Agenda Item 13

NC Toxics Emissions Evaluation from Poultry/Turkey Litter

Summary

Poultry/Turkey Litter as a fuel source is comprised primarily of a mixture of manure and bedding material. In general, the bedding material is comprised of wood/wood shavings. For the purpose of this evaluation, the emissions estimations were initiated based on existing NC wood-waste emission factors. These factors were then supplemented based on the available data regarding the added emissions expected from the combustion of the manure/wood mixture in the litter.

In general, the emissions data available relevant to NC Toxics is very limited. There is actual source test data available for mercury, dioxins, and HCl. However, the estimation of arsenic emissions is the more problematic. Using expected arsenic concentrations in the litter and applying expected controls, the arsenic emissions were estimated based on the model source characteristics.

Model Facility

The source characteristics of the model facility, for the purposes of this evaluation are:

Capacity: 50 MW

Heat Input: 715 mmBtu/hr

Controls: Bagfilter and Adsorbent Injection

Results

The model results provide that the arsenic emissions are the limiting pollutant with respect to NC Toxics based on the estimated emissions. For the given plant characteristics, the arsenic emissions resulted in an ambient concentration that is 277% of the AAL. The remaining pollutants were each well below the AALs, with benzene at 35% and all other less than 2%. The characteristics of the plant, particularly stack height and property boundary, will greatly affect the model results. Thus, while these results show an exceedance of the AAL for arsenic, a properly placed and designed source should be able to comply with the AAL given the expected emissions.