Sludge & Crust Removal by MICROBE-LIFT® Solves Manure Handling Problems in South Dakota

Location: Plainview Colony, Ipswich, South Dakota

Background: Located nine miles north of Ipswich, SD, this hog operation utilizes multiple barns and maintains approximately 10,000 hogs on site. The hog operation manager, Larry Wipf, is an experienced, well-seasoned operator. The barns operate on a pull–plug manure collection system with all the hog waste draining to a common pumping station approximately 100 feet north of the 750,000-gallon concrete holding pit. The level of waste in this pit is maintained at a pre-set level and as that level is exceeded, a pumping station approximately 30 feet to the west of the pit, automatically pumps the excess to the lagoon system. The lagoon system consists of two large lagoons set-up in sequence. The primary lagoon effluent is gravity fed to the second lagoon via an installed culvert system. The secondary lagoon is pumped yearly and the effluent is land applied by a pivot irrigation system.

Objective: In early May 2003, after successfully testing MICROBE-LIFT®/HOG in a barn without a mechanical scraper, the manager inquired about a program for the concrete holding pit to reduce solid waste and control odor. Under normal circumstances, this pit is pumped in the spring and fall requiring extensive mechanical agitation. The waste is hauled by tanker trucks and land applied to selected fields. In 2003, May was a very wet month and the fieldwork started late and consequently the labor and equipment required to pump the pit was not available. The manager was advised that a treatment program using MICROBE-LIFT®/HOG may eliminate the need to pump.
On May 21, 2003, the pit was inoculated with only 10 gallons of MICROBE-LIFT®/HOG, 5 gallons introduced directly into the pit and, since the crust on the top of the pit was 5-6 inches thick, 5 gallons of MICROBE-LIFT®/HOG was mixed with water and spray-applied to the thick crust. The manager reported that after only 72 hours the pit bubbled and the crust began to open up

Results achieved

Five days after this initial treatment, substantial bubbling was evident and the solid crust had been significantly reduced on two-thirds of the pit surface. MICROBE-LIFT®/ HOG application to the pit was continued at the rate of 2 gallons weekly during the next 4 weeks and 2 gallons monthly thereafter.

After 26 days of treatment extensive bubbling had occurred and crust was reduced to only a couple of inches on the entire pit surface except for approximately 12-15 feet on the southern end of the pit. The manager happily reported very minimal odor release from the pit. He also noted continued release of chunks of solids from the bottom of the pit as MICROBE-LIFT®/HOG continued to degrade the waste.

After 47 days, sludge reduction was dramatic. No crust was visible on two-thirds of the pit and the remaining crust had been reduced to approximately one inch or less. Again, the manager reported that there was minimal odor further supporting the success of treatment.

Elimination of solids by MICROBE-LIFT®/HOG treatment solved expensive, labor-intensive sludge handling problems. There was no longer a need for extensive mechanical agitation during bi-annual clean out. In addition to sludge and crust removal in just five weeks of treatment, the manager reported significant odor control.

During the trial the manager also reported that he normally experiences significant problems with solid waste buildup in the common pumping station often resulting in pump malfunctions. MICROBE-LIFT®/HOG was introduced into this pumping station as part of the weekly treatment program. MICROBE-LIFT®/HOG treatment successfully degraded the solid waste in the pumping station eliminating the associated pumping problems.

MICROBE-LIFT®/HOG very successfully treated the barn pits and the concrete holding pit at Plainview Colony and controlled odors. The hog operation manager was very satisfied and expanded the use of MICROBE-LIFT®/HOG to other pits in the barns.

Fig 1: *After 26 days of treatment the crust shows evidence of bubbling and chunks of sludge being brought to the surface.*

Fig 2: *After 47 days of treatment most of the surface scum and bottom solids have been eliminated.*

For more information on MICROBE-LIFT® Technology contact

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