

# LINDE RESPONSE

## KEY CONSIDERATIONS:

- Primary strategy is the safety of firefighters – be extra vigilant this is a unique facility.
- Highly trained staff is on-site. We need to quickly **integrate and support** ongoing rescue and emergency management actions.
- Some HAZMAT exposure/EMS treatments will be underway already – it is critical for us to account for an appropriate but speedy DECON and get the patient to the correct hospital ASAP. See below for more.
- Isolate spill or leak area for at least 100 meters (330 feet) in all directions. Vapors from liquefied SILANE gas are initially heavier than air and spread along the ground. Vapors may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.). Vapors may travel to a source of ignition and flash back.

## PROTOCOL:

Staff at Linde is trained to a high level in HAZMAT. Staff is instructed to activate the 9-1-1 system when needed.

### Normal EMS Response (fall, chest pain, general illness, etc.):

1. Respond to the **main entrance**. Treat this just like any other response.
2. If you have any doubt or are unsure about the origins of an emergency initiate the protocols below.

### HAZMAT, Fire or Chemical EXPOSURE Type EMS:

1. If not responding already request the closest BC be added to the incident.
2. **The BC will contact the staff at LINDE on RV TAC 1 while enroute. Their radio call sign is LINDE.**
3. **Consider requesting law to respond for possible evacuations and/or traffic control.**
4. Unless otherwise instructed by LINDE, **the first arriving Fire Department OFFICER will report to the command room ASAP.** Inside main front door entrance – through the next door, then first room on your left.
5. **With the exception of the first engine and first BC** all other units **shall stage** a minimum of 500 meters (1,650 feet) from the facility. Begin monitoring environmental conditions in the area and stage upwind during a release emergency. Use alternate response routes when necessary.
6. **The incident will be managed from the onsite command room.** Linde reps, our IC, site maps, CCTV, WIFI, SDS, and other technical resources are available here.
7. When forming groups that include onsite responders ensure they have a capable radio with the right channels.
8. **Some EMS patients SHALL be transported to PROVIDENCE MEDFORD MEDICAL CENTER EMERGENCY DEPARTMENT only.** See the HF Protocols below.
9. Notify the PIO.

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## **Fire Response: (SILANE)**

Linde has flammable gases, flammable liquids, and Pyrophoric Gases on site. Pyrophoric gases (**SILANE**) can spontaneously ignite without an ignition source. On-site Life Safety Systems are designed to shut off gas leaks whenever possible via detection on gas sensors or UVIR detectors. Deluge systems also activate on certain flammable gas sensor detections.

Linde's Emergency Response Team members are trained to respond to gas releases. They are not trained fire fighters and need to rely on the Fire Department to respond to onsite fires. They will help aid in any response by offering expertise on site lay-out, system operation or requests for data of on-site products or equipment as the IC deems appropriate.

**For large fires, use unmanned monitors; if this is impossible withdraw from area and let the fire burn. Account for a likely expanding evacuation zone – quickly get help from law enforcement.**

1. Begin cooling cylinder and surrounding cylinders, do not extinguish the fire until supply is shut off.
  - Use non-sparking tools to close container valves.
2. Once valve is closed, continue to cool fire exposed cylinders until flames are extinguished and cylinders are cool. If/when the valve fails we must let the material burn off while managing exposures and preventing BLEVE's.
3. If the fire is extinguished and the flow of gas continues, consult with Linde ERT. Consider using ventilation to prevent build-up of explosive atmosphere; ventilation fans must be explosion proof.
4. Cylinders may rupture under extreme heat. Damaged cylinders should be handled only by specialists.

## **HF = HYDROGEN FLUORIDE, HYDROFLUORIC ACID, FLUORINE - EXPOSURE PROTOCOLS:**

These specific plans are in place to ensure that employees exposed to HF receive prompt and appropriate care and are transported to **PROVIDENCE MEDFORD MEDICAL CENTER EMERGENCY DEPARTMENT (PMMC ED)**.

1. HF exposure can result in significant tissue damage even without obvious injury. An exposed 5" x 5" area of skin can be fatal.
2. Two Hydrogen Fluoride exposure kits are already onsite at LINDE and will likely be in use. The LINDE staff will be applying iced Benzalkonium solution (BenzaRid or Zephiran) copiously to any exposure below the face. Calcium Gluconate is used for facial burns or eye exposure. All of this is in the onsite kits.
3. Retrieve the EMS INSTRUCTION CARD FROM THE KIT or from the command room.
4. **The IC SHALL CALL THE PMMC ED DIRECTLY HIMSELF – speak with the EMERGENCY PHYSICIAN ON DUTY.** Notify them of the exposure and remind them that LINDE is an approved decon facility, which means that PMMC will not have to further decon the patient upon arrival.
5. Ensure DECON of the patient is complete or is occurring. **(This is 5 minutes in the decon shower at LINDE and removal of all of the patient's clothes)**.
6. Assist with the care of the exposure and other measures outlined on the EMS card.
7. Send a LINDE representative with the patient. **Take the EXTRA HF EXPOSURE KIT WITH YOU FOR EMERGENCY DEPARTMENT USE and** send the HF INSTRUCTION CARD WITH THE PATIENT.
8. If possible videotape the decon process and send with the patient – do not delay care to account for this.