Live Action Manure Spill Response Demonstrations Improve Response, Decrease Environmental Impact

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Why Do a Live Action Manure Spill Demo?

- Many advantages over traditional classroom or tabletop exercise
- Actively show various techniques to control a manure release
- Provide an interaction forum for regulators and ag operators
- Farmers, commercial applicators and first responders are better prepared to react to an actual incident

Image from first demo showing damming and use of vacuum truck for simulated stream contamination.

HISTORY

Wisconsin: In spring of 2001, 80% of the major manure runoff incidents in the state involved the commercial application industry. The Professional Nutrient Applicators Association of Wisconsin (PNAAW), UW Extension and the Wisconsin Department of Natural Resources came together to address spill response, and one idea was to create actual upland incidents and show various techniques for manure release control and cleanup. Since then, 16 events have been held in Wisconsin, drawing more than 1,500 farmers and commercial applicators

Pennsylvania: In 2004, the Pennsylvania Commercial Manure Hauler and Broker Certification Act was passed. All individuals who apply, transport, or broker manure on a commercial basis must be certified. To date, over 800 individuals are certified at one of five certification levels. Most certified individuals must complete Continuing Education Credits (CECs) to maintain certification. Building from Wisconsin successes, the PennAg Industries Association's Manure Hauler & Applicator Council and Penn State Extension hosted a Spill Response Field Day where attendees could receive 4.5 CECs. The first event educated 110 attendees. A 2nd event is planned in March 2009.

Types of Demos

Tanker Tipovers and Rollovers

Pennsylvania's event used an actual tanker tipover. Even a small volume release can be used to demonstrate multiple techniques.

Control, Containment and Cleanup Techniques Demonstrated

Control and cleanup techniques can vary by site. In the photos above, a hose break releases about 25,000 gallons. Boards and sand are showcased as an effective culvert blocking method in the middle photo, while soil and a plastic sleeve are effective ways to keep manure from entering tile inlets.

Key to the success of the demos is using tools readily available on farms. In the right photo, the farmer has used solid manure, waste feed and his skid steer to create a temporary dam. Tillage equipment, such as a chisel, is an excellent way to slow flowing manure. Final cleanup can be accomplished by using large volumes of water (3x spilled manure) or much less water under pressure, washing the solids off the vegetation.

Demo Planning

Key to success of a live action demo is planning. All parties must be brought to the table early in the process – regulators (both animal waste and spills staff), commercial applicators, local SWCD/NRCS staff and Extension. All parties must agree to ground rules (site considerations, what will be demonstrated, etc) and plan the logistics (having a backup plan in case something does go wrong, equipment on site, and radio communication with equipment operators) for the event. A key component to insure comfort level is that EVERY planning team member has the authority to cancel the actual release the day of the event if they are uncomfortable with the final site, soil conditions or weather forecast. Finally, demonstration location choice is critical. An upland site that is well setback from surface water is necessary, and greatly reduces risk. An inventory of risks – streams, wells, drainage tile, should be done well in advance, both on the site and from air photos.

RESULTS

A review of the reported spills to the Wisconsin Department of Natural Resources from 2006-present showed that, in counties where spill response training was held during that same time frame, 18 incidents occurred. Eight of these involved applicators or farmers who attended training. Of these, each event was contained and cleaned up before it reached surface or groundwater. In 2000-2002, 10 events are documented in these same counties, 40% of which impacted surface/groundwater and 3 involved applicators.

Pennsylvania has over 800 certified individuals in the state's required commercial manure applicator and broker certification program. By targeting an audience that handles large quantities of manure, a spill response field day provides continuing education that truly leads to increased human safety and decreased environmental risk in manure application situations.

Applicator Results: In April, 2008, a trained applicator lost control of a tanker on a curve on a state highway. The photos below document the steps taken in the cleanup.

Incident

Scraping manure from highway and first dam installed

Upslope dam to divert any rainfall (clean water) runoff away from the site

Powerwashing manure from highway surface

Dams in ditch to catch washwater

Site restoration