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# ENVIRONMENTAL/ENGINEERING GEOLOGISTS

## HGS ENVIRONMENTAL/ENGINEERING COMMITTEE LUNCH & DINNER MEETINGS—MAY 12, 1993

**Topic (same at both luncheon and dinner):**  
"Geochemical Applications to Site Assessments  
and Remediation - Case Studies"

**Presented by: Dr. Victor Jones**  
Exploration Technology, Inc.

### LUNCHEON:

**Place:** Houston Community College  
Conference Room 221, San Jacinto Bldg.  
1300 Holman at San Jacinto  
(Cafeteria available on 3rd floor)

**Time:** Social - 11:45 a.m.  
Program - 12:00 p.m.

### DINNER:

**Place:** Italian Market and Cafe  
2615 Ella Blvd.  
(Located behind NW Memorial Hospital  
just south of 610 North Loop)

**Time:** Social - 6:00 p.m.  
Program - 6:30 p.m.

Note: A \$1.00 surcharge will be charged by the restaurant even if you don't order food or drink.

After the Dinner Meeting the Career Change Networking Group will meet for 30 minutes or less.

### VICTOR T. JONES—Biographical Sketch

Victor T. Jones received his Ph.D. in Physics from Texas A&M University in 1969, and is founder and President of Exploration Technologies Inc. He has been involved in the application of surface geochemical techniques to both exploration and environmental studies for more than twenty-two years, initially at the Superior and Gulf Oil Companies, then at Woodward Clyde Oceanering and finally at ETI. During his tenure as Director of Geochemical Applications for Gulf Research and Development Co., he was able to apply all of the known geochemical exploration concepts to both exploration and environmental problems and to develop and further refine exploration geochemical methods to environmental applications.

Since founding ETI, Dr. Jones and his staff have further refined and applied exploration geochemical methods to numerous environmental assessments over all types of petroleum product transportation, processing and storage areas, including salt dome storage caverns, mined drifts, underground coal gasification reactors, leaky well casings, pipelines, refineries, and underground petroleum storage tanks.

Dr. Jones is a member of the American Association of Petroleum Geologists, the American Chemical Society, the American Institute of Chemists (Fellow), the Association of Petroleum Geochemical Explorationists, the European

Association of Organic Geochemists, the Houston Geological Society, the National Water Well Association, and the Texas Water Well Association.

### GEOCHEMICAL APPLICATIONS TO SITE ASSESSMENTS AND REMEDIATION — CASE STUDIES

The performance of every engineering and environmental company conducting operations at a hazardous waste site is directly dependent on their ability to provide accurate and correct information regarding the type and concentrations of hazardous wastes encountered on the site, yet their choice of geochemical analytical techniques, both in the laboratory and on-site are often relegated to a fairly low priority to save on cost, particularly for real-time screening devices.

In addition, EPA methods are often used even if inappropriate for analysis of the specific components. For example, the PID detector is most often the instrument of choice for onsite screening in spite of the fact that it more often than not yields erroneous information. Gas chromatographic, derivative spectrometers, UV fluorescence, and infrared TPH techniques are compared and contrasted for applications involving volatile hydrocarbons, chlorinated solvents, and older, less volatile components such as aged diesel or fuel oil.

Plume maps constructed from soil gas data measured on specific, selected components offer a far more accurate and cost-effective method for defining the horizontal extent of most subsurface contaminants than are the limited number of boreholes usually deployed. Boreholes should be screened continuously and used primarily to determine the vertical extent of the contaminants encountered. Solvent extractions followed by high-resolution capillary GC methods are recommended to aid in the identification of the specific contaminants found and to determine relative ages and mixing of different products. This type of information is of particular importance during remediation. Numerous case studies will be used to demonstrate these concepts.