



EMERGENCY RESPONSE PLAN (ERP)

Natural Gas Leak – Header System
ERP #0203-A

Rev	Date	Description	Author	Approval
A	Mar. 24, 2026	Issued for Review (IFR)	PAC	



synapse

EMERGENCY RESPONSE PLAN

Plant Site – Power Plant & Data Center
Natural Gas Leak – Header System
Olds, Alberta

Issued: March 2026

Facility 24 Hr Emergency Number: To Be Determined

This ERP is supported by the Synapse EMP. **NOTE: This worksheet must be completed before starting operations.**

Site Name: Synapse Data Center **Surface Location:** 04-33-1-W5M

Stars Site # To be determined **GPS Coordinates:** 51°48'06.6"N 114°05'26.1"W

Driving Directions:

Located approximately 5 km west of the Town of Olds and is primarily accessed via Highway 27. Emergency responders should travel west from Olds on Highway 27 and enter the site via the southeast access located on the south side of the highway, which serves as the primary emergency access point. Secondary access is available from 44 Street along the west boundary of the site, with an additional tertiary access located at the northwest corner of the property via the local road network. Upon dispatch, responders should be advised to use the Highway 27 access unless otherwise directed, and a Synapse representative will be dispatched to meet and escort emergency services to the incident location.

Access Conditions:

Operational traffic, including heavy haul trucks and equipment, may be present at all access points, and road conditions may change due to ongoing daily operational activities. Emergency responders should exercise caution when entering the site, and where necessary, a Synapse representative will provide guidance or escort to ensure safe and efficient access to the incident location.

Worksite Information	Name	Office	Cell	Residence
To be completed prior to commissioning				

Corporate ERP	24 hr On Call #	TBD	Alt:	TBD
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Site Safety Manager	24 hr On Call #	TBD	Alt:	TBD
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VP Operations	24 Hr On Call #	TBD	Alt:	TBD
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In a Medical emergency the Synapse Supervisor (or designate) will contact:

Emergency: 911 or Non-Emergency Contacts Below

Onsite Medical Contact #	To be determined	To be determined
Project Radio Frequencies	To be determined	To be determined
WCSS (Spill Coop)	To be determined	To be determined
Olds Fire Department	Non-Emergency Line	1-403-556-8880
Alberta Energy Regulator (AER)	Emergency Line	1-800-222-6514
Emergency Management Agency	Town of Olds (Municipality)	1-403-556-6981
RCMP – Olds Detachment	Non-Emergency Line	1-403-556-3324

Emergency Medical Response Transportation Plan

If this transportation plan requires activation the following steps must be taken:

1. Sound the alarm. If a hazardous environment is suspected, evacuate the area to the muster point and verify personnel with a head count.
2. Notify the Site Supervisor and on-site medic (if assigned) immediately.
3. Assess the situation to identify hazards and implement appropriate controls to stabilize the area and prevent further risk to personnel.
4. Initiate rescue efforts as required and provide first aid within the capabilities of trained personnel.
5. Where medical transportation is required:
 - a. Contact 911 and request emergency medical assistance, clearly communicating the nature of the incident, number of injured persons, and their condition, along with the site location (Synapse Data Center, LSD 04-33-1-W5M).
 - b. Provide responders with clear access instructions to the site and confirm their understanding of the route.
 - c. Assign a site representative to position at the primary site entrance to direct and guide emergency responders to the incident location.
 - d. Ensure access routes within the site are unobstructed and safe for emergency vehicles by managing or halting traffic as required.
 - e. Continue patient care and monitoring until emergency medical services assume responsibility.
 - f. Upon arrival of responders, provide a concise summary of the situation, including patient status, care provided, and any hazards present.
 - g. Support emergency responders as required and maintain control of the surrounding area to allow safe and efficient patient transport.

Special Considerations for Air Ambulance Support:

Where required based on patient condition or transport time, Emergency Medical Services may request air ambulance support.

Air medical evacuation services are provided by STARS Air Ambulance. STARS may be activated through 911 dispatch where patient condition or transport time warrants rapid evacuation to a tertiary care facility.

A designated landing zone shall be maintained on-site, with coordinates, access control, and obstruction clearance requirements defined in this ERP.

1. Scenario Definition

This scenario considers a loss of containment of natural gas from the above-ground fuel gas header system located external to all buildings. The header distributes fuel gas from the inlet facility to multiple power plants and consists of varying pipe diameters along its length.

Credible failure modes include:

- piping rupture or fracture
- flange or valve leakage
- mechanical damage (impact, external forces)
- failure at branch connections or isolation points

Unlike enclosed scenarios, this release occurs in an open environment, where the primary hazards are:

- formation of a flammable gas cloud
- delayed ignition resulting in flash fire
- immediate ignition resulting in jet fire
- localized radiant heat exposure
- potential for escalation if isolation is delayed

This scenario is governed by release rate and duration, rather than bounded confined volume.

This scenario has been evaluated using the Synapse Risk Matrix and shall be treated as a high-consequence operational emergency requiring immediate automatic isolation, full building evacuation, controlled site response, and escalation in accordance with the Synapse EMP. It represents a conservative operational planning basis and will be further refined during detailed design through Process Hazard Analysis (PHA) and Quantitative Risk Assessment (QRA).

2. Hazard and Inventory Basis

The fuel gas header system distributes natural gas from the inlet facility to multiple power plants and is constructed of varying pipe diameters along its length. Based on current design information, the header consists of the following segments:

Segment	Pipe Size (in)	Length (m)	Internal Volume (m ³ @ 3000 kPa)	Free Gas Volume (m ³ @ atm)
1	16"	259	33.5	1025
2	14"	267	26.6	815
3	12"	328	24.0	735
4	10"	701	35.5	1085
5	8"	267	8.6	265

For emergency planning purposes, the maximum credible release case is conservatively represented by failure of a single header segment prior to isolation. Due to its larger diameter and upstream location, the 16-inch segment is taken as the bounding case. Unlike enclosed scenarios, this release may continue until isolation is achieved. Once the affected segment is isolated, the release is limited to depressurization of the trapped inventory.

The maximum credible release is bounded by approximately 1,000–1,100 m³ of free natural gas, depending on the segment isolated. The 16-inch segment governs maximum release rate, while the 10-inch segment represents a comparable total inventory due to its length.

3. Energy and Consequence Characterization

The chemical energy associated with the bounding header segment inventory is on the order of 36,000 to 39,000 MJ. This represents a significant energy source; however, in an open-air release, this energy is not realized as a single confined explosion. The primary hazards are:

- **jet fire** (immediate ignition)
- **flash fire** (delayed ignition of dispersed gas cloud)
- **radiant heat exposure**
- localized overpressure only under partial confinement conditions

Due to the open-air nature of the release, the hazard area is dynamic and cannot be represented by a fixed radius. The extent of impact is determined by real-time dispersion and ignition conditions and must be managed by the Incident Commander based on observed conditions and available detection data. The extent of hazard is governed by:

- release rate (diameter-driven)
- time to isolation
- wind speed and direction
- atmospheric dispersion

Following isolation, the release becomes bounded and residual gas disperses rapidly. The event is expected to remain localized to the affected header segment and immediate plant area. Due to the potential for sustained release prior to isolation, however, this scenario is treated operationally as a major external gas release event.

4. Engineered Safeguards and Design Controls

The fuel gas header system incorporates multiple independent layers of protection designed to detect a loss of containment, limit release duration, and prevent escalation. Unlike enclosed or building-based scenarios, this system operates in an open environment, and the primary safeguards are focused on rapid detection, sectional isolation, and control of exposure to adjacent equipment and personnel.

1. **Detection:**

- Leak detection for the header system is achieved through a combination of system-level monitoring and field instrumentation.
- Continuous mass balance monitoring of header flow rates provides early indication of abnormal conditions, including unaccounted losses consistent with a leak.
- In addition, combustible gas (LEL) detectors are installed in proximity to buildings and key interface points, providing localized indication of gas migration toward occupied or enclosed areas.
- Operators are trained to recognize visual and audible indicators of a release, including noise, vapor plumes, or abnormal operating conditions observed through the control system.

2. **Fuel Gas Isolation:**

- The header system is designed with sectional isolation valves distributed along its length, corresponding to the segmented pipe configuration.
- In the event of a confirmed or suspected leak, the affected header segment can be isolated by closing upstream and downstream isolation valves, thereby terminating the supply of gas to the failure location.
- Isolation may be initiated automatically where integrated with control system logic, or manually by operations personnel under the direction of the Incident Commander.
- This sectionalization ensures that a single failure does not result in release of the entire header inventory.

3. **Inventory Limitation:**

- The maximum releasable inventory is limited by the physical segmentation of the header system.
- Each segment represents a bounded volume, and once isolation is achieved, no additional upstream gas is supplied to the affected section.
- The release is therefore limited to the depressurization of the isolated segment, transitioning the event from an active, potentially continuous release to a finite and diminishing discharge.

4. **Depressurization and Dispersion:**

- Following isolation, the trapped gas within the affected header segment will depressurize through the leak point and disperse into the atmosphere.
- Where provided, automatic vent valves may assist in controlled depressurization to a safe location.
- Due to the open-air configuration of the system, combined with the coordinated automatic depressurization system, gas does not accumulate in a confined volume, and dispersion is governed by ambient wind conditions.
- This provides a natural mitigation mechanism that reduces the duration and concentration of any flammable gas cloud once the source is isolated.

5. **Fire Protection Systems (Sprinklers)**

- Each powerhouse is equipped with automatic fire suppression systems, which automatically activate by heat detection or fire conditions (fire-eye activated deluge).
- This system controls or suppress secondary fires, limit fire spread, and protect structures and adjacent equipment.

6. **Fire Protection and Exposure Control:**

- Fire monitor stations (hydrant cannons) are installed throughout the site in proximity to the header system and adjacent equipment.
- These systems are intended for exposure protection, including cooling of nearby structures, piping, and equipment to prevent escalation in the event of a fire.
- They are not intended to extinguish an active natural gas jet fire, which must be controlled through isolation of the fuel source.
- The use of fire monitors is directed by the Incident Commander based on fire behavior and exposure risk.

7. **Ignition Control Measures:**

- The probability of ignition is reduced through appropriate design and installation practices, including hazardous area classification, controlled electrical systems, and equipment selection suitable for the operating environment.
- The open-air nature of the header system further reduces the likelihood of sustained flammable mixtures accumulating, particularly under typical wind conditions.

8. **System Integration and Response:**

- Protective actions associated with detection, isolation, and alarm activation are integrated into site operations and emergency response procedures.
- The overall system is designed such that detection of abnormal conditions leads to rapid identification of the affected segment, followed by isolation to terminate the release.
- These actions may be initiated automatically or manually but are structured to occur within a timeframe that minimizes total released inventory and reduces the potential for escalation.

5. Event Progression

The expected sequence of events is as follows:

1. A loss of containment occurs on the fuel gas header system due to piping failure, connection failure, or external mechanical damage. Natural gas is released to atmosphere at a rate dependent on the size and location of the failure, as well as the operating pressure of the header. Due to the pressurized nature of the system, the initial release may be rapid and audible, and may be visible through dust entrainment or vapor distortion under certain atmospheric conditions.
2. Following the onset of the leak, natural gas disperses into the surrounding environment. Dispersion behavior is governed by wind speed, wind direction, and atmospheric conditions. Depending on these conditions, the gas cloud may dilute rapidly or may transiently accumulate in localized areas, particularly in low-lying zones or areas of congestion near structures or equipment.
3. The release may remain unignited and disperse, ignite immediately resulting in a jet fire at the point of release, or ignite after a delay resulting in a flash fire involving a dispersed gas cloud. In the case of immediate ignition, flame is typically anchored at the release point and may produce significant localized radiant heat. In the case of delayed ignition, flame propagation occurs through the flammable gas cloud and is typically short in duration.
4. Detection of the event occurs through one or more of the following mechanisms:
 - a. abnormal flow conditions identified through mass balance monitoring,
 - b. activation of LEL detectors in proximity to buildings or equipment, or
 - c. direct observation by operations personnel.
5. Upon confirmation or strong indication of a leak, response actions are initiated. Remote controlled isolation valves are activated to both isolate the location of the leak, and to provide venting to assist in depressurization to a safe location.
6. Isolation of the affected header segment is the primary control action. Upstream and downstream isolation valves are closed to terminate the supply of gas to the leak location. Depending on system configuration and control integration, isolation may be initiated automatically or manually by operations personnel under the direction of the Incident Commander. Until isolation is achieved, the release may continue as a sustained discharge.
7. Once isolation valves are closed, no further upstream gas is supplied to the affected segment. The remaining gas within the isolated section continues to discharge through the failure point until the segment is fully depressurized. During this period, the release rate decreases as system pressure decays.
8. Following depressurization, residual gas disperses into the atmosphere, and the event transitions from an active release to a controlled condition. If ignition has occurred, fire duration is limited by the remaining inventory within the isolated segment, and flame intensity diminishes as pressure and flow decrease.
9. Throughout the event, site alarm systems are activated, and personnel evacuate in accordance with established emergency procedures. The affected area is controlled as an exclusion zone, with boundaries established and adjusted by the Incident Commander based on observed conditions, including gas detection readings, fire behavior, and wind direction.

All protective actions are focused on rapid identification of the release, timely isolation of the affected segment, and prevention of escalation to adjacent systems. Once the release has been isolated and conditions have stabilized, the response transitions to verification of system status, assessment of damage, and preparation for controlled re-entry in accordance with this ERP.

6. Emergency Response Philosophy

The emergency response philosophy for a fuel gas header release is based on rapid identification, immediate personnel protection, and timely isolation of the affected header segment to terminate the release. Unlike enclosed or building-based scenarios, this event may involve a sustained release of natural gas until isolation is achieved, and the hazard area is governed by real-time dispersion and ignition conditions.

The primary risk to personnel exists during the active release phase, particularly in the presence of a flammable gas cloud or an ignited jet fire. Accordingly, the initial response prioritizes immediate evacuation of personnel from the affected area and establishment of a controlled exclusion zone. All personnel shall cease work, assess wind direction using site windsocks, and proceed to the designated muster location in accordance with the established alarm protocol. Movement shall be directed away from the suspected release area and downwind hazard zone.

Upon confirmation or strong indication of a header leak, the affected area shall be treated as a hazardous exclusion zone. The extent of this zone is not fixed and shall be established and continuously adjusted by the Incident Commander based on observed conditions, including wind direction, gas detection readings, visible vapor movement, and fire behavior if ignition has occurred. Access to the affected area shall be restricted, and no personnel shall enter the exclusion zone unless authorized and directed as part of a controlled response.

Isolation of the affected header segment is the primary control action for this scenario. Operations personnel shall, under the direction of the Incident Commander, initiate closure of upstream and downstream isolation valves to terminate the supply of gas to the leak location, and open vent valves to de-pressure the isolated header segment to a safe location. Where automatic isolation is available, system status shall be verified through the control system. Where manual intervention is required, actions shall only be undertaken where it is safe to do so and shall not place personnel within a hazardous gas or fire exposure zone.

If ignition has occurred, the presence of a jet fire shall be treated as a controlled release until isolation is achieved. Active extinguishment of a gas jet fire shall not be attempted while fuel supply is ongoing. Fire monitor systems may be deployed for exposure protection, including cooling of adjacent equipment and structures, to prevent escalation. Once isolation is confirmed and fuel supply has been terminated, any residual fire will diminish as the system depressurizes.

External emergency response shall be initiated in accordance with the Synapse Emergency Management Program (EMP) where the event involves sustained release, fire, injury, uncertainty regarding isolation status, or potential for escalation. Coordination with responding agencies will be conducted through the Incident Command System, with Synapse personnel providing technical support and site-specific information.

Re-entry to the affected area shall not occur until the release has been fully isolated, residual gas has dispersed, fire risk has been eliminated or controlled, and the integrity of the system has been verified. Atmospheric conditions shall be confirmed safe prior to any investigation or repair activities. The Incident Commander shall authorize re-entry based on verified conditions and completion of required safety checks.

Due to the open-air nature of the release, hazard conditions may change rapidly with wind and environmental conditions. The response shall remain adaptive, with continuous reassessment of hazard boundaries and response actions until the event is fully stabilized.

Final consequence characterization, escalation thresholds, and any public protective action planning shall be refined through formal PHA and QRA studies.

7. Incident Command (ICS) Structure

Emergency response at the Synapse site will be managed using the Incident Command System (ICS) appropriate for operational activities. The Site Supervisor (or designate) will assume the role of Initial Incident Commander (IC) and is responsible for initiating emergency response actions, assessing the situation, and directing site personnel.

The Incident Commander shall utilize the Synapse Risk Matrix as a decision-support tool during emergency response to evaluate incident severity, potential escalation, and required response actions. This includes determining the need for full site evacuation, expansion of the Incident Command structure, and engagement of external emergency responders. The matrix provides a consistent framework to ensure that response actions are proportional to the level of risk presented by the incident.

Depending on the nature, complexity, or duration of the incident, command may be formally transferred to one of the following:

- On-Duty Senior Manager
- Site Safety Manager
- Designated Emergency Lead

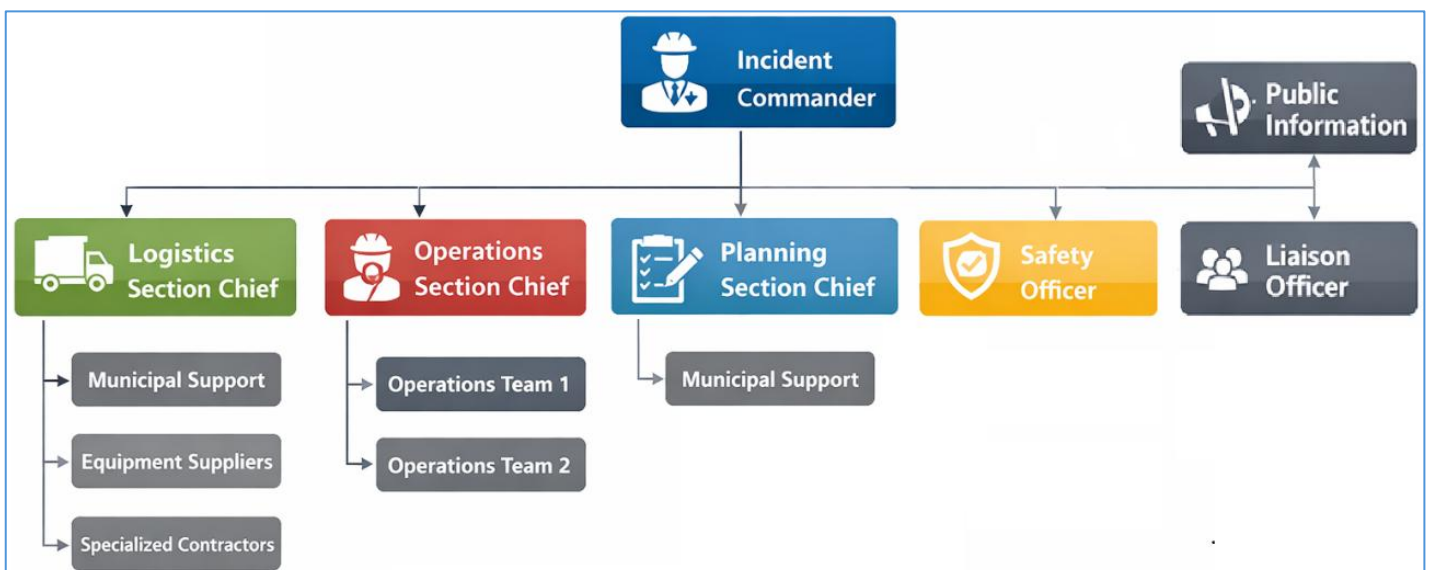
The transfer of command will be clearly communicated to all personnel involved in the response.

Upon arrival of external emergency services, command will transition to the appropriate responding authority as required, with Synapse personnel providing support, site-specific information, and access coordination. Synapse will provide technical support and site-specific hazard information continuously.

All personnel must follow the direction of the Incident Commander during an emergency.

Supporting roles may be assigned as required to manage the response effectively, including:

- **Safety Lead:** monitors hazards and ensures responder safety
- **Operations Lead:** coordinates on-site response activities
- **Communications Lead:** manages internal and external communications
- **Logistics Support:** facilitates site access, traffic control, and resource coordination



8. Muster Locations & Personnel Accountability

In the event of an emergency requiring evacuation, all personnel must immediately stop work, assess wind direction using site windsocks, and proceed to the designated muster location as determined by the site alarm. Two muster locations are established for the Synapse site:

- West Muster Point: Located at the west gate (Highway 2A)
- South Muster Point: Located at the main gate (Highway 27)

Alarm signals are used to direct evacuation as follows:

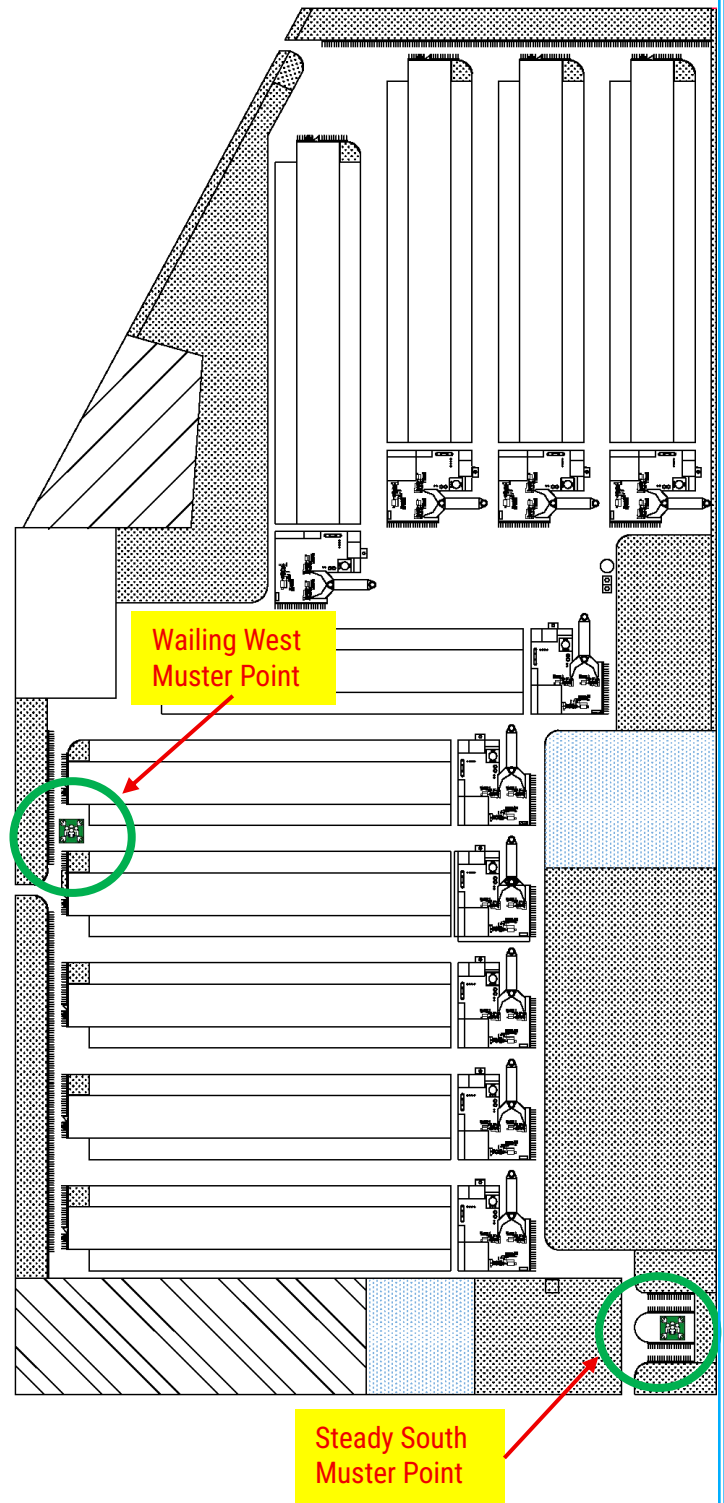
- Wailing alarm: Evacuate to the West Muster Point
- Steady alarm: Evacuate to the South Muster Point

Personnel must always consider wind direction and proceed to the designated muster point in a manner that avoids exposure to potential hazards. The principle of “wailing west, steady south” is to be used as a simple reference during emergency conditions.

Supervisors are responsible for directing personnel to the appropriate muster point and ensuring that all workers under their control are accounted for. Each contractor is responsible for maintaining an up-to-date record of personnel on site and must report their headcount to the Incident Commander or designate.

Upon arrival at the muster point, personnel must remain in place and await further instruction. Supervisors will conduct headcounts and identify any missing personnel. Any unaccounted-for individuals must be reported immediately to the Incident Commander to support rescue planning and response prioritization.

No personnel are permitted to leave the muster area or re-enter the worksite until authorization is provided by the Incident Commander. Muster locations and evacuation routes are shown in the site drawings included in this section.



9. Emergency Site Access and Traffic Control

During an emergency, immediate control of site access and internal traffic is required to ensure safe evacuation of personnel and unobstructed entry for emergency responders. Upon activation of an emergency response, all non-essential vehicle movement must cease, and equipment operators shall safely shut down and secure their equipment where conditions permit.

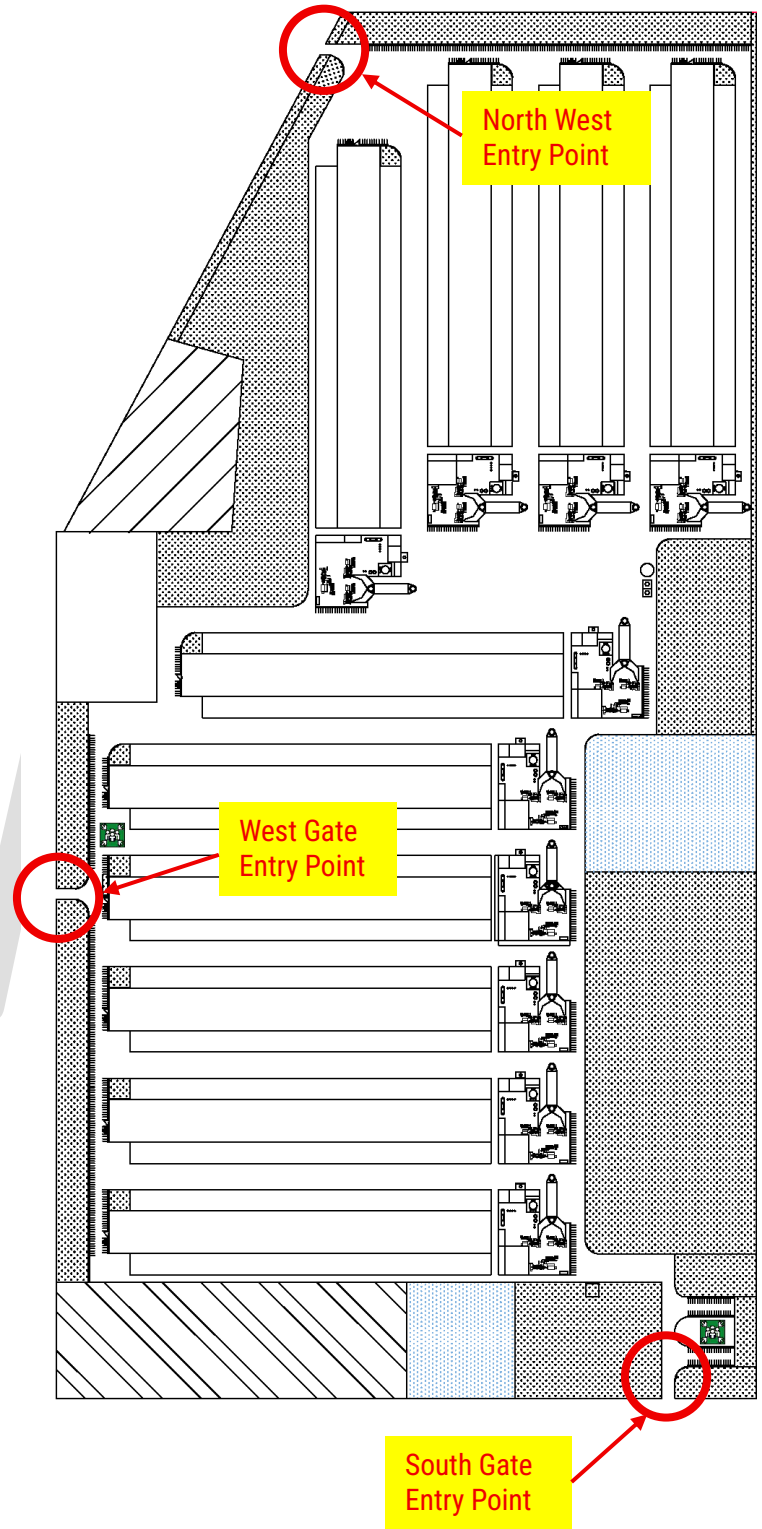
The Incident Commander, or designate, will direct site access control and traffic management activities. A designated site representative will be assigned to proceed to the primary site entrance to meet and escort emergency responders to the incident location. Where required, additional personnel may be assigned to key access points to support traffic control and maintain clear routes.

Primary access for emergency responders is via the southeast entrance from Highway 27. Secondary access is available via the west entrance along Highway 2A, with additional access at the northwest corner of the site if required. Access routes must be kept clear of obstructions at all times during an emergency.

Normal operational traffic, including heavy haul trucks and equipment, must be halted or redirected to ensure emergency vehicles can safely enter and maneuver within the site. Internal routes to the incident location and designated staging areas must be maintained and controlled.

Personnel assigned to traffic control shall ensure that emergency responders are provided priority access and that evacuation routes to muster points remain clear and safe for personnel movement.

All site personnel must follow direction provided by site supervision and traffic control personnel during emergency conditions.



10. Emergency Communication and Alarm Protocol

Effective communication during an emergency is critical to ensuring a coordinated and safe response. The Synapse site utilizes audible alarms, radio communication, and direct supervision to communicate emergency conditions and required actions to all personnel.

In the event of an emergency, any worker may raise the alarm by notifying supervision or activating available site alarm systems. All personnel must immediately stop work and respond in accordance with the alarm signal and direction provided.

Audible alarm signals are used to indicate evacuation requirements:

- **Wailing alarm:** Evacuate to the **West Muster Point (Highway 2A)**
- **Steady alarm:** Evacuate to the **South Muster Point (Highway 27)**

Personnel must follow the established evacuation protocol of “**wailing west, steady south**” and consider wind direction by referencing wind socks located throughout the site, when proceeding to the designated muster location. Non-essential radio traffic shall be minimized during emergency response to ensure clear communication channels.

Site communication during an emergency will be maintained using available communication systems, including:

- Two-way radios
- Mobile phones
- Direct verbal communication through supervisors

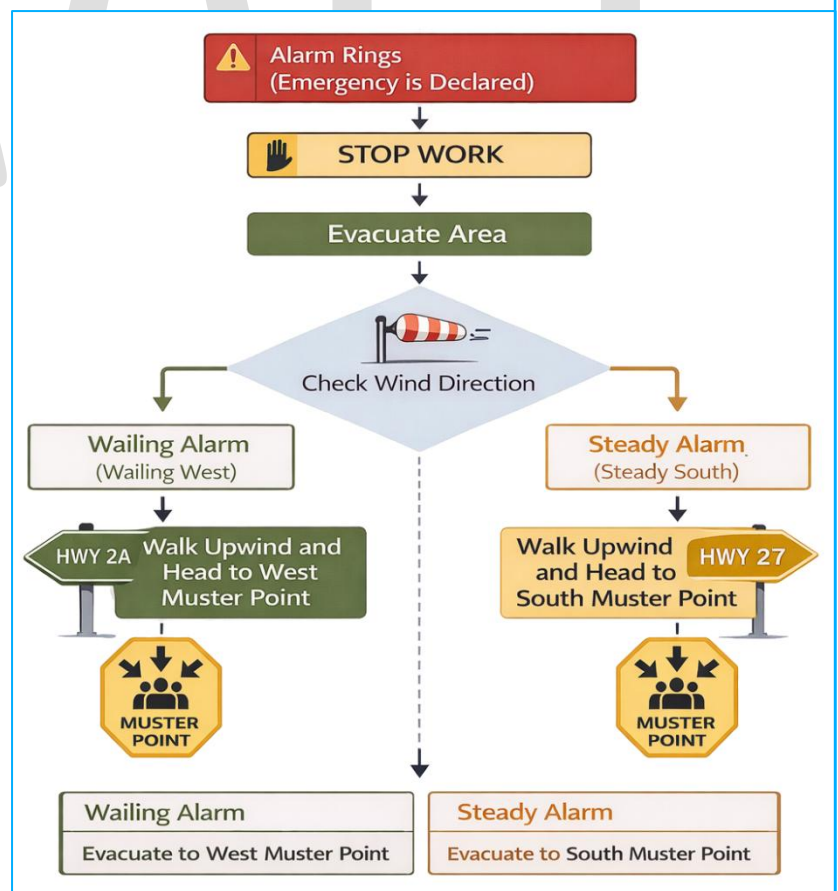
The Incident Commander is responsible for coordinating communications during an emergency, including:

- directing site response actions
- assigning personnel to key roles
- coordinating with emergency responders

Where required, external communication with emergency services will be conducted via 911.

Communication with regulatory agencies and external stakeholders will be managed by designated personnel in accordance with the Synapse Emergency Management Plan (EMP).

Roll-call will be completed at the designated Muster Station to ensure all personnel are accounted for.



11. Medical Response and On-Site Resources

The Synapse site will maintain appropriate medical response capability to address injuries and medical emergencies that may occur during daily operational activities. The level of medical response capability is aligned with the risk profile of operational activities as defined by the Synapse Risk Matrix, ensuring that resources are appropriate to the potential severity and likelihood of injury scenarios. The level of support assigned will be commensurate with workforce size, site conditions, and risk profile, and may include trained first aid personnel and/or an on-site medic where required.

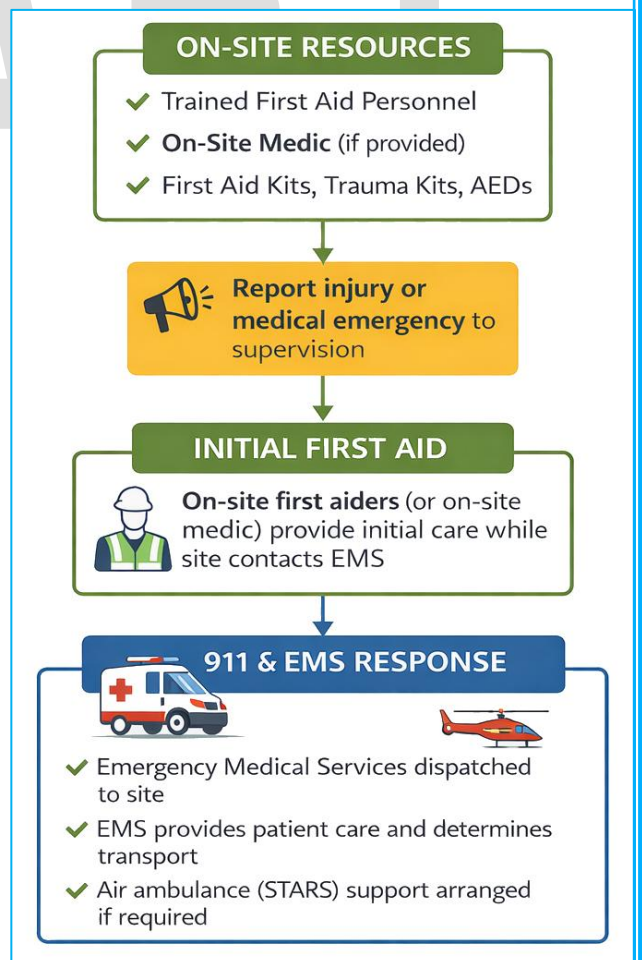
All personnel are responsible for immediately reporting injuries or medical emergencies to supervision. Trained first aiders will provide initial care within the scope of their training until advanced medical support arrives. Where an on-site medic is present, they will assume responsibility for patient care and coordination with Emergency Medical Services (EMS).

First aid equipment will be strategically located throughout the site and may include:

- First aid kits appropriate to workforce size and activity
- Automated External Defibrillators (AEDs), where provided
- Trauma kits and emergency medical supplies

Emergency medical transportation will be coordinated through 911, with site personnel providing clear access and escort to responding EMS. Where required based on patient condition or transport time, EMS may request air ambulance support. A suitable landing area will be identified and secured on-site to support air medical operations if needed.

All medical incidents will be managed in accordance with this ERP and reported in accordance with applicable regulatory and company requirements.



12. Regulatory Notification and Reporting Triggers

The determination of regulatory notification requirements is supported by the Synapse Risk Matrix, which defines thresholds for consequence severity and potential off-site impact. Incidents exceeding defined risk thresholds will trigger escalation protocols, including notification to applicable regulatory authorities and external stakeholders.

Certain incidents occurring during normal operation may require notification to regulatory authorities. The Incident Commander, or designate, is responsible for ensuring that appropriate notifications are initiated in accordance with applicable regulatory requirements and the Synapse Emergency Management Plan (EMP).

Regulatory notification may be required for, but is not limited to, the following types of incidents:

- Serious injury or fatality
- Uncontrolled fire or explosion
- Significant environmental release (e.g., fuel, oil, or hazardous materials)
- Release of a substance that may pose a risk to the public or environment
- Structural failure or major equipment incident with potential off-site impact

Where any of the above conditions are identified, the Incident Commander shall ensure that appropriate authorities are notified as required, which may include:

- Alberta Occupational Health and Safety (OHS)
- Alberta Environment and Protected Areas (AEP)
- Local emergency services or other regulatory agencies, as applicable

Initial notifications may be made via 911 or direct contact with regulatory agencies, as appropriate. Formal reporting and follow-up notifications will be completed in accordance with the Synapse EMP and applicable regulatory requirements.

All incidents must be documented and reported internally, regardless of whether regulatory notification is required.

