techniques and *in situ* soil surface biodegradation. By pumping air at the base of a test column, a volatile organic compound (VOC) in the soil was mobilized through the soil and trapped in a thin layer of dried activated sludge. The contaminant, once trapped in the sludge blanket, would be available for biological degradation by the sludge microorganisms.

Test soil consisted of a homogeneous sand with a moisture content less than 0.5% and particle diameters smaller than 0.84 mm. Dried sludge, obtained from a municipal waste-water facility, was blended until the particle size characteristics were consistent with the sand.

Experiments were initiated by passing air saturated with toluene throught the soil column until equilibrium. The initial concentration of toluene was approximately 700 μg per gram of sand. Clean air was then forced through the system to mobilize the toluene at rates which ranged between 1 and 2.7 pore volumes per minute. Over 95% of the particle-bound toluene was removed from the sand within six hours of stripping. On a mass-per-mass basis, the sludge sorbed approximately 70% of the mobilized toluene. The combination of air stripping techniques and use of a sludge blanket to reduce volatile emissions from the soils is feasible and merits further research. Studies to investigate the biodegradation potential of the sludge blanket for toluene and trichloroethylene will be the subject of investigation for future research.

METAL CAPTURE DURING FLUIDIZED BED INCINERATION OF SOLID WASTES

T.C. HO[1], J. CHEN[1], S. SHUKLA[2] and J.R. HOPPER[1]

[1]*Department of Chemical Engineering, Lamar University, P.O. Box 10022, Beaumont, TX 77710 (U.S.A.)*
[2]*Department of Chemistry, Lamar University, P.O. Box 10022, Beaumont, TX 77710 (U.S.A.)*

Abstract

One of the current concerns associated with waste incineration is heavy metals, such as arsenic, barium, beryllium, chromium, cadmium, lead, mercury, nickel and zinc, because of their presence in many hazardous wastes and because of possible adverse health effects from human exposure to emissions. An incineration system which is capable of retaining metals during incineration is highly desirable because it greatly reduces the amount of metals in stack emissions. Of available incineration systems, fluidized bed incinerators appear to offer the best hope for metal capture during incineration. Specific data on the effectiveness of metal capture by various sorbents, however, are not available.

In this study, experiments are carried out in a 7.62-cm (3″) fluidized bed

incinerator to evaluate the effectiveness of lead capture by limestone during fluidized bed incineration of lead contaminated solid wastes. Experimental parameters include air flow rate, limestone size, waste-to-limestone ratio and incineration temperature. An atomic absorption analyzer is used to determine lead concentrations in both the original and the incinerated limestone. The results have indicated that limestone is capable of capturing lead during fluidized bed incineration. Small particle size, high turbulence and low temperature favor lead absorption.

THE NOT-IN-MY-BACKYARD SYNDROME: A RESEARCH PROPOSAL FOR ASSESSING PUBLIC RESISTANCE

STUART A. WRIGHT

Department of Sociology, Lamar University, P.O. Box 10026, Beaumont, TX 77710 (U.S.A.)

Abstract

While there has been considerable attention and funding given to engineering-based siting criteria and mechanisms for implementation, technological advances have little value if public resistance to site location precludes the successful location of treatment facilities. Industry analysts now recognize that some of the most difficult obstacles to solving the hazardous waste dilemma are social and psychological rather than technical. Siting efforts are continually met with adamant local resistance, a phenomenon that has come to be known as the "Not-In-My-Backyard" (NIMBY) Syndrome. A research proposal has been made to 1) determine primary sources of public apprehension, 2) identify and delineate real and imagined fears, and 3) verify parameters or conditions of public acceptance in a community wherein a site location has been formally proposed or is under consideration. Under a grant from the GCHSRC, research instruments targeting two populations have been developed. Recognizing the sociological axiom that community power is stratified, the study targets both public opinion and local elites. The first instrument is a survey questionnaire designed for use in an opinion poll and will draw from a scientific, random sample of adult residents in the selected city or community. The second is an interview schedule constructed for in-depth interviews with community leaders and city officials. The research design and survey instruments are fully developed and are awaiting funding sources in order to be implemented.