

From: Donald Carlson
To: Barrett, Richard; Cabbage, Amy; Gamberoni, Marsha; Jackson, Diane; Lyons, James; Murray, Alex; Sebrosky, Joseph; Wilson, Jerry
Date: Thu, Jun 28, 2001 2:37 PM
Subject: Re: Fwd: Suggestions for Days 5 and 6 in Germany

Alex et al,

That's right: no in-core instrumentation whatsoever. In fact, as my German doctoral dissertation (Juel-1853, 1983), I developed a system of in-reflector neutron detectors (two kinds) and a computational scheme (similar in concept to computed tomography, e.g., PET, MRI, CAT scans) for reconstructing/monitoring the in-core flux distributions in large pebble bed reactors (PBRs). Professor Schulten, the inventor of the pebble-bed concept, assigned this problem to me largely because I had previously worked on in-core flux mapping in U.S. PWRs.

Anyway, for the larger pebble-bed designs of yore, which were to use a two-radial-zone, once-thru-then-out (OTTO) fueling scheme, we would try to demonstrate, for example, the system's ability to detect the misloading of a small number of fuel pebbles in the wrong radial zone. The need for something similar in today's smaller pebble-bed designs may be something we will eventually need to consider (after I apply for a patent ;-)

Don

>>> Alex Murray 06/28/01 01:41PM >>>
Don et al,

No thimble tubes or anything for in-core instrumentation? This seems a little unusual - am I missing something? My car has more "core" instrumentation.

Alex

>>> Donald Carlson 06/28/01 11:00AM >>>
FYI - forwarding the message I sent Tuesday afternoon to Howard Faulkner.

Don

CC: Caruso, Ralph; Chatterton, Margaret; Flack, John; Gleaves, Bill; Kadambi, N.P.; Kelly, Joseph; King, Thomas; Koo, William; Leeds, Eric; Rosenthal, Jack; Rubin, Stuart; Shoop, Undine; Steele, Sharon; Tripathi, Raj

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From: Donald Carlson

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