EMERGENCY RESPONSE PLAN (ERP)

Natural Gas Leak / Turbine Failure

ERP #0201-A

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

EMERGENCY RESPONSE PLAN

Plant Site – Power Plant & Data Center
Natural Gas Leak / Turbine Failure
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
Site Safety Manager	24 hr On Call #	TBD	**Alt:**	TBD
VP Operations	24 Hr On Call #	TBD	**Alt:**	TBD

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

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 within a gas turbine enclosure, including both process-related failures (piping, valves, instrumentation, or fuel control components) and catastrophic turbine mechanical failure resulting in an automatic trip and associated fuel gas release.

The turbine enclosure is a confined, mechanically ventilated volume housing the gas turbine, fuel gas control skid, and associated auxiliary systems. A release within this space presents the potential for formation of a flammable gas-air mixture and, in the presence of an ignition source, a localized flash fire or deflagration event.

This scenario is inherently self-limiting due to the design of the fuel gas isolation system, the small volume of trapped gases within the enclosure downstream of automated isolation points, and the high rate of ventilation within the enclosure. Ignition likelihood is further reduced through equipment classification, controlled electrical systems, and enclosure ventilation.

The event may result in:

- formation of a flammable gas mixture within the enclosure
- ignition leading to flash fire or deflagration
- localized mechanical damage within the enclosure

This scenario is bounded by a small well-defined gas inventory, immediate automatic isolation and depressurization, high ventilation rates, and fire suppression capability. As a result, the event is short in duration, localized to the turbine enclosure, and not capable of producing off-site effects.

This scenario has been evaluated using the Synapse Risk Matrix and is classified as a high-consequence, low-probability event requiring immediate automatic control and controlled emergency response in accordance with the Synapse Emergency Management Program (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 system within the enclosure operates at pressures up to approximately 3000 kPa. In the event of a leak, automatic isolation limits the available gas inventory to the trapped volume between block valves.

For emergency planning purposes, the trapped inventory is conservatively represented by approximately 15 feet of 3-inch piping downstream of the enclosure isolation valve. This corresponds to an internal volume of approximately 0.021 m^3. Upon depressurization to atmospheric conditions, this yields approximately 0.65 m^3 of natural gas, with an associated mass of approximately 0.43–0.45 kg of methane.

Critically, following automatic isolation, there is no sustained release - the available fuel is limited to a small, finite inventory that is rapidly discharged and diluted.

Fuel Gas Conditions:

- Pressure up to 3,000 kPa
- Natural Gas (primarily methane)
- Confined to the turbine enclosure
- Gas volumes approximately 0.021 m^3 at 3000 kPa
- Upon expansion to atmosphere, total volume 0.65 m^3
- Mass of gas ~ 0.45 kg

3. Energy and Consequence Characterization

The chemical energy associated with this inventory is on the order of 20–22 MJ. Within the turbine enclosure, ignition of this volume could produce a localized deflagration resulting in:

- short-duration overpressure capable of damaging internal components
- displacement of enclosure panels or cladding
- localized thermal effects within the enclosure

However, due to the limited gas volume, rapid isolation, and high ventilation rate, the event is not capable of generating a sustained vapour cloud or propagating explosion outside of the enclosure.

The enclosure itself acts as a physical barrier, attenuating both overpressure and thermal radiation. As a result, the credible consequence is confined to the turbine enclosure and immediate surrounding equipment.

Based on the bounded gas inventory, immediate automatic isolation, and enclosure containment, there is no credible mechanism for this scenario to result in off-site impact.

4. Engineered Safeguards and Design Controls

The design incorporates multiple independent layers of protection, each of which acts to prevent escalation:

1. **Detection:**
   - Combustible gas detection (LEL) within the enclosure provides rapid identification of any gas release.
   - In parallel, the turbine protection system detects abnormal mechanical conditions such as overspeed, vibration, or internal failure.
2. **Automatic Shutdown:**
   - Detection of either a gas release or turbine fault results in an immediate turbine trip.
3. **Fuel Gas Isolation:**
   - The fuel gas system is designed with a fail-safe isolation philosophy, as per CSA B149 requirements:
     - the upstream emergency shutdown (ESD) valve is fail closed
     - pressure and flow control valves are fail closed
     - vent valves between isolation points are fail open
   - This ensures that:
     - Gas supply is immediately terminated
     - The trapped section is automatically depressurized
4. **Inventory Limitation:**
   - The physical layout of the system inherently limits the downstream trapped volume, restricting the available fuel for any event.
5. **Ventilation:**
   - The enclosure ventilation system provides approximately 60 air changes per hour, continuously diluting and removing gas (normally air) from the enclosure.
   - Following isolation, this significantly reduces the duration of any flammable atmosphere.
6. **CO_2 Fire Suppression:**
   - The enclosure is equipped with a CO_2 suppression system designed to extinguish fires by reducing oxygen concentration.

- While not intended to prevent an initial ignition event, it is highly effective at limiting fire duration and preventing escalation within the enclosure.

7. **Physical Enclosure:**
    - The turbine enclosure provides structural separation and blast attenuation, limiting transmission of energy to surrounding areas.

5. Event Progression

The expected sequence of events is as follows:

1. A gas leak or turbine failure occurs within the enclosure. Gas detection or turbine protection logic initiates an immediate turbine trip. The upstream ESD valves closes, control valves fail closed, and vent valves open, depressurizing the trapped gas inventory.
2. Any released gas is limited to the small, trapped volume and is rapidly diluted by the ventilation system.
3. If ignition occurs, the result is a short-duration flash fire or localized deflagration within the enclosure.
4. If ignition occurs, the CO_2 system may activate to suppress any sustained combustion.
5. Following isolation and ventilation, gas concentrations decay below flammable limits.

All primary protective actions (trip, isolation, and depressurization) are fully automatic and do not rely on operator intervention.

6. Emergency Response Philosophy

The emergency response is based on the recognition that the event is rapid, localized, and self-limiting once automatic systems actuate. The primary risks to personnel exist during the initial release and any potential ignition phase prior to full isolation and ventilation. Re-entry shall also consider oxygen-deficient atmosphere hazards resulting from CO_2 discharge. Accordingly, the response focuses on:

- immediate evacuation of the turbine building
- prevention of personnel exposure
- confirmation of system isolation
- controlled re-entry only after atmosphere is verified safe

Site evacuation and muster shall be conducted in accordance with the established alarm protocol (“wailing west, steady south”) and wind direction assessment. Upon alarm or detection of a turbine enclosure event:

- personnel evacuate the building and proceed to muster
- access to the affected unit is restricted
- operators verify turbine trip, valve closure, and depressurization
- LEL readings and enclosure conditions are monitored

External emergency response shall be initiated in accordance with the Synapse EMP where the event meets or exceeds defined risk thresholds, including:

- confirmed fire or explosion
- injury or potential for injury
- failure or uncertainty of automatic isolation systems
- sustained hazardous atmosphere (LEL not decreasing)
- any indication of potential off-site impact

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:

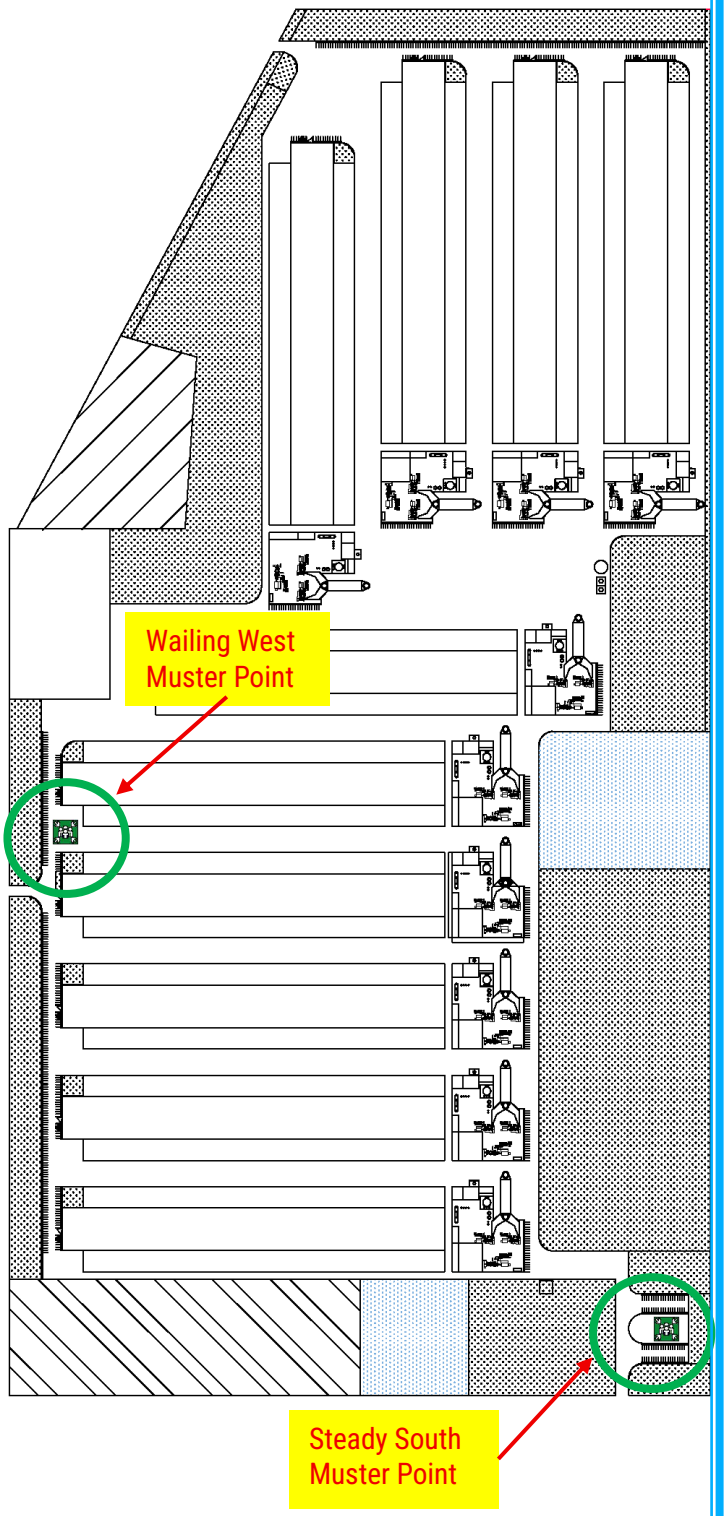
- Wailing alarm: Evacuate to the West Muster Point
- Steady alarm: Evacuate to the South Muster Point

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.

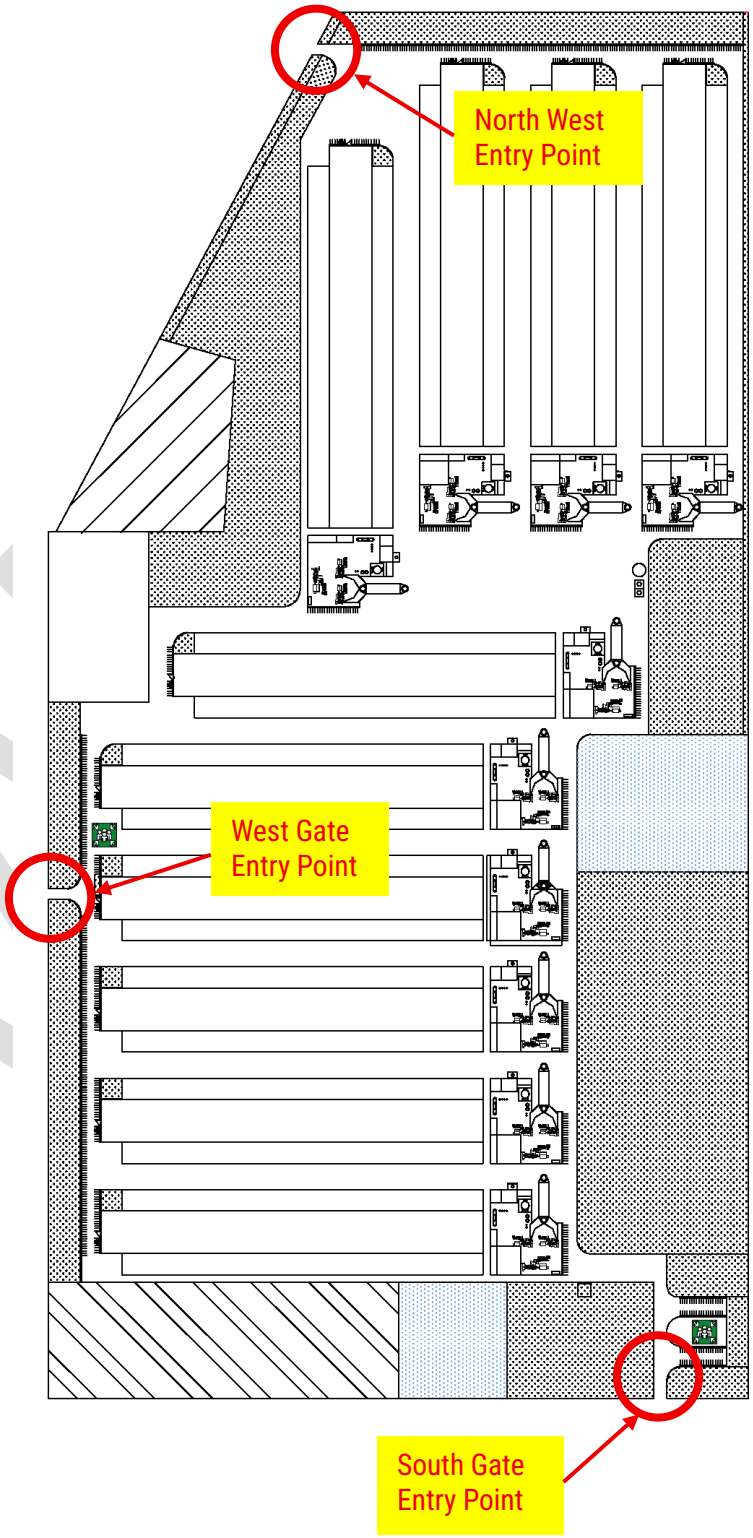
The Incident Commander, or designate, will direct site access control and traffic management activities. A designated site representative will be assigned to proceed to the primary site entrance to meet and escort emergency responders to the incident location. Where required, additional personnel may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

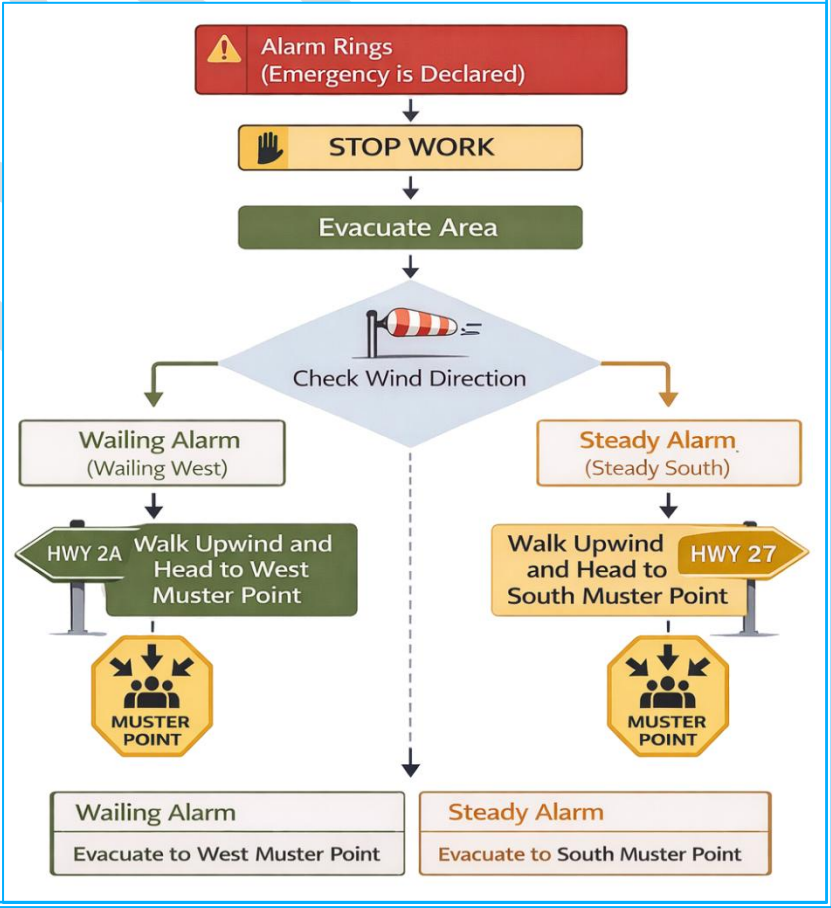
The Incident Commander is responsible for coordinating communications during an emergency, including:

- 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.

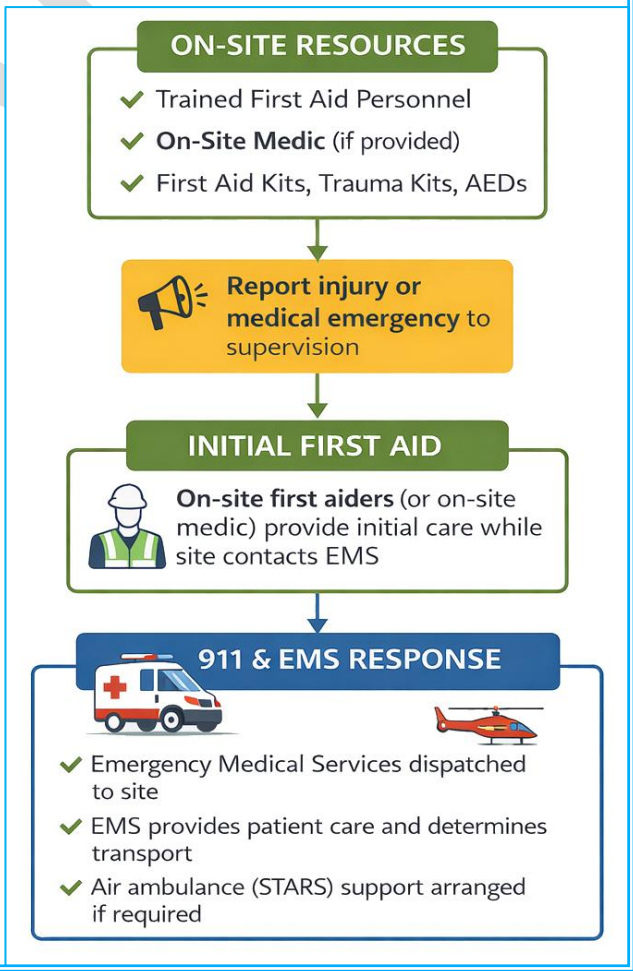
All personnel are responsible for immediately reporting injuries or medical emergencies to supervision. Trained first aiders will provide initial care within the scope of their training until advanced medical support arrives. Where an on-site medic is present, they will assume responsibility for patient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

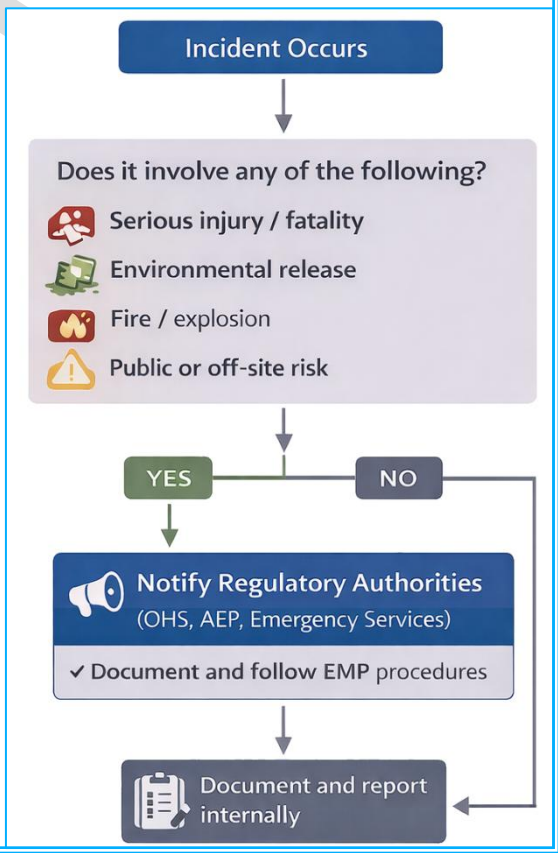
- Serious injury or fatality
- Uncontrolled fire or explosion
- Significant environmental release (e.g., fuel, oil, or hazardous materials)
- Release of a substance that may pose a risk to the public or environment
- Structural failure or major equipment incident with potential off-site impact

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.



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Risk Matrix

Impact Severity	Health & Safety	Environmental / Regulatory	Asset Damage / Business Interruption	Reputation	Financial
1	Redacted				
2					
3					
4					
5					

	E	D	C	B	A
1	Moderate	Urgent	Critical	Critical	Critical
2	Moderate	Moderate	Urgent	Critical	Critical
3	Minor	Moderate	Moderate	Urgent	Urgent
4	Minor	Minor	Moderate	Moderate	Moderate
5	Minor	Minor	Minor	Minor	Moderate

Residual Risk Management	Action	Time Frame	Responsible Authority
Critical	Redacted		
Urgent			
Moderate			
Minor			

Descriptor	Highly unlikely (design controlled)	Possible but not expected (may have occurred in industry)	Could occur (or has happened at Synapse)	Expected in similar projects (may occur with Synapse lifespan)	Frequent / recurring (common at Synapse)
Frequency / Period (year, cycle, etc.)	1/10,000	1/1,000	1/100	1/10	1/1
Probability	< 0.01%	0.01% to 0.1%	0.1% to 1%	1% to 25%	> 25%
	E	D	C	B	A
Likelihood					