Proposal Abstract J121(G84)

1. **Arms Control Problem:**
   Nuclear weapons - partial test ban

2. **Verification Type:**
   Remote sensors - satellite

3. **Source:**
   United States. Department of Energy. Sandia National Laboratories. "Satellite Instruments for Monitoring the Limited Test Ban Treaty". Sandia Technology 8, no. 2 (November 1984): 8-11.

4. **Summary:**

This article describes Sandia Laboratories' work on instruments to aid verification of the Limited Test Ban Treaty (LTBT, 1963). Verification of the LTBT requires continuous monitoring of the earth's surface, its atmosphere and many parts of space. Monitoring instruments flown on satellites can detect direct radiation from nuclear detonations in space: x-rays, gamma rays, neutrons, charged particles and fission products. Sandia Laboratories developed the electronic logic system and other subsystems for these instruments as well as optical (visible-light) detectors for atmospheric burst monitoring. The electronic logic system identifies and rejects false signals by testing characteristics of (potential) explosions such as rise-time and intensity of the flash pulse duration and possible signal coincidences from several detectors. Information is then transmitted to and analysed by ground-based computers and personnel.

These instruments were mounted on satellites of the American Vela Hotel program which involved six satellites launched between 1963 and 1970. Currently, Sandia is developing nuclear explosion monitoring instruments for Global Position System satellites.