



## Prevention of Hydrogen Sulfide Poisoning from Manure Pits

Hydrogen sulfide (H<sub>2</sub>S) is the most toxic gas product produced from deep liquid manure pits.

1. Agitation results in rapid release of the gas from liquid manure - (like shaking a bottle of pop or beer). As little agitation as water running into the pits from power washing, or agitation prior to or during pumping, will cause H<sub>2</sub>S release.
2. Pumping at least twice a year (fall and spring) to keep levels as low as possible will decrease the potential amount of H<sub>2</sub>S in the pit, and decrease the hazard.
3. When pumping the pit, pump with as little agitation as possible to limit the amount of H<sub>2</sub>S that comes out.
4. When starting to pump, curtains should be fully open and/or ventilation fully on. **Please note that even with ventilation fully on, even with pit ventilation, it is possible to have toxic levels of gas in the breathing zone of the pigs or people inside the building.**
5. No one should be in the building when pumping. Start pumping slowly, while observing animals from the outside. If they show any signs of restlessness, agitation, difficulty breathing etc., stop pumping immediately, as this may be evidence of high gas levels.
6. If you can't pump without causing this kind of irritation of the pigs, get some litmus paper from your drug store to check the PH level of the pit. Put the paper on the end of a stick and put it down in the manure (don't go in for at least an hour after attempting to pump). If the slurry is on the acid side (below PH 7), add slaked lime (construction lime, not field lime) to raise the Ph to 8 or so. About 1 pound of lime to 10 cubic feet of slurry.
7. Risk of toxic H<sub>2</sub>S levels also increase with high levels of sulfates in the water that goes to the pigs. Most of that problem in Iowa is associated with deep wells (greater than 400 feet). Check your water. If it's greater than 250 ppm or sulfates, that is a hint to be even more aware of a potential problems.
8. There is no safe way for the average producer to go down into a pit. The only respiratory equipment that can be recommended for that use is a self contained breathing apparatus (SCBA) such as firemen or scuba divers use. Use of this equipment takes training and certification.
9. Would-be rescuers too often end up as victims. No one - even with SCBA - should go into a manure pit without a safety harness, and with at least two people outside who can safety pull the rescuers out of the pit if they get into trouble.
10. If you have to go into a pit for repair, empty it as completely as you can (in the safe manner mentioned above). Fill the pit about 1/3 back full of water, and empty it again as completely as possible. Leave it for 24 hours. Get a high capacity barn fan or grain drying fan to force air into the pit. Use a harness as described above.