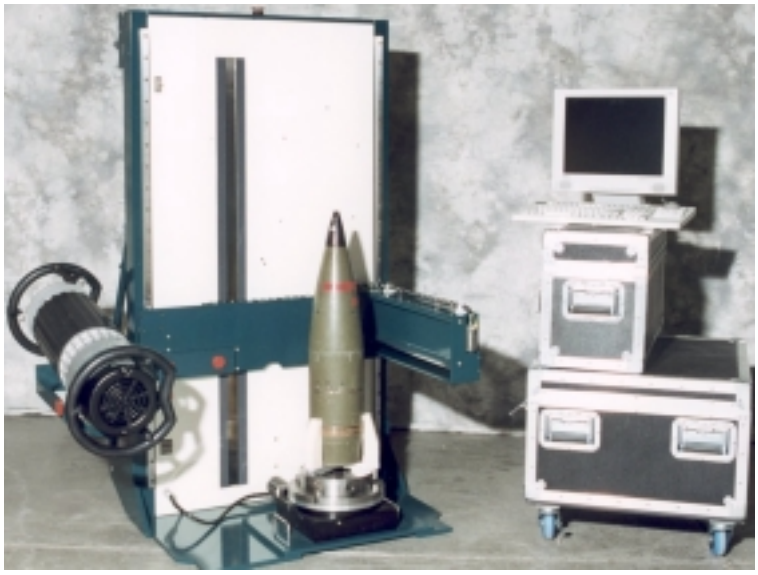
Digital Radiography and Computed Tomography (DRCT) at the Idaho National Engineering and Environmental Laboratory (INEEL)

The Digital Radiography and Computed Tomography (DRCT) laboratory performs research and development in 2-D and 3-D x-ray imaging. During the past eight years the lab has developed several x-ray imaging and image processing systems for the Departments of Energy and Defense. The DRCT lab has also performed research in 3-D cone beam tomography and has developed methods for system characterization leading to improved image quality, especially in portable imaging systems. A wide range of system types and capabilities have been developed.

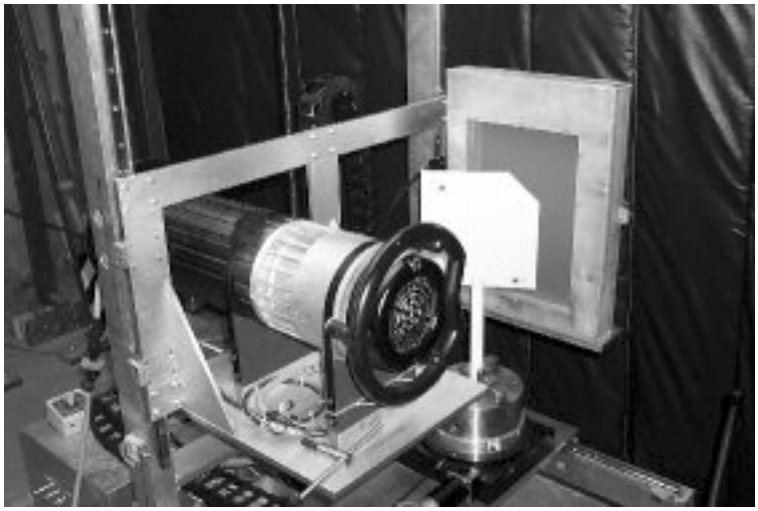
- Imaging systems
  Real time radiography
  DR with scanning 1-d linear arrays
  DR with 2-D area arrays
  2-D multiple slice CT
  3-D Spiral CT
  3-D Cone Beam CT
  Isotopic CT and Densitometry
- Energy range from 30kVp to 4MeV
- Large range of object size and image resolution
  Objects from 1mm to 1.5m diameter, 1.5m height
  50-100 micron resolution for objects up to 2cm
  0.5-2.0 mm resolution for larger objects
- 12-16 bit dynamic range
- INEEL-developed image acquisition, processing and display software

INEEL x-ray imaging systems and capabilities.



Field-portable munitions scanner. Objects up to 30cm diameter, 1m height.

Transportable scanner for objects up to 85-gallon drums.



Laboratory system for cone beam tomography and x-ray system characterization research.