

## The Need for a Better Karst Hazard Estimation Procedure for Pennsylvanian-Permian Limestones of the Mid-Continent. *Gregory C. Ohlmacher and P. A. Macfarlane; Kansas Geological Survey, University of Kansas*

Revised regulations for the permitting of Construction and Demolition Landfills in Kansas require disclosure of any “unstable areas” that could affect the integrity of the landfill or its impermeable liner. Unstable areas are defined by the Kansas Department of Health and Environment as areas susceptible to karst, landslides, or other geologic processes that might cause settlement below the waste. Currently, the Kansas Geological Survey (KGS) reviews geologic assessments provided by the permit applicant. These assessments highlight the paucity of existing information on karst hazards in Kansas. Until the KGS Karst Map project, no systematic karst feature inventory had been undertaken for the entire state. In eastern Kansas, little is known about the distribution of karst susceptible units within the Pennsylvanian-Permian outcrop belt. These systems are dominated by cyclothems consisting of limestones, shales, sandstones, and coal. Individual cyclothems can have several limestones with differing levels of susceptibility to karst and individual limestone unit properties are a function of depositional environment. The repetition of the cyclothem pattern in the Penn-Perm bedrock implies that limestone members at the same position in the cyclothem sequence can have similar properties. For example, the Plattsmouth Limestone Member of the Oread Formation and the Ervine Creek Limestone Member of the Deer Creek Formation have similar physical properties and would be expected to have similar karst susceptibilities. An improved karst hazard estimation procedure could be developed that includes the limestone member’s position within the ideal cyclothem and existing subdivision of the Penn-Perm rocks into cyclothems.