

Confined Spaces Can Be Deadly!

By James Carrabba

Agricultural Safety Specialist

The New York Center for Agricultural Medicine & Health - NYCAMH

What is a confined space? Most every farm has some type of confined space. A confined space is any area that is large enough for a person to fully enter and perform work, is not designed for continuous occupancy, and has limited or restricted means of entry and exit. Are there any areas on your farm that meet this definition of a confined space? If so, everyone on the farm needs to know which areas are confined spaces, and they need to know how to enter those confined spaces safely if they have to work in them. Not taking the proper precautions could cost you your life! Here are some examples of common confined spaces found on farms:

- manure pits
- liquid manure spreader tanks
- silos
- ag chemical tanks
- milk bulk tanks
- controlled atmosphere storage rooms
- grain bins

Deaths in confined spaces usually involve multiple victims. There have been many cases where one person enters the confined space and is overcome. Others try to rescue that person unsuccessfully becoming victims themselves. A classic example of this scenario is the tragic incident that occurred on a Virginia farm in 2007 where five people died in one manure pit. The first victim was a 34-year-old farmer who climbed down into the pit to unclog a pipe and was overcome by toxic manure gas. An attempted rescue claimed the lives of four more people that included a worker, the farm owner's wife, and two daughters aged 11 and 9. A similar incident occurred on a Michigan farm in 1989 when five family members died in a manure-receiving pit that had an oxygen-deficient atmosphere. It was the same scenario. One person went down into a pit to make a repair and was overcome by manure gas. The other victims died attempting a rescue of the initial victim. These types of incidents have occurred here in New York. Do not become another victim. NEVER enter a manure pit, or other confined space area, to attempt a rescue. If someone collapses in a confined space, call 911 immediately. The local fire department or rescue squad has the proper equipment and training to conduct a confined space rescue. If possible, ventilate the space with a fan while waiting for help to arrive, but never enter the space yourself.

In addition to toxic or oxygen-deficient atmospheres, there can be other dangers present in confined spaces such as engulfment hazards. Grain bins are examples of confined spaces that contain engulfment hazards. Flowing grain can engulf a person in seconds, and workers have also been engulfed in bridged grain that collapses or grain stuck to the sides of bins that collapses on top of the worker. There can be physical hazards in confined spaces such as uneven surfaces and wet or sloping sides that can lead to falls

and entrapment. There can be mechanical hazards present such as augers or unloading machinery in the confined space. All rotating machinery should be shut off, de-energized and power switches locked out prior to performing work in the confined space. There can also be explosive atmospheres present in confined spaces. Using spark generating tools or equipment could cause an explosion to occur.

To prevent these types of tragedies from occurring, always follow these guidelines:

- Train all workers and family members in the hazards of confined spaces. No one should be entering confined spaces unless absolutely necessary.
- Identify all the confined spaces on your farm and mark them with signs. These signs should be in dual languages if necessary.
- All the people at your farm should know the location of each confined space that is present.
- Always assume that toxic, oxygen-deficient or explosive atmospheres are present.
- Before entry, ventilate with explosion proof, continuously powered equipment.
- Use an oxygen meter to test the atmosphere before entering the space and continuously while workers are in the pit.
- Anyone who enters the confined space needs to wear a safety harness with a lifeline that is attached to a lifting or retrieval device.
- It may be necessary to use a Self-Contained Breathing Apparatus (SCBA) or Supplied Air Respirator (SAR). Workers that use these types of respirators must be properly trained in how to wear, use, and maintain them. Workers also have to be medically approved, and quantitatively fit tested in order to be able to use these types of respirators safely. **Warning: Filtering Face Piece Respirators do not supply oxygen!**
- Standby attendants need to be in visual contact with the worker in the pit and if need be, prepared to lift the person to safety with a mechanical lifting device (winch, hoist, or pulley).

Here are some things that can be done to make manure storage pits safer:

- Eliminate the need for entry by providing access to all serviceable parts (shear pins, cleanouts, etc.) from the outside of the storage area.
- Modify existing systems to relocate serviceable parts to the outside area.
- Fit all openings to storage pits with substantial grates to provide some ventilation and to prevent falls or entries to the pit. Stainless steel or fiberglass covers will resist corrosion from hydrogen sulfide.

NYCAMH is available to come to your farm and provide confined space hazard awareness training. We can also conduct a safety assessment of your manure system or a safety survey of your entire farm. All our services are offered at no cost, and all information is kept strictly confidential. For more information, please contact Jim Carrabba, Agricultural Safety Specialist at (800) 343-7527 extension 239, or e-mail jcarrabba@nycamh.com. NYCAMH, a program of Bassett Healthcare Network, is enhancing agricultural and rural health by preventing and treating occupational injury and illness.