ChemTreat
Case History

ChemTreat OC9106 Reduces Biological-Based Landfill Odor

BACKGROUND

In 2005, the United Kingdom Department of the Environment Food and Rural Affairs (DEFRA) approved a trial of ChemTreat OC9106 (Histosol Bio-10V) to control odor at the Tow Law Foot and Mouth Burial Site in County Durham. When animal carcasses arrive at the site, they are dumped onto a large concrete apron and flattened using a front-end loader. Cattle carcasses are also emptied of their stomach contents. The carcasses are then emptied into the pit with a layer of straw, plastic sheeting, and approximately 500 mm of earth between each layer. The pit includes three concrete vertical columns that allow pumping of the leachate (blood/bodily fluids) to a holding tank. A tanker then transports the leachate to a wastewater treatment plant approximately 50 miles away.

Organic Products Company (OPC) applied treatment to a burial pit approximately 150 meters long, 30 meters wide, and 10 meters deep. The pit was approximately 80 percent full (approximately 2 meters from the top and 120 meters in length) and contained 24,000 sheep, cattle, and pig carcasses.

The existing odor control treatment protocol involved the application of Diox (chlorine dioxide). A sprinkler system also dispersed fine jets of pine-smelling deodorant around the site. As Diox is toxic and cannot be sprayed, it was poured into the most malodorous areas. The pit biochemical oxygen demand (BOD) remained in excess of 20,000 mg using this treatment.

SOLUTION

The calculated chemical requirement based on the pit area was 150 liters of ChemTreat OC9106 mixed with 450 liters of water and applied using a high-pressure hose. The pit surface was very dry with uneven soil and some wet patches caused by rising leachate. Areas of rising leachate were dosed more heavily than the rest of the surface area.

The application took four hours and required an additional 100 liters of product and 300 liters of water. A total of 350 liters of OC9106 and 1,050 liters of water were used.

After treatment, the leachate bubbling on the pit surface settled and very little surface leachate was apparent. Odor was detected in pockets, but difficult to pinpoint, except for the concrete columns that gave off bad odors. Operators agreed minor odor control improvement was achieved, but was difficult to quantify because the odors were relatively mild at the time of the trial. OPC decided to reassess the odor level the following day, planning to re-apply the treatment if no significant improvement was detected.

The following morning, the odor control consultant said there was a leachate spillage at another pit the previous evening. The consultant dosed the pit with OC9106 and reported the treatment controlled the odors quickly and effectively.

OPC and the odor control consultants agreed the previous day's treatment made a considerable difference in pit odor control, so no additional product was applied. The consultants dosed a vertical column to verify the treatment's ability to control the odors. They also performed a leachate control test by spreading leachate on the concrete apron and applying OC9106.

All of the tests were successful in controlling the offensive odors, and the site owners adopted the treatment protocol going forward. As of the date of publication, the customer has continued application.

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5640 Cox Road / Glen Allen, Virginia 23060
www.chemtreat.com

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