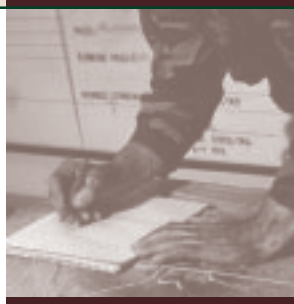
A Nested, High Voltage Generator

The Nested High Voltage Generator (NHVG) is a high voltage accelerator/power supply topology that can potentially satisfy a variety of requirements for a compact, reliable inexpensive DC accelerator in the 0.25 - 10 MeV range. Applications for this technology include the generation of high voltage, high current pulsed electron beams for microwave generation, medical product sterilization, polymer curing, wastewater sterilization, wastewater remediation, medical waste sterilization, and use in X-ray imaging equipment. This technology has recently been demonstrated in an accelerator which has operated at 500 kV with an electron beam in a 36-inch long, 17-inch diameter device.

The size, weight, shielding, and cost of electron accelerators has often limited their applicability in production line applications. The mini accelerator, produced as a result of NHVG technology, reduces all system costs, but most importantly, makes it possible for the system to fit in a small space. Utilizing this technology, the 1.15 MeV Electron Accelerator for X-ray Scanning A 0.6 ma, 1.15 MeV has been built under contract with AnnisTech for X-ray imaging. This machine is being used at a U.S. airport. The beam spot size is < 2mm at the entrance and < 4mm after the 4-meter scan. This is connected to the largest electron beam scanner ever built (3 meters).

The NHVG has been demonstrated to be both versatile and useful. To date, with a number of accelerators tested and many hundreds of hours of run-time, North Star Research has experienced no problems with dielectric or other component breakdown. The NHVG principle will allow a new class of inexpensive DC accelerators to be used in a variety of industrial and research applications.



PHASE III IMPACT

- 4 units sold to date, generating over $3 million in sales.
- The NHVG has made it possible to fit a 1 MeV capability for security inspection applications into an airport cargo facility.