Confined Spaces on the Farm

WHAT’S AT STAKE?

The farm scene have confined spaces that have the potential for serious safety and health hazards.

The first test is to recognize a confined space.

A confined space is an enclosed or partially enclosed area that is big enough for a person to enter. The space may be enclosed on all sides (e.g. a bin or tank), or as few as two sides (e.g. an enclosed conveyor).

Confined spaces are not designed for someone to work in regularly. They are spaces where entry may be needed from time to time for inspection, cleaning, maintenance or repair.

WHAT’S THE DANGER?

DEFINING FEATURES

It is key to determine the defining features of a confined space on the farm or on any other industrial matrix:

- The space is enclosed or partially enclosed.
- The space is not designed or intended for continuous human occupancy.
- The space has limited or restricted means of entry or exits that may complicate the provision of first aid, evacuation, rescue or other emergency response services.
- The space is large enough and configured in a way that a worker could enter to perform assigned work.

RECOGNITION FACTORS

The next step after defining a confined space is to identify the hazards of the confined space on the farm.

- One of the most dangerous hazards of confined spaces on farms is hazardous gases. These gases are generated on farms which include methane and hydrogen sulphide (slurry and waste effluent), elevated levels of carbon dioxide with oxygen depletion (feedstuff fermentation and/or decomposition), and carbon monoxide (combustion engine exhaust).
- Confined spaces on dairy farms can be dangerous. Employers and workers must understand the hazards and know how to work with them before entering the confined space.
- Any confined space on a farm poses a potentially life-threatening hazard. This is because the threat may not be apparent until it’s too late. Silos, vats, tanks, wells, manure pits and other enclosed or partly enclosed structures can suffocate a person with vapors, toxic gases, dust or low oxygen levels.
- Inexperienced or untrained rescuers coming to the aid of someone who has collapsed inside a confined space are usually exposed to the risk too. It is not unusual for numerous members of the same family to be killed in a single confined-space accident.
- There is the risk of suffocation inside a silo if stored grain or fertilizer collapses. The safest approach with any confined space is to avoid going in there
- Tasks such as cleaning or maintenance can be achieved using other means that don’t require entry into the confined space. If it is necessary for someone to go inside the confined space, consider hiring a contractor who is trained and experienced.
- If you have no other option but to go inside the confined space yourself, be sure to take all the safety precautions you can. Ensure you aren’t working alone and that another person knows what you are planning to do.

HOW TO PROTECT YOURSELF

PRECAUTIONS/PROTECTION/PREVENTION

Employers involved in agricultural operations can take the

following actions to reduce worker exposures to confined space hazards:

- **Identify and label all confined spaces.** Examples common in agriculture include:
- Grain and feed storage facilities
- Corrugated steel bins
- Silos
- Sumps, tunnels, and pump pits
- Dump pits
- Forage storage
- Manure storage tanks
- Manure/bio-digester units
- Manure transport vehicles (tanks and applicators)
- Bulk transport vehicles
- Sprayer and chemical transport vehicles
- Forage and silage dump wagons
- Feed grinders/mixers
- Feed mixer wagons tanks
- Storage and mixing tanks, bins, and silos
- Fermentation vessels
- Environmentally controlled fruit and vegetable storage units
- Bulk liquid storage tanks
- Containment areas around diked storage tanks
- Wells, cisterns, dry wells, septic tanks
- Grain driers
- Fuel storage tanks
- **Evaluate all confined spaces** to determine if they contain any actual or potential hazards.
- **Train workers** to never enter a confined space before the hazards and the steps to address the hazards to provide for safe entry and exit have been identified.
- **Ensure workers review, understand, and follow the procedures** before entering confined spaces and know how and when to exit. Ensure there is a safe means to enter and exit the space such as using ladders.
- **Consider chemical reactions** that could occur based on the materials in the confined spaces, and potential byproducts that could create a hazardous atmosphere.

- Ensure air sampling is conducted prior to anyone entering the space.
- Ensure that sampling equipment can measure potential byproducts.
- Use an appropriate routine and simple detection approach. A 4-gas meter will only detect oxygen deficiency and three additional hazards (usually flammability, carbon monoxide, and hydrogen sulfide). Detector tubes or a simple hand-held meter such as a photoionization detector may also be needed.
- **Use a written confined space entry system** that covers the following:
- Before entry, identify any hazards, including physical, within the space.
- Before and during entry, test and monitor for oxygen content, flammability, toxicity, and explosion hazards.
- Ensure confined spaces are properly ventilated.
- Ensure that workers entering confined spaces maintain contact at all times with a trained attendant either visually, by phone, or by two-way radio.
- Use appropriate equipment (fall protection, rescue, air monitoring, lighting, and communication) according to entry procedures.
- **Develop an emergency action plan** that includes quick removal of the entrant and procedures for facility operators and local responders. Communicate the plan to workers, and ensure that it is reviewed and updated regularly

Final Farm Takeaway

REMEMBER:

- No one is to be inside a grain bin or silo when it is being filled.
- Walking on or below bridging in a grain bin is not allowed.
- All safety equipment and personal protective equipment must be inspected before use.
- All safety equipment and personal protective equipment must be worn when performing a task.

FINAL WORD

The safest approach for preventing injuries in confined spaces is to simply perform all work from outside of the confined space when possible. This isn’t always possible to do. If someone must enter the space, safe entry procedures and practices must be strictly adhered to.