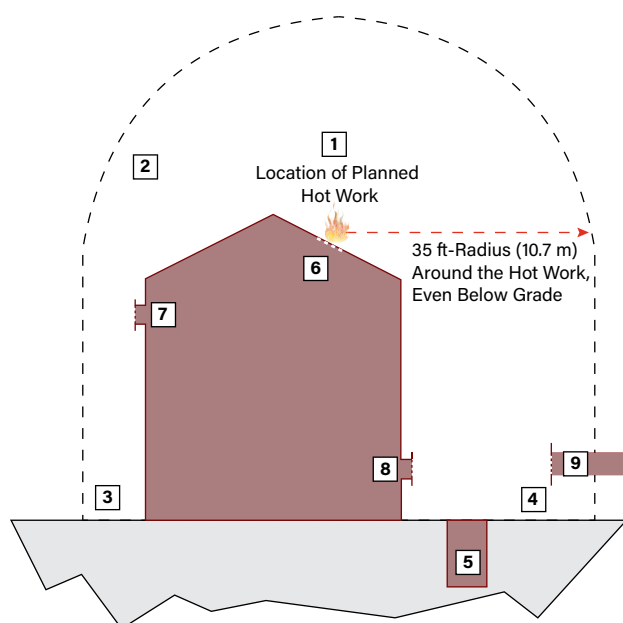


## Perform Hot Work at a Safe Distance

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▲ Before and during hot work, lower flammability limit (LFL) measurements of flammable vapors should be monitored within a 35 ft-radius around the location of the hot work itself, as well as all locations below that radius.

Sparks from hot work have been the cause of several fires and explosions in the chemical process industries (CPI). The May 2020 Beacon, for example, detailed the fatal consequences from one such event, in which a welding contractor ignited flammable vapors in a slurry tank.

The U.S. Occupational Safety and Health Administration (OSHA) and the National Fire Protection Association (NFPA) recommend at least 35 ft (10.7 m) of distance between hot work and flammable vapors. To prepare for hot work, it is critical to check for and prevent the presence of combustible materials and/or flammable vapors within this distance. Lower flammability limit (LFL) gas detector readings should be checked around the location of the hot work itself, as well as every place around and below where the hot particles could travel (Image 1). This includes using a probe or sampling hose to check inside open process pipes, sumps, and process drains (Image 1, Points 5–9).

### Did You Know?

- Sparks from flame-cutting, welding, and grinding can travel a long distance. Most permits require combustible materials to be removed from the area and testing for flammable gases to be performed within 35 ft (10.7 m).
- Gravity can pull sparks and hot particles down to the ground and even into pits and sumps, requiring the LFL to be monitored below elevated hot work.
- Most flammable vapors are heavier than air so they tend to accumulate in low spaces, including sewers and sumps.
- Even light flammable vapors can linger in places with poor ventilation (e.g., pipes, vessels, and containment walls).
- Contractors and maintenance workers may not know the process area and/or where to look for flammable vapors.
- Conditions can change during hot work. Process operations, upsets, or even weather conditions can introduce flammable materials near hot work.

### What Can You Do?

- Check every opening and sump within 35 ft (10.7 m) of hot work or within the distance specified by your company.
- Some companies require frequent retests of the LFL to manage changing conditions. Monitor the affected area to maintain safe conditions.
- Use your knowledge of the process area to determine potential locations of flammable vapors or combustible liquids and solids.
- Use the sample tubes or wands that come with your gas detectors to check inside spaces.
- Use welding blankets and other protection to prevent sparks and particles from traveling outside a designated area, but do not rely on these measures alone.

**Test all places where sparks could ignite flammable vapors!**