

Do not enter a permit-required confined space without proper training, equipment, and support personnel.

Confined Spaces and Manure Pits

Working in a confined space

A confined space is defined as a space that has limited means of entry and exit, has an adequate size and configuration for employee entry, and is not designed for continuous worker occupancy. Most states classify the tanks designed for waste storage, transport, and application as confined spaces. Under new Occupational Safety and Health Act (OSHA) regulations, certain confined spaces require a permit for entry. A permit-required confined space is defined as a confined space that has one or more of the following characteristics:

- It contains or potentially contains a hazardous atmosphere.
- It contains a material that can potentially engulf an entrant.
- Its integral configuration, inwardly-converging walls or a floor that slopes downward and tapers to a smaller cross-section, could trap or asphyxiate an entrant.
- It contains any other recognized serious safety or health hazard.

Confined spaces on farms may include

- Manure pits.
- Silos.
- Tank spreaders.
- Below-ground storage pits.
- Grain bins and dryers.

To be in compliance with the new OSHA regulations, a facility with permit-required confined spaces, must develop and implement a written confined space entry program. Enclosed facilities used to handle wastewater or wastewater solids, such as tanks and/or tanker trucks, fall under the permit-required confined space regulations. Do not enter a permit-required confined space without proper training, equipment, and support personnel. (The confined space regulations can be found in the Code of Federal Regulations 29 CFR 1910.147.)

When working in a space that does not require a confined space permit, the following safety actions should still be taken:

- Always assign a standby person to remain outside of the confined space. It is this person's responsibility to be in constant contact (visually, verbally, or both) with the workers inside the confined space as long as anyone is in the space.
- Wear ear protection as needed. Noise within a confined space can be amplified because of the space's design and acoustic properties.
- Use only an air-supplying respirator, such as a self-contained breathing apparatus (SCBA) or a supplied-air respirator with an auxiliary escape-only SCBA in confined spaces where there is insufficient oxygen.

Recommendations for farms with manure pits

- Never enter a pit without proper ventilation. Before entering the pit, evaluate its atmosphere by testing for sufficient oxygen and the presence of toxic gases. Continue to test the atmosphere while workers are in the pit. When going in, wear an air-supplied respirator or a SCBA, as well as a safety harness attached to a rope attended by two

people at the pit's entrance. Note: Respirator masks must be checked for proper fit, and persons using respirators should receive training in their use. Attaching the safety rope to a winch or hoist is also recommended. As stated in Case Study 6, cartridge-type masks are NOT safe.

- Keep people and animals out of any building where manure is being agitated or emptied. If animals cannot be removed before agitating the storage, provide strong mechanical ventilation during agitation and pumping, and for a few hours after pumping has stopped.
- If an animal collapses during pit agitation, do not immediately try to rescue it. Turn off the pump and ventilate the building until the gases have escaped.
- Never fill a manure pit completely; allow 1 to 2 feet of airspace to accommodate gas concentrations. To reduce the possibility of gas being forced above floor level, lower liquid manure levels in a storage facility before starting agitation.
- Keep the agitator below the liquid surface because greater volumes of gas are released with vigorous surface agitation.
- Do not permit smoking, open flames, or spark-producing operations in the immediate vicinity of a storage area. Keep all guards and safety shields in place on pumps, pump hoppers, tank wagons, and power units, and maintain electrical motors, fixtures, and wiring in good condition.
- Do not leave temporary access ladders leaning against aboveground tanks. Permanent ladders on the outside of aboveground tanks should not extend within the reach of people, or they should have locked entry guards.
- Do not walk, ride, or allow animals on the crust-like surface of open-air storages. Like ice, the crust is not uniformly solid and can suddenly break.
- Warn visitors and guests of the hazards of manure storages. You are legally responsible for their safety while they are on your property.

For more information, order the following free publication:

NIOSH Alert: Preventing Deaths of Farm Workers in Manure Pits, NIOSH #90-103 at 1-800-35-NIOSH or from the National Institute for Occupational Safety and Health, 4676 Columbia Parkway, Cincinnati, Ohio 45226.

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