**Integration of Remotely-Sensed Geobotanical and
Structural Methods for Hydrocarbon
Exploration in West-Central West Virginia**

**Quarterly Report
November 1, 1996 - January 31, 1997**

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1. Vegetation spectral library

The major effort in the last three months has focused reducing the vegetation spectra to a common format, and generating spectral reflectance curves for the data collected in the fall of 1996. Individual graphs are being prepared of each spectrum, as well as composite graphs for each date. The water absorption regions are identified on each graph, and blocked out, to reduce distracting, non-scene variation. Sample spectra are attached to illustrate the work.

Preliminary analysis shows that the fall spectra are of much higher quality than the summer spectra, due to the much lower atmospheric water, and more constant atmospheric conditions. The ratioing nature of the radiometer greatly reduces the problems due to changing atmospheric conditions, but during very hazy periods, atmospheric illumination is actually very low, and consequently the signal received by the spectrometer is very noisy.

2. Project status

The majority of the project has been completed now, with final vegetation spectral reflectance data reduction close to completion. So far the following tasks have been carried out:

- Purchase and geo-rectification of multi-temporal imagery
- Comparison of the multi-temporal images for vegetation discrimination
- Digitization of geology (surface and subsurface) and overlay on the images
- Image enhancement for vegetation anomalies
- Lineament analysis
- Soil gas survey, and comparison to lineament analysis
- Vegetation field spectral measurements

The main outstanding issue is to obtain well production data for comparison with the lineaments, soil gas survey and the vegetation anomalies.

Timothy Warner
February 17, 1997

Switchback (on anomaly)
9/30/96

5.007 Tulip Poplar

Chart7

Stonewall Jackson Lake
C Road (off anomaly)
9/30/96

5.003 Tulip Poplar

Chart3

Stonewall Jackson Lake
C Road (off anomaly)
9/30/96

5.001 Red Oak

Chart1

Switchback (on anomaly)
9/30/96

5.008 Red Oak

Chart8