

Nuclear Fuel Backscatter X-Ray Imaging System

Disclosure Number

201002457

Technology Summary

This invention is used to image completed nuclear fuel rods using backscatter x-rays at a sufficient resolution to ensure the pellets contained in the rods are not fractured, existing welds are satisfactory, and there are no significant cracks or other defects in the rods. The objective is to have the capability to perform a final quality assurance check on the completed fuel rods. Currently, a small but significant portion of the fuel rods develops leaks while in the reactor, causing the reactor to operate at reduced power or shut down. The purpose of this invention is to identify potentially leaking rods prior to placing them in an assembly and installing the assembly in a power reactor. X-ray backscatter analysis of high-Z materials has heretofore been considered not feasible.

Inventor

HOLLENBACH, DANIEL F

Nuclear Science & Technology Division

Licensing Contact

SPEIGHT II, MELVIN D

UT-Battelle, LLC

Oak Ridge National Laboratory

Room 143, 4500N, MS: 6196

1 Bethel Valley Road

Oak Ridge, TN 37831

Office Phone: (865) 241-6564

E-mail: DSPEIGHT@ORNL.GOV

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