

ASME/U.S. Bureau of Mines Investigative Program on Vitrification of Combustion Ash/Residue

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ABSTRACT

Vitrification of the residues from thermal processes into a dense, grainless, amorphous, glasslike material may provide an opportunity to permanently relieve our concerns regarding aquifer contamination, and if vitrified products are utilized, conserve those land areas which are suitable for disposal for those discards for which we have not as yet found a practical use.

The discussion briefly describes the implementation of the \$1.2 million American Society of Mechanical Engineers (ASME)/U.S. Bureau of Mines (BuMines) investigative program. The discussion covers the scope and methods followed, system employed, areas of investigation, findings and conclusions. The potential effectiveness of sequentially vitrifying significant quantities of ash/residue from (a) three different types of mass burning municipal solid waste to energy recovery facilities, (b) a regional waste water treatment plant sludge combustor, and (c) air quality control products from a large energy facility burning refuse derived fuel (RDF), each while utilizing a fraction of the electrical energy recovered.

The project also identified environmental implications, potential beneficial applications for the products resulting from the process and projected overall economics.