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## PRESS RELEASE

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### FOR IMMEDIATE RELEASE

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### **CONFINED SPACES: THEY ARE HAZARDOUS**

***Identify confined spaces around the farm and know how to address the hazards they pose.***

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Any area large enough for a person to enter and perform work, which has a limited or restricted means of entry or exit and is not designed for continuous worker occupancy is a confined space.

On the farm, identifying confined spaces and understanding the hazards they pose to workers is critical in preventing injury or fatality. Deaths in confined spaces often occur because the atmosphere is oxygen-deficient, toxic, or combustible.

Three common gases found in confined spaces around farm sites are hydrogen sulfide, ammonia, and carbon dioxide.

Hydrogen sulfide is a colorless gas known for its pungent “rotten egg” odor at low concentrations. It is extremely flammable and highly toxic. This gas occurs naturally in sewers, manure pits, and well water. Because it is heavier than air, hydrogen sulfide can collect in low-lying and enclosed spaces. Its presence makes work in confined spaces potentially very dangerous.

The health effects of hydrogen sulfide depend on how much of the gas a worker breathes and for how long. However, many effects are seen even at low concentrations. Effects range from mild, headaches or eye irritation, to very serious, unconsciousness and death.

Ammonia is a suffocant and toxic gas with a distinct, sharp penetrating odor. Prolonged exposure to ammonia, or exposure to high concentrations of the gas can cause ulceration of the eyes and severe irritation to the respiratory system.

Carbon dioxide is a colorless, odorless suffocant that is produced during decomposition of plant materials. Excess carbon dioxide in a confined space depletes oxygen levels needed to sustain life. At low levels the individual may feel drowsy and develop a headache. Death from suffocation may result when carbon monoxide levels are 30% or greater.

A tragic example of a death in a confined space occurred inside an 8,000-gallon polyethylene storage tank that held liquid whey. A broken ball valve inside the tank needed replacement. Using a forklift, a worker was lowered through a 16-inch-diameter hole at the top of the tank to fix the valve.

The forklift operator had no visual contact with the person inside the tank and no way to monitor activity inside the tank. Neither person was aware of the buildup of carbon dioxide inside the tank. The forklift operator climbed to the top of an adjacent bin where he saw the worker lying face down inside the whey tank, overcome by the poisonous gas. The fire department responded to the emergency and cut a hole in the tank to retrieve the worker who had died from asphyxiation.

It's believed that high outdoor temperatures caused the whey to decompose more rapidly than normal, releasing the lethal carbon dioxide gas and causing low oxygen levels inside the tank. Any time oxygen concentration is below 19.5% or above 23.5%, it results in a hazardous atmosphere.

Failure to recognize the tank as a confined space and take appropriate measures to work inside it in a safe manner played a role in the tragedy.

All dusts in agricultural settings are hazardous, with the potential to cause health problems. Some organic or toxic dusts may permanently impair a farmer's health. Some dust, especially that from moldy forage, grain, or hay, carries antigens that can cause severe irritation to the respiratory tract, leading to a permanent lung condition commonly known as "Farmer's Lung."

In confined areas where dust is present, disposable dust masks or respirators with a replaceable cartridge provides the greatest protection.

Anyone who works in an agricultural setting should have a thorough understanding of what a confined space is and how to safely work inside them. Common confined spaces 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 and tanks

- Storage and mixing tanks, bins, 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 dryers
- Fuel storage tanks

Before entering any of these confined spaces, workers should evaluate them to determine if they contain any actual or potential hazards. All workers should be trained to never enter a confined space before hazards and the steps to address the hazards to provide safe entry and exit have been identified.

Workers should review, understand, and follow the procedures before entering the space and know how and when to exit. Workers should ensure there is a safe way to enter and exit the space, such as using a ladder.

Always consider what chemical reactions could occur based on the materials in the confined spaces and potential byproducts that could create a hazardous atmosphere. Air sampling should be completed before anyone enters the space. Sampling equipment must have the capacity for measuring potential byproducts.

Workers should 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 regularly reviewed and updated.

If a hazardous atmosphere is detected at any time during the entry, the following steps are required:

- Every worker should leave the space immediately.
- The space must be evaluated to determine how the hazardous atmosphere developed.
- Steps must be taken to protect workers from the hazardous atmosphere before a subsequent entry takes place.

Maintain communication (visual, vocal, etc.) with the person(s) inside the confined space. All persons who enter or may enter a hazardous confined space should be trained in the use of safety equipment. If a self-contained breathing apparatus is used, it must be properly fitted. The smallest leak could be deadly.

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