job changes, position changes, etc.), it must be returned to the company's Emergency Preparedness Coordinator to be tracked, reassigned, or destroyed.

The permit holder must distribute changes in information that are instrumental to implementing the MERP to all required plan holders.

Errors identified in the MERP by the regulatory agency, permit holder, or other parties must be corrected immediately upon identification.



MERP Revision Request Form

Plan Holder Name / Title / Company:
MERP Name:
Manual Number:
If any of the following items have changed, please check the box beside it and provide a description of the change in the space provided:
 □ Company information □ Mapping information □ Resident contact information □ Response staff information or capacity changes □ Facility additions, such as well or pipeline tie-ins □ Other
Description of the change: Please attach additional pages and/or support documentation as required.
Please return the completed checklist to: H₂Safety Services Inc. 210, 7260 – 12 Street SE Calgary, AB T2H 2S5 Email: erp@h2safety.ca Fax: 403-313-9180

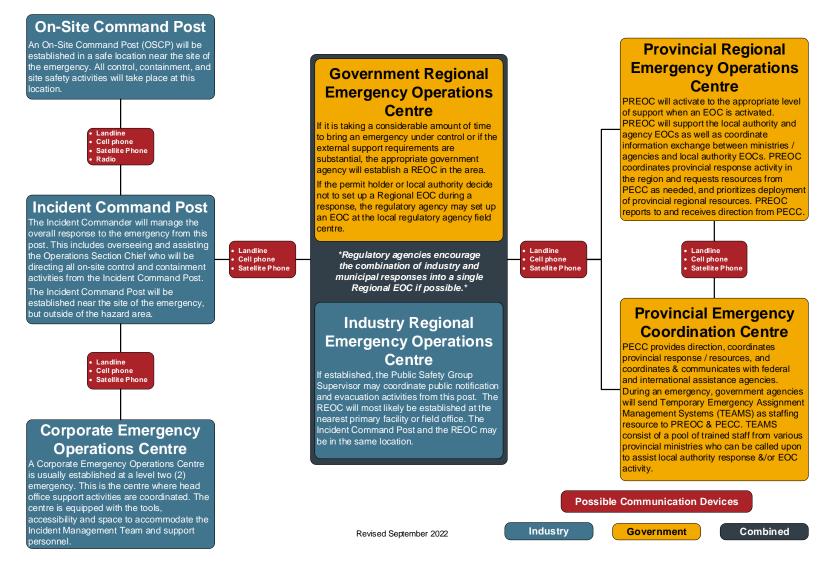


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Appendix B: Incident Command Post (ICP)

Communication Methods Between Command Posts



Appendices Page 7



Appendix B: Incident Command Post (ICP), continued ICP Activation and Setup

The Incident Command Post is activated by the Incident Commander.

The following tasks must be addressed once the ICP has been activated:

Position	Task
Incident Commander	 Establish briefings with the Incident Management Team (IMT). Ensure staffing is adequate for the task(s). Consider the time difference, if applicable, and determine how time will be communicated throughout the incident.
Safety Officer	 □ Ensure the room / floor / building is secure. □ Ensure a safe work area, i.e. remove clutter or cords causing slips, trips, falls, etc.
Information Officer	 Notify the receptionist that there is an incident. Provide details of what message should be given out to the public and media, as well as where to direct incoming calls. Ensure inbound and outbound calls received or made are centrally logged. Ensure responders have their office phones forwarded to their cell phones.
Logistics / IT Support	 □ Turn on all computers; ensure the relevant systems are operational and that they all have internet/email access. □ Bring up any MERP related electronic tools (i.e.; H₂CommandCentre) and ensure they are working and that they can all be displayed on various projectors / screens as required. □ Check that printers are connected to the computers and working. Print a test page to confirm. □ Check that the fax machine is setup and working. □ Check that any phone conferencing systems are set up and working. □ Ensure that telephone lines are available and active. □ Ensure TVs are working properly and set up to local news or CNN. □ Obtain any additional equipment as required.
Logistics / Security	 Ensure the room/floor/building is secure. Arrange for additional security if required. If the location of the Incident Command Post is closed to general staff, provide a list of staff needing access clearance to the meeting area. The following supplies should be available: notepaper, pens, printer cartridges and paper, documentation forms, dry erase markers, staplers and staples, spare power bars and extension cords, etc. Arrange for refreshments (coffee, food, water, etc.) for those working there, as well as sleeping space if required. Ensure there are sufficient tables and chairs for the team.



Appendix B: Incident Command Post (ICP), continued ICP Activation and Setup, continued

Position	Task
	 Determine which emergency response plans and other MERP tools are needed and pull them out to be readily accessible.
	☐ Determine what laminated maps and charts are going to be utilized and put them up on the wall with dry erase markers. Set up the white boards and roles chart.
	☐ Ensure clocks are displaying the correct time, including any clocks with a different time zone.
	☐ As each person arrives: provide them with a vest, provide them with a printout of the Initial Emergency Report Form, ensure they synchronize their watches and ensure they check in with their assigned supervisor.
Planning /	☐ As team members arrive, write their name in the appropriate position on the Incident Management Team Assignment Chart.
Documentation	☐ Pass out documentation forms and provide an overview of the documentation process.
	☐ Ensure the latest contact list for Incident Management Team members are available.
	☐ Begin documenting all actions, decisions, and major events. Start-up H₂CommandCentre if available.
	☐ Continually update the laminated maps and charts as information becomes available (Incident Management Team Assignment Chart, Emergency Status Board, etc.).
	☐ Post a schedule of events, including shift changes and status updates.

Incident Command Post Briefings

Once the ICP has been activated and team members arrive, the Incident Commander or Deputy needs to conduct an initial briefing to provide the team with the status of the situation, establish operational periods for the ICP, establish a meeting schedule for both a planning meeting and periodic briefings and outline broad goals to guide the ICP throughout the emergency.

In additional to periodic briefings for status updates, the Incident Commander also has to conduct a meeting once the approved Incident Action Plan is in place. This meeting will outline the planned objectives and tasks and will ensure that resources required for implementation of the action plan are in available or en route.

At the end of each operational period, all departing members of the Field Response Team will be debriefed and must brief their replacements.

Documentation

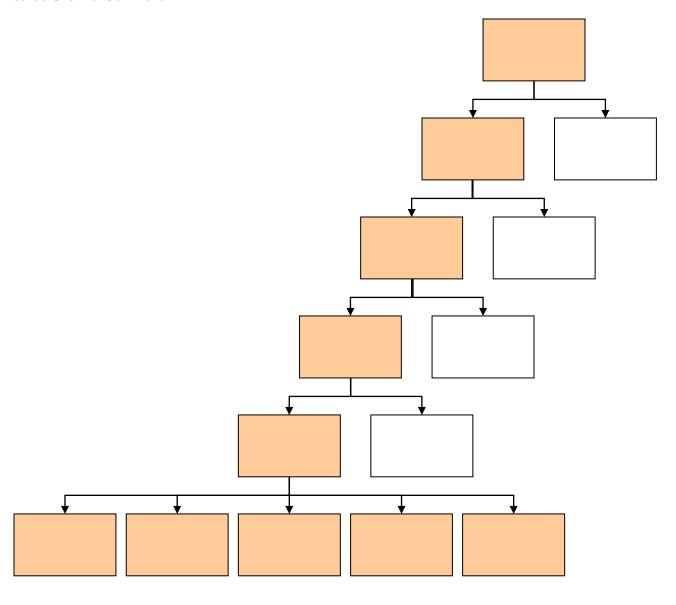
It is critical to ensure that all ICP documentation is compiled, properly stored and readily available after the event. Proper documentation will aid in investigations, inquiries, debriefs and support for financial claims and budgets. Everything that happens during the Response/Recovery Operations should be recorded at the ICP. The forms found in Section 6: Forms are designed to aid in this process.



Appendix C: Key Elements of the Incident Command System (ICS)

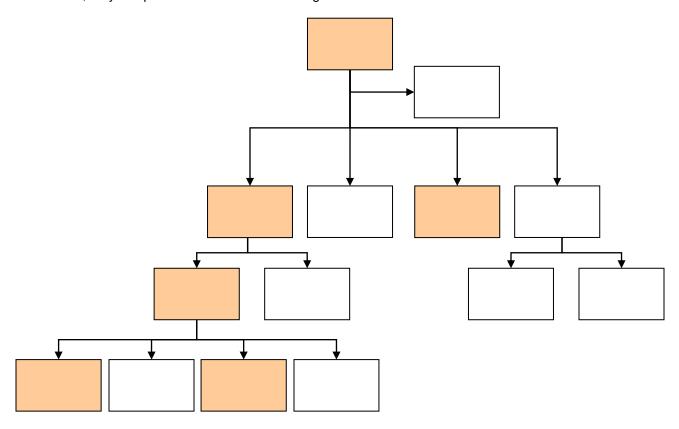
Management by Objectives – Objectives are ranked by priority, should be as specific as possible, must be attainable and if possible, given a working timeframe. Objectives are accomplished by first outlining strategies (general plans of action), then determining appropriate tactics (how the strategy will be executed) for the chosen strategy

Unity and Chain of Command – Each individual takes direction from and reports to only one designated supervisor; this is called Unity of Command. Higher level personnel have authority over lower-level personnel; the lower-level personnel are subordinate to and take direction from higher level personnel. Orders and instructions travel down the chain of command from one supervisor to each subordinate. This is called Chain of Command.



Appendix C: Key Elements of the Incident Command System (ICS), continued

Organizational Flexibility – Only positions that are required at the time should be assigned. In most cases, very few positions will need to be assigned.



Span of Control – ICS requires that any single person's span of control (number of people reporting to them) should be between three and seven, with five being ideal.

Common Terminology – When different organizations are required to work together, the use of common terminology is essential.

Incident Action Plan (IAP) – Every incident must have a written or oral Incident Action Plan. The following information is part of an Incident Action Plan and must be communicated to the rest of the organization:

- Objectives, strategies, and tactics outlined by the Incident Commander.
- Resources assignments what resources do we have and what are they doing? What resources are on order and what are they going to do?
- A description of the ICS organizational structure what positions will be filled?
- Supporting materials incident map, communications plan, evacuation plan, stick diagrams, etc.

Integrated Communications – The use of a common communications plan is essential for ensuring effective communication during an incident.



Appendix C: Key Elements of the Incident Command System (ICS), continued

Establishment and Transfer of Command – The highest-ranking authority arriving onscene at an incident will assume the role of the Incident Commander. That person will continue to be the Incident Commander until there is a formal transfer of command. A transfer of command briefing usually consists of:

- Reviewing a description of the incident.
- Reviewing the actions taken thus far to contain and control the incident.
- Reviewing the current ICS organizational structure.
- A summary of the resources available and ordered.

Resources Management – A resource must either be in assigned, available, or out-of-service status.

- Assigned a resource in assigned status is currently doing whatever tasks have been assigned to it.
- Available a resource in available status is ready to be deployed at a moments notice. Resources in available status often wait for assignments at an incident Staging Area.
- Out-of-Service a resources in out-of-service status might be sleeping, receiving medical aid, getting repairs, etc. and is not ready for assignment.

Summary of Responsibilities

These management functions are handled by the General Staff once they have been delegated by the Incident Commander.

Command Ensures safety. Assumes overall responsibility for the incident.

The Incident Commander is responsible for the Command of the incident as well as the following management functions until they are assigned to other response personnel:

Operations Implements the Incident Action Plan (IAP) focusing on control, containment, and site

safety.

Public Safety Implements the Incident Action Plan (IAP) focusing on notification and evacuation of

the public.

Planning Help create and track (document) the success of the Incident Action Plan (IAP).

Logistics Secure the resources and put them in place to allow Operations to implement the

Incident Action Plan.

Finance/Admin Ensures procedures are in place to allow logistics to secure the resources (spending)

and track and control the expenditures.

Communications Disseminates information and liaises with external agencies.

Communications is handled by the Information Officer once one has been appointed by the Incident Commander. The Information Officer is part of the Command Staff.

Appendix D: Land Descriptions

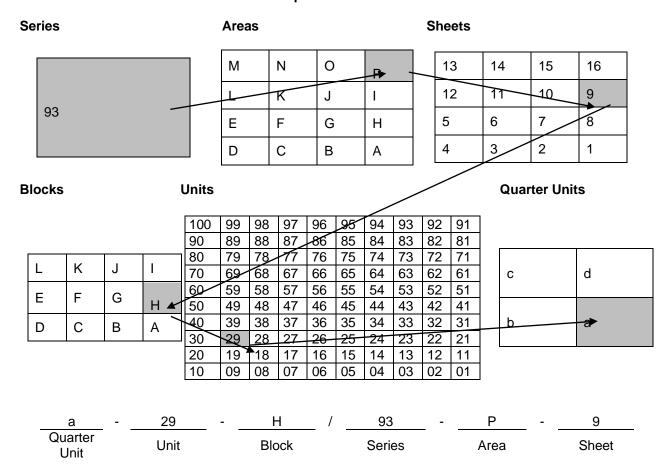
National Topographic System (NTS)

Based on the National Topographic System (NTS), the map labelling terms are as follows:

1) Series	A rectangular area that has a width of 8 degrees of longitude and 4 degrees of latitude. There are 9 Series in British Columbia (82, 83, 92, 93, 94, 102, 103, 104, and 114).
2) Area	1/16 of a map Series that has a width of 2 degrees of longitude by 1 degree of latitude (labelled from A to P).
3) Sheet	1/16 of map Area that has a width of 30' in longitude and 15' of latitude (labelled from 1 to 16).
4) Block	1/12 of a map Sheet with a width of 7'30" in longitude and 5' in latitude (labelled from A to L).
5) Unit	1/100 of a map Block and has a latitudinal extent of 30" and longitudinal extent of 45" (labelled from 1 to 100).
6) Quarter Unit	1/4 of a map Unit (labelled from a to d).

Note: 1 degree is equivalent to approximately 111 km in British Columbia. Degrees vary in size around the planet. They become smaller the closer they get to the poles (north or south) and very large as they reach the equator.

Example a-29-H / 93-P-9





Appendix E: MERP Reference Material Acronyms

Acronym	Meaning
ASO	Avalanche Safety Officer
CEMS	Crisis and Emergency Management System
CERC	Corporate Emergency Response Centre
CISD	Critical Incident Stress Debriefing
CMT	Crisis Management Team
CSA	Canadian Standards Association
EOC	Emergency Operations Centre
EPC	Emergency Preparedness Coordinator
ERT	Emergency Response Team
ETA	Estimated Time of Arrival
FH Order	Fire Hazard Order
GEOC	Government Emergency Operations Centre
GSAR	Ground Search and Rescue
HVAC	Heating Ventilation Air Conditioning
IAP	Incident Action Plan
ICP	Incident Command Post
ICS	Incident Command System
IMT	Incident Management Team
INAC	Indigenous and Northern Affairs Canada
LEL	Lower Explosive Limit
MEP	Municipal Emergency Plan
MERP	Mine Emergency Response Plan
NOK	Next-of-Kin
NOTAM	Notice to Airmen
OSCP	On-Site Command Post
PPB	Parts Per Billion
PPE	Personal Protective Equipment
PPM	Parts Per Million
REOC	Regional Emergency Operations Centre
SABA	Supplied Air Breathing Apparatus
SAR	Search and Rescue
SCBA	Self-Contained Breathing Apparatus
SDS	Safety Data Sheet
SOP	Standard Operating Procedure
STARS	Shock Trauma Air Rescue Society
SWP	Safe Work Procedure
TDG	Transportation of Dangerous Goods



Appendix E: MERP Reference Material, continued Glossary of Terms

Confined Space

A Restricted Space, which may become hazardous to a worker entering it because of:

- An atmosphere that is or may be injurious by reasons of oxygen deficiency or enrichment, flammability, explosivity, or toxicity.
- A condition or changing set of circumstances within the space that present a potential for injury or illness.
- The potential or inherent characteristics of an activity which can produce adverse or harmful consequences within the space.

Confined spaces are not intended for continuous human occupancy. They are entered only for such purposes as cleaning, inspections, maintenance, repair, or construction. In addition to other hazards, confined spaces may have limited means of entry and exit. This would not only make escape and rescue difficult but could also restrict natural ventilation.

Critical Incident Stress Debriefing (CISD)

Critical Incident Stress Debriefing is a specially structured counselling process between the debriefers and those who are directly involved and/or impacted by an incident.

Emergency

A present or imminent event outside the scope of normal operations that requires prompt coordination of resources to protect the health, safety, and welfare of people and to limit damage to property and the environment.

Emergency Operations Centre (EOC)

An Emergency Operations Centre is a designated facility in a suitable location (i.e. head office, regional office, etc.) established by the permit holder to support Incident Command and to manage the larger aspects of an emergency. In a high-impact emergency, there may be a number of EOCs established to support the response. They may include the Incident Command Post, regional and corporate EOCs, a municipal EOC (MEOC), and the provincial government EOC (POC).

EOC Director

The EOC Director activates the Corporate Emergency Operations Centre with staff to provide advice and support to the Incident Commander (Field Response Team).

Note: If the emergency happens outside an area that has a site specific Emergency Response Plan, only then will the EOC Director assume or appoint the role of Incident Commander and dispatch an Incident Management Team to the incident site.

Evacuation

Organized, phased, and supervised withdrawal of members of the public from dangerous or potentially dangerous areas to safe areas.

Tactical Evacuation – A measure to immediately move people to a safe area as part of emergency response and operations. Does not require approval from local authority but the local authority may enact an evacuation order, if required, and local authority must be advised if a tactical evacuation has occurred.

Planned Evacuation – An evacuation coordinated by local government authority that can authorize evacuation alerts and orders.

Appendix E: MERP Reference Material, continued

Glossary of Terms, continued

Explosive Limits (Lower and Upper)

Each gaseous hydrocarbon substance has a minimum (Lower Explosive Limit or LEL) and a maximum (Upper Explosive Limit or UEL) percentage in 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.

Functional Exercise

As described in CAN/CSA Z246.2-18, an activity designed to evaluate capabilities and multiple functions using simulated response. A functional exercise will simulate the deployment of resources and rapid problem solving. Participants will evaluate management of the command and coordination centres and assess the adequacy of emergency response plans and resources.

Hazard

A situation with potential to harm persons, property, or the environment.

Hazardous product

A substance released in quantities that may harm persons, property, or the environment.

Incident

An unexpected occurrence or event that requires action by emergency personnel to prevent or minimize the impacts on people, property, and the environment.

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 Post (ICP)

A designated place where the Incident Commander and staff is located. The ICP should be located outside of the hazard area, but close to the incident. The ICP may be a vehicle, trailer, fixed facility, or any location suitable to accommodate the function.

Incident Commander

Manages the overall response to emergency incidents. The Incident Commander is responsible for: developing objectives, strategies and tactics that guide the response; assigning personnel to fill necessary positions; ensuring the safety of all personnel; keeping internal and external stakeholders updated; coordinating with other response agencies.

Incident Command System (ICS)

A standardized, on-scene, all-hazard incident management system. The Incident Command System (ICS) is flexible in that it can be adapted for large and small incidents.

Incident Management System

A system used to coordinate preparedness and incident management.

Licensee

The responsible duty holder as specified in legislation.

Appendix E: MERP Reference Material, continued

Glossary of Terms, continued

Local Authority

A local authority is considered to be:

- 1) The council of a city, town, village, or municipal district;
- 2) in the case of an improvement district or special area, the Minister of Municipal Affairs;
- 3) for a national park, the park superintendent or the par superintendent's delegate;
- 4) the settlement council of a Métis settlement; or
- 5) the band council of a First Nations Reserve.

Local State of Emergency

See State of local emergency.

Lower Explosive Limit (LEL)

The lowest concentration of gas or vapour (per cent by volume in air) that explodes if an ignition source is present at ambient temperatures.

Major (full-scale) exercise

As described in CAN/CSA Z246.2-18, a multi-agency, multi-jurisdictional activity involving actual deployment of resources in a coordinated response, as if a real emergency had occurred. The full-scale exercise includes the mobilization of units, personnel, and equipment. Participants will assess plans and procedures and evaluate coordinated responses under crisis conditions.

Mine Emergency Response Plan (MERP)

A comprehensive plan to protect personnel and 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.

Municipal Emergency Operations Centre (MEOC)

The centre from which responsible municipal officials manage and support emergency operations within their jurisdiction, as well as formulate protective actions and provide public information. The centre has adequate workspace, maps, status boards, and communications capability.

Municipal Emergency Plan (MEP)

The emergency plan of the local authority.

NAV Canada

Canada's civil air navigation services provider, with operations coast to coast. NAV Canada provides air traffic control, flight information, weather briefings, aeronautical information services, airport advisory services, and electronic aids to navigation.

Notice to Airmen (NOTAM)

An order issued by Transport Canada restricting access to airspace in a defined area.

Notification

The distribution of project-specific information to participants that may be directly and adversely affected by the proposed energy development.

Mutual Aid

Assistance from external organizations, such as neighbouring sites that can be accessed to assist in emergency situations to provide additional resources and personnel during large or complex incidents. Mutual Aid is usually an agreement between sites that are in relatively close proximity.

Appendix E: MERP Reference Material, continued

Glossary of Terms, continued

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 licensee personnel.

Provincial Operations Centre (POC)

An operations centre with the capacity to accommodate representatives from each government department.

Pre-Incident Action Plan (PIAP)

A series of incident plans that have been developed based on the incidents that could be expected to occur at a site based on the outcomes of the Risk Assessment process that has been conducted. Pre-Incident Action Plans (PIAP) allow the team to manage an emergency incident using guidelines that have been developed for the specific incident type. PIAPs do not give specific detail about how the incident is to be managed. This detail is found in Standard Operating Procedures

Public

The group of people who may be or are impacted by an emergency (e.g., employees, contractors, neighbours, emergency response organizations, regulatory agencies, the media, appointed or elected officials, visitors, customers, etc., as appropriate).

Public protection measures

The use of sheltering, evacuation, ignition, and isolation procedures to mitigate the impact of a hazardous release on members of the public.

Public Safety Group Supervisor

Member of the field response team. Individual charged with the responsibility of co-ordinating the evacuation or shelter of people in the emergency hazard Area. The Public Safety Group Supervisor reports to and may be located in the same location as the Incident Commander.

Publicly used facility

Places where the presence of people can be anticipated. Examples include places of business, cottages, campgrounds, churches, and other locations created for use by the public. Includes any similar development the OGC may designate as a public facility.

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 location to manage the larger aspects of the emergency that is manned jointly by government and industry staff.

Residence

A dwelling that is occupied full time or part time.

Resident

Individual living in the area at a fixed location.

Restricted Space

An enclosed or partially enclosed space, not intended for continuous human occupancy that has a restricted, limited, or impeded means of entry of exit because of its construction.

Appendix E: MERP Reference Material, continued

Glossary of Terms, continued

Restricted spaces can be thought of as a work area in which the only hazard is the difficulty of getting into or out of the space. All other hazards are either non-existent or have been eliminated or controlled. Limitations may include access by ladders or by stairways that provide poor access because of steep slope, narrow width, or extreme length. Physical obstruction such as bulkheads, collapsed material, or machinery may impede exit. Limited means of entry and exit can make escape or rescue more difficult.

Roadblock Crew

Personnel responsible for controlling access to the Emergency Hazard Area, reporting to the Public Safety Group Supervisor.

Rover Kit

A briefcase containing maps, forms, supplies and instructions needed by the Rover to carry out their duties.

SARA

Supplied Air Breathing Apparatus.

S.C.B.A.

Self Contained Breathing Apparatus.

Serious injury

A serious injury includes the following:

- an injury that results in death;
- fracture of a major bone;
- amputation other than a portion of a finger or toe;
- loss of sight in an eye;
- internal haemorrhage;
- third degree burns;
- unconsciousness:
- An injury that results in paralysis (permanent loss of function).

State of local emergency

A declaration by a local authority providing the necessary authority, resources, and procedures at the municipal level to allow an emergency to be resolved effectively and efficiently.

Tabletop exercise

As described in CAN/ CSA Z246.2-18, an informal exercise generally used to review resource allocations and roles and responsibilities of personnel and to familiarize new personnel with emergency operations without the stress and time constraints of a major exercise.

Telephoners

Telephoners place calls to residents as directed by the Public Safety Group Supervisor.

Threatening telephone call

Any communication that threatens the well-being of company personnel or property. A form is provided in the manual to capture data from or about a person who calls with a threatening message.

Transient

An individual that is temporarily in the area (e.g. camper, cross-country skier).



Appendix E: MERP Reference Material, continued Glossary of Terms, continued

Trapper

The holder of a provincial licensed and registered trapline for the purpose of hunting and trapping fur bearing animals.

Urban centre

A city, town, village, summer village, or hamlet with no fewer than 50 separate buildings, each of which must be an occupied dwelling, or any similar development.

Unrestricted country development

Any collection of permanent dwellings situated outside of an urban centre and having more than eight permanent dwellings per quarter section.

Urban density development

Any incorporated urban centre, unincorporated rural subdivision, or group of subdivisions with no fewer than 50 separate buildings, each of which must be an occupied dwelling.

Water body

Natural or manmade; contains or conveys water continuously, intermittently, or seasonally. A natural water body is any location where water flows or is present, whether the flow or the presence of water is continuous, seasonal, intermittent, or occurs only during a flood. This includes, but is not limited to, the bed and shore of a river, stream, lake, creek, lagoon, swamp, marsh, slough, muskeg, or other natural drainage, such as ephemeral draws, wetlands, riparian areas, floodplains, fens, bogs, coulees, and rills. Examples of a manmade water body include, but are not limited to, a canal, drainage ditch, reservoir, dugout, or other manmade surface feature.



Mine Area Specific Information

Blackwater Mine Site Section

General Arrangement Drawing – Overall Site General Arrangement – Stage 1

Equipment List

Mutual Aid – Vanderhoof Fire Rescue

Operations Camp Map

Construction Map



800-663-3456

Artemis Gold 24-HOUR 250-570-7029

Primary ICP Site - Blackwater Mine 778-916-9115 GPS Coordinates: 124.857450W by 53.181694N

Secondary Incident Command Post (ICP)

Blackwater Community Office 139 – 1st Street East, P.O. Box 440 Office: 250-567-3276 Vanderhoof, BC, Canada V0J 3A0 office.blackwater@artemisgoldinc.com

Tertiary Incident Command Post (ICP)

Prince George Office Unit 110, 1323 5th Avenue Prince George, BC, Canada V2L 3L6

businessopps-bw@artemisgoldinc.com Primary Emergency Operations Centre (EOC)

Artemis Gold Corporate Office Suite 3083 - 595 Burrard St. Vancouver, BC, Canada V7X 1L3

Office: 604-558-1107

KEY RESPONSE PERSONNEL

Emergency Coordinator	Office: 250-567-3246
General Manager (GM) Tim Donnelly	Cell: 778-375-3122
Deputy Mine Manager Adam Gyorffy	Cell: 705-570-1874
Chief Operating Officer (COO) Jeremy Langford	Cell: 604-240-2122
VP Construction Shane Budd	Cell: 236-995-3030
Safety Manager	Cell: 780-280-0664
Safety Emergency Response Health Director	Cell: 604-735-3664
Emergency Response Security Health Manager	Cell: 780-717-0684
Indigenous and Community Relations Coordinator	Cell: 250-960-9934 Office: 250-567-5196

OPERATIONS SUMMARY

The Blackwater Gold Mine (the Mine) is a gold and silver open pit mine located in central British Columbia (BC), approximately 112 kilometres (km) southwest of Vanderhoof, 160 km southwest of Prince George, and 446 km northeast of

The Mine is presently accessed via the Kluskus Forest Service Road (FSR), the Kluskus-ootsa FSR and an exploration access road, which connects to the Kuskus -Ootsa FSR at km 142. The Kulskus FSR joins Highway 16 approximately 10 km west of Vanderhoof. A new, approximately 13.8 km road (Mine Access Road) will be built to replace the existing exploration access road, which will be decommissioned. The new planned access is at km 124.5. Driving time from Vanderoof to the mine site is about 2.5 hours.

Major mine components include a tailings storage facility (TSF), ore processing facilities, waste rock, overburden and soil stockpiles, borrow areas and quarries, water management infrastructure, water treatment plants, accommodation camps and ancillary facilities. The gold and silver will be recovered into a gold-silver dore product and shipped by air and/or transported by road. Electrical power is supplied by a new approximately 135 km, 230 kilovolt (kV) overland transmission line that connects to the BC Hydro grid at the Glenannan substation located near the Endako mine 65 km west of Vanderhoof

The Blackwater mine site is located within the traditional territories of the Lhoosk'uz Dene Nation (LDN), Ulkatcho First Nation (UFN), Skin Tyee Nation and Tsilhqot'in Nation. The Kluskus and Kluskus-Ootsa FSRs and Project transmission line cross the traditional territories of Nadleh Whut'en First Nation (NWFN), Saik'uz First Nation (SFN), and Stellat'en First Nation (StFN; collectively, the Nechako First Nations [NFNs]) as well as the traditional territories of the Nazko First Nation (NFN), Nee-Tahi-Buhn Band, Cheslatta Carrier Nation and Yekooche First Nation (BC EAO 2019a, 2019b).

Mine development will be phased with an initial milling capacity of 15,000 tonnes per day (t/d) or 5.5 million tonners per annum (Mtpa) for the first five years of operation. After the first five years, the milling capacity will increase to 33,000 t/d or 12 Mtpa for the next five-years, and 55,000 t/d or 20 Mtpa in Year 11 until the end of the 23-year mine life. The Closure phase is 24 to approximately 45 years, ending when the Open Pit has filled and the TSF is allowed to passively discharge to Davidson Creek, and the Post-Closure phase is +46 years.

OPERATIONS SUMMARY. continued

New Gold Inc. received Environmental Assessment Certificate #M19-01 (EAC) on June 21, 2019 under the 2002 Environmental Assessment Act (BC EAO 219c) and a Decision Statement (DS) on April 15, 2019 under the Canadian Environmental Assessment Act. 2012 (CEA Agency 2019). In August 2020. Artemis Gold Inc. (Artemis) acquired the mineral tenures, assets, and rights in the Blackwater Project that were previously held by New Gold Inc. On August 7, 2020, the Certificate was transferred to BW Gold LTD. (BW Gold), a wholly owned subsidiary of Artemis, under the 2018 Environmental Assessment Act. The Impact Assessment Agency of Canada notified BW Gold on September 25, 2020 to verify that written notice had been provided within 30 days of the change of proponent as required in Condition 2.16 of the DS, and that a process had been initiated to amend the DS.

Permits to develop major works construction and support operations were received in 2023, including Mines Act Permit M-246 (M-246) and Environmental Management Act Permits 110650 and 110652 (PE-110650 and PE-110652).

On-Site Storage

Refer to E2 Plan for more information on regulated substances.

Closest Urban Centre

The mine site is approximately 112 km southwest of Vanderhoof and 160 km southwest of Prince George.

Top Lake is located 11 km northwest and there are other unnamed smaller bodies of water nearby.

SAFETY EQUIPMENT

Safety Equipment Inventory

Refer to the following page for a complete list of safety equipment

The main source of communication on site is by cellular phone with radio as backup and travelling to site.

Radio Controlled Roads

Channel Name	Frequency	Comment	Area of Use
RR21	151.010 Narrow	Public FSR Channel	Kluskus FSR KM 0 to 92.5
RR14	150.545 Narrow	Public FSR Channel	Kluskus FSR KM 92.5 to 146
RR4	150.185 Narrow	Public FSR Channel	Blackwater Access Road KM 0 to 16.5
BW 1	173.670 Wide	BWG and contractor vehicles and equipment	Blackwater Site (Formerly RVC-1 / Artemis 1)
BW 2	171.450 Wide	BWG and contractor vehicles and equipment	Blackwater Site (Formerly RVC-2 / Artemis 2)
BW 3	171.21 Narrow	BWG and contractor vehicles and equipment	Blackwater Site
BW 4	171.27 Narrow	BWG and contractor vehicles and equipment	Blackwater Site
BW 5	171.42 Narrow	BWG vehicles and equipment	Blackwater Site
BW 6	171.48 Narrow	BWG vehicles and equipment	Blackwater Site
BW 7	171.54 Narrow	BWG vehicles and equipment	Blackwater Site
BW 8	171.585 Narrow	BWG vehicles and equipment	Blackwater Site

Note: All radio channels listed are analog. Faitron Communications is the company used in Vanderhood

EMERGENCY SERVICES

SUPPORT SERVICES

800-567-7455

203-482-9790

403-212-2332

888-216-2332

800-882-4967

780-567-3440

877-342-3473

780-217-8999

800-882-4967

250-785-9557 800-432-1809

250-562-1215

250-561-0541

888-566-4401

800-663-6106

250-567-2222

844-774-4911

250-785-8158 250-563-8484

250-561-1468

800-353-1116

250-562-8355

250-562-4666 250-564-3111

250-567-2111 844-542-9628

855-238-9350

250-562-4452

800-424-9300

250-562-8355

Cell: 819-763-0211

Emergency Response Assistance Canada (ERAC) ERAP # 2-1008-139

Secondary ERAP Holder - Roy Norcross

Safety Boss Inc. - Fort St. John, BC Trojan Safety - Grande Prairie, AB Firemaster Oilfield Services - Clairmont, AB

Industry Firefighting / Safety Contractors Safety Boss Inc. - Fort St. John, BC Trojan Safety - Fort St. John, BC

United Safety - Fort St. John, BC

Paladin Security - Prince George, BC

Bailey Helicopters Ltd. - Prince George, BC

Yellowhead Helicopters - Prince George, BC Canadian Helicopters Ltd. - Fort St John, BC

BC Search and Rescue Society - BC-wide

T&T OHS - Prince George, BC
NAPP Enterprises Ltd - Prince George, BC

Hurricane High Pressure - Prince George, BC

Rapid Response Industrial Group

Steam Trucks / Vacuum Trucks

Tank Rentals / Water Trucks

Load 'Em Up - Prince George, BC

United Rentals - Prince George, BC Spill Response / Environmental

SLR Consulting - Prince George, BC

Search and Rescue (SAR) - Initiated through RCMP or EMCR

Nechako Valley Search and Rescue (Vanderoof RCMP)

Prince George Hydro Mechanical - Prince George, BC

Load 'Em Up - Prince George, BC Spruce City Sanitary Services - Prince George, BC

Spruce City Sanitary Services - Prince George, BC

Avison Environmental - Vanderhoof, BC Nucor Environmental Solutions Ltd. - BC-wide

Ram Environmental Response - Kelowna, BC

ERAP Holder - Eric Costello

Toll Free

Air Monitoring

Medical Support

Security Services

Helicopters

HAZMAT

CHEMTREC

Recention Centres

2645 Burrard Avenue, Vanderhoof

Emergency Response Management

H₂Safety Services Inc. - Calgary

Ambulance		911
BC Ambulance Service (Air)		800-461-9911
BC Ambulance Service (Ground) - Vanderhoof, BC		250-567-9039
STARS Ambulance		888-888-4567
RCMP*		911
Quesnel / Wells		250-992-9211
Vanderhoof		250-567-2222
*The mine falls within the jurisdictional boundaries of the Quesnel/M	/ells R	CMP detachment;
however, the Vanderhoof detachment would likely be dispatched a egress issues. It would take Vanderhoof RCMP a minimum of 4 ho	s they	are closer due to
required.	ours to	respond to site ii
Fire Department*		911
Vanderhoof F.D. Rescue Unit R11 - Vanderhoof, BC	Cell:	250-567-0455
Beaverly Fire Rescue Hall - Prince George		250-964-2989

*The Blackwater mine does <u>NOT</u> have fire coverage from any local fire departments. All fires must be handled by Artemis Gold, mutual aid partners, or contracted fire fighting services. Local fire departments in BC will only respond to motor vehicle accidents and medical emergencies unless specifically dispatched by EMCR or the Local Authority.

The Blackwater mine does have a mutual aid agreement in place with the Vanderhoof Fire Department for vehicle extraction the Kluskus FSR.

Hospitals	
St. John Hospital - Vanderhoof*	250-567-2211
University Hospital of Northern BC - Prince George	250-565-2000
* Note: No Holinad available I and at aimed and proceed with ground transfer via	mhulanaa

* Note: No Helipad available. Land at airport and proceed with ground	transfer via ambulance
BC Drug and Poison Information Centre	800-567-8911
BC Hydro	888-769-3766
FortisBC Electric	866-436-7847
BC One-Call	800-474-6886
	www.bconecall.ca

236-423-3324
250-567-3374
250-567-3276
250-567-3047

GOVERNMENT AGENCIES

Energy, Mines, And Low Carbon Innovation (EMLI)	
Mine Reporting Line	888-348-0299
Prince George Office	250-649-7725

* BC EMLI maintains one mine rescue equipment cache for the province located in Kamloops. The Chief tor of Mines or the Deputy Chief Inspector of Mines authorize any loan of equipment from the cache

BC Ministry of Emergency Management and Climate Readiness (EMCR) 800-663-3456* Incident Reporting Line

*In the event of an emergency, EMCR may notify the Ministry of Environment, Environment & Climate Change Canada, Ministry of Forests, Northern Health Authority and any affected municipalities.

Caribou Regional District 800-665-1636 Regional District of Bulkley-Nechako (RDBN) 250-692-3195 Christopher Walker, Emergency Program Coordinator

Lhoosk'uz Dene Nation 250-992-3290 Junie Baptiste, Acting LDN Chief and Councillor (baptisteclancouncillor@lhooskuz.com)

Laurie Vaughn (resources@lhoozkus.com)

Transportation of Dangerous Goods (TDG)

Ulkatcho First Nation 877-443-4584 Lynda Price, UFN Chief (chief@ulkatcho.ca) Alyisha Knapp (naturalresources@ulkatcho.ca)

Additional First Nation Contacts

Additional First Nation Contacts		
First Nation	Name	Number
Nadleh Whut'en First Nation	Chief Larry Nooski	250-690-7211
Stellat'en First Nation	Chief Robert Michell	250-699-8747
Saik'uz First Nation	Chief Priscilla Mueller	250-567-9293
Nazko First Nation	Chief Leah Stump	250-992-9085
Skin Tyee Nation	Chief Rosemarie Skin	250-694-3517
Tsilhqot'in Nation	Chief Joe Alphonse	250-392-3918
Metis Nation British Columbia	Chief Daniel Fontaine	604-557-5851
Nee-Tahi-Buhn Band	Chief Ray Morris	250-694-3494
Northern Health Authority (NHA)	/ HEMBC	855-554-3622
WORKSAFE BC - Fort St. John		888-621-7233
Technical Safety BC (TSBC)		866-566-7233

		000 000 . 200
BC Ministry of Environment and Climate Change Strateg Omineca Region (Prince George)		800-663-3456 250-565-6135
BC Ministry of Forests Forest Fire Reporting From Cell Phone Prince George Forest District		800-663-5555 *5555 250-561-3479
BC Ministry of Transportation & Infrastructure (MOTI)	Admin:	250-645-9668

CANUTEC 888-226-8832 **Air Traffic Control**

866-541-4102 Transport Canada** 877-992-6853 * If flight information or a NOTAM advisory is required, contact NAV Canada

** if a NOTAM is required for airspace closure, contact the Transport Canada Aviation **Environment & Climate Change Canada (ECCC)**

604-664-9385 Meteorological Services Department of Fisheries & Oceans Canada (DFO) 604-666-0384

AREA USERS / TRANSIENTS

Industrial Area Users Canadian Forest Products (CANFOR) 250-567-4725

Guides and Outfitters Certificate Number Name Number 500986 Fawnie Mountain Outfitters 250-960-9427 John Vandene

Trappers Trapline

Name Number TR0512T014 Unknown Number Unavailable TR0512T027 Number Unavailable

SURFACE DEVELOPMENT INFORMATION

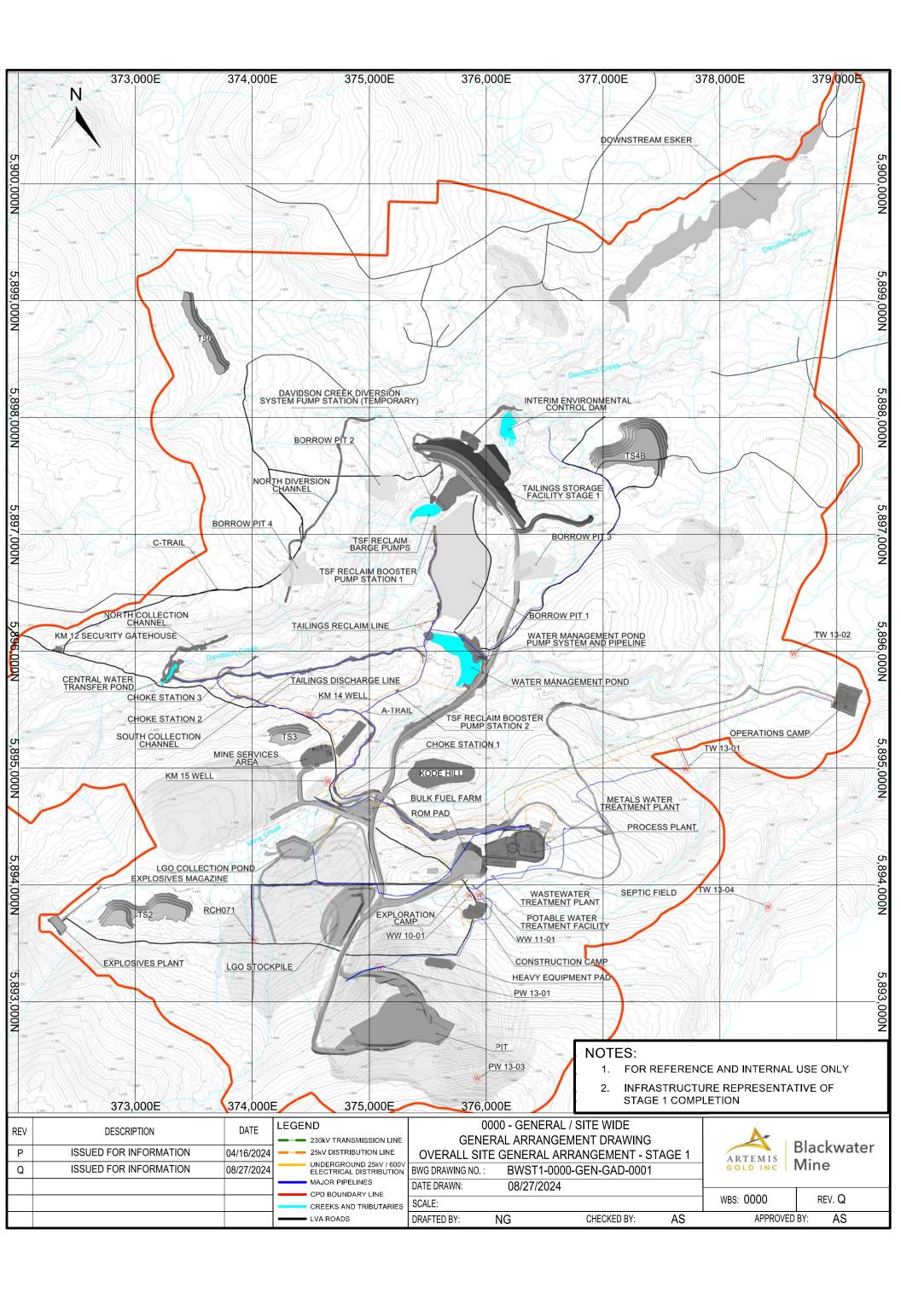
There are no surface developments within the potential hazard area however there is one (1) surface development at KM 125 on the Kluskus near Tatelkuz Lake. This resident owns and operates Tatelkuz Lake Ranch Resort and may have numerous people on site. Although the ranch is not near the potential hazard area, it is on the only road that egresses to/from the mine.

Ranch Owner

Barry and Marion Mills 250-567-1113 604-312-5616

Tatelkuz Lake Resort Wayne Kennedy, Ranch Manager 250-570-8097







Fire Fighting Equipment
Structure/Vehicle Fires
750 Gallon Fire Engine
AFF Foam
Blitzfire Monitor
38mm Nozzles
65mm Nozzles
65mm Stacking Tips
38 MM Hose
65mm Hose
Gated Wyes
Stihl Chainsaw
K12 Rotary Saw
MSA G1 SCBAS
MSA Cairns XF1
Extra Cylinders
Irons
Thermal Imaging Camera (TIC)
Innotex Bunker Gear
Flashlights
Portable Radios
Traffic Wands
Safety Vests
Binoculars
Pylons
Mule Wheel
Wildland Fires
Wildland Skid On F350
Mark 3 Forestry Pump
Wick 250 Forestry Pump
Portable Water Tanks
Pulaskis
Shovels
Mccleod Rakes
Wajax Packs
Wildland Coveralls
Radio Packs
Other:

Buildings	
Medical Clinic- Fully Stocked	
Mine Rescue Tent	

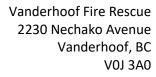
Vehicles/Trailers
Fire Engine
Ambulance with BLS/ALS Bags
MTC With BLS Bag
Snowmobile
Wildland Pick Up With Bls Bag
Pick Up
Haz Mat Trailer
Wildland Trailer

Ice/Water Rescue				
Mustang Ice Suits				
Rescue Pfds				
300' Rope Spool				
Throw Bags				
Rapid Deployment Craft (RDC)				
Rescue Helmets				

Vehicle Extrication				
Holmatro Spreader				
Holmatro Cutter				
Holmatro Dash Ram				
Dash Extension				
Lifting Air Bags				
Crash Kit				
Step Chocks				
Blocks/Cribbing				
Tarps				
Wheel Chocks				

Avalanche Rescue				
Snow Probes				
Avalanche Shovels				
Avalanche Transceivers				
Search Flags				

Rescue Equipment
High Angle/Confined
11.5mm Rescue Ropes
CMC Clutches
Petzl ASAPS
Carabiners
Single Pulleys
Double Pulleys
Rigging Plates
Conterra Hitchplate
Webbing
Anchor Straps
CMC Rescue Harnesses
Azteks
Harken Wingman
Arizona Vortex
Larkin Frame
Rescue Knife
Roll Clips
Quick Links
Swivel
Edge Pro
Omni Slings
Mamba Slings
CMC CSR2
Prusiks
Sked
Dedicated Emergency Platform (Dep)
Rescue Basket
Petzl Bumblebee
Mega Mover
Arizona Vortex
Rescue Helmets
Blower Fan
Gas Monitors
AEDS
Other:





November 14, 2024

To: Artemis – BW Gold Ltd., Attn: Hans VanDerHoek,

Vanderhoof Fire Rescue (VFR) agrees to provide road rescue services to the Kluskus Forest Service Road network in collaboration with BW Gold emergency crews. VFR Rescue 11 can be reached by cell phone # 250 567 0455 and through local two-way radio channels.

Sincerely,

Craig Smith

Craig Smith

Fire Chief, Vanderhoof Fire Rescue



Operations Camp Map – Muster Points





Construction Camp Map

