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# ENVIRONMENTAL/ENGINEERING GEOLOGISTS

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## ENVIRONMENTAL/ENGINEERING GEOLOGY DINNER MEETING— APRIL 26, 1989

### DR. H. C. CLARK—Biographical Sketch

H. C. Clark is a geophysicist with Big Hill Geophysics, where he is involved with environmental and rock fracturing projects. Clark is also an adjunct professor at Rice University teaching Geophysics and Engineering Geology. He came to Rice in 1966 following the completion of his Ph.D. in Geophysics at Stanford. His involvement with waste disposal stems from a long-standing interest in the application of geophysical measurements to near surface geological problems.

### GEOLOGY, GEOPHYSICS AND WASTE TRACKING

Geology is the limiting factor in the study of virtually every waste disposal site. While aquifers and confining layers may be defined by borings, the hydrology is often complicated by channels, faults, clay lenses and other geologic realities. Site input is dependent on sources such as barrels, drain pipes and disposal points. It would seem that the situation is ripe for the application of geophysical measurements. In many cases, the geology and various contaminant sources offer physical contrasts amenable for study. Geophysics is an ideal, non-intrusive, investigative tool.

Geophysical techniques for waste site study include seismic reflection and refraction, ground penetrating radar and active and passive electromagnetic, magnetic and resistivity profiling. Applications range from simply finding drums to tracking contaminant plumes. Examples of each of these in the Houston area will be discussed and an application rationale developed. Perhaps more importantly, the role of geophysical measurements within the current regulatory framework will be discussed. There are disadvantages inherent in the uncertainty of interpreted, indirect measurements where certainty is required. On the other hand, a continuous, objective picture of the shallow subsurface is very useful. The role of geophysics is an evolving one, and the future promises to be very interesting.