Murphy-Brown LLC

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To Whom It May Concern:

At the request of North American Geochemical, LLC, I wanted to pass along some information on our experiences with the company, or, more specifically, our use of their Phosphorous binding product.

Murphy-Brown LLC is the live swine production subsidiary of Smithfield Foods. As such, we manage all live animal operations in the United States, doing business in nine different states currently. Over half of our production operations are located in the East coast states of North Carolina and Virginia, with the remainder in Missouri, Iowa, Texas, Oklahoma, Colorado, Utah, and Illinois. As a company, we take our commitment to environmental compliance and sustainability very seriously as demonstrated by our ISO14001 certified Environmental Management System. As the compliance officer for our company, I am personally and professionally driven to insure that our operations produce animals in compliance with all rules and regulations, and in such a manner as to protect the surface and groundwater resources around our facilities. To that end, we spend a tremendous amount of resources focusing on potential issues that could impact our environmental footprint.

One of these areas of concern has been, and continues to be, phosphorous management. We have used many different methods to guard against phosphorous build-up in our waste management systems including the feeding of phytase enzymes, various BMP's, and Phosphorous Loss Assessment analysis of our application fields. Up until recently, we had no way to economically treat either our waste stream, or our land application fields to remediate potential phosphorous issues. In 2007, North American Geothermal, LLC introduced us to a product specifically designed to capture and hold phosphorous.

Our initial concerns were cost and effectiveness. In 2007 and 2008 we ran extensive trials with the product, mainly in our Waverly, Virginia division of farms to determine their effectiveness in our application. To make a long story short, we were successful in capturing and rendering insoluble, prescribed amounts of phosphate at a cost that was competitive to our other phosphorous management options. We were significantly enough impressed to contract with them in 2009 for the treatment of eleven different lagoon structures. Our goal in 2009 was to drop the phosphate in our waste stream to a desired N:P ratio of 5:1. In many cases, this required the removal of 100ppm + of phosphate in structures greater than 10M gallons in size. The product was delivered dry, mixed with effluent in a tank, and sprayed on the lagoon surface(s). Results were seen within hours and phosphate levels held at the adjusted low levels for greater than six months. Subsequent applications to maintain the desired phosphate levels have required substantially less product to achieve desired results due to a low starting phosphate concentration.

In addition to work done treating the waste stream, additional tests have been initiated using the product to treat the soil itself. It may, indeed, prove more cost effective to lower the soluble phosphate in the soil versus reducing the phosphate in the waste stream. Initial tests have shown that the product works well when incorporated into the soil, but additional tests are needed in the area of duration of effectiveness and cost prior to me endorsing this treatment avenue. Suffice it to say, we are very excited about the possibilities this product provides us moving forward in our efforts to maintain a sustainable environmental system. We are very encouraged by the new 'tool' for phosphorous management.

I am more than willing to provide you with additional detail if necessary. I can be reached at kraigwesterbeek@murphybrownllc.com or at (910) 293 5330.

Sincerely,

Kraig Westerbeek
Assistant VP, EHS Compliance