December 4, 2007

Dr. Charles Kim
ECE 277K
Westinghouse Electric Co., LLC
4350 Northern Pike
Monroeville, PA 15146

SUBJECT: HALDEN IRRADIATIONS

Dear Dr. Kim:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am offering the Pressurized Water Reactor Owners Group (PWROG) the parallel use of available irradiation testing space during NRC-sponsored research. It is our understanding that the PWROG may be interested in utilizing this space for similar research activities.

NRC's Office of Nuclear Regulatory Research (RES) sponsors a research program at the Argonne National Laboratory (ANL) named the Environmentally Assisted Cracking in Light Water Reactors (LWR) Structural Materials program (EAC program). As part of this program, RES will irradiate test specimens using the Halden reactor in Norway. The scope of the EAC program does not require the full capacity of the irradiation capsule. The PWROG may use the available space to irradiate additional specimens in parallel with our specimens.

The NRC's EAC program seeks to address two fundamental aspects of irradiated materials characterization: (a) characterization of the threshold(s) for the onset of irradiation-induced degradation of fracture, and irradiation-assisted stress corrosion cracking (IASCC), properties and (b) characterization of the saturation values of fracture properties, including the synergistic effects of thermal and radiation embrittlement of cast stainless steel (SS) in the pressurized light-water reactor (PWR) coolant environment. The EAC program will develop a matrix on crack growth and fracture toughness based on the irradiated Halden specimens. The EAC program will perform J-R curve tests on wrought and cast austenitic SS (including SS weld metals) that have been irradiated to 0.075 and 3.0 displacements per atom (dpa) at 315 °C.

Sharing the capsule would be an efficient method for leveraging resources as well as providing common test conditions. Please let me know if you are interested so that we may finalize the details.

Sincerely,

/RA/
Samantha Crane, Materials Engineer
Corrosion and Metallurgy Branch
Division of Engineering
Office of Nuclear Regulatory Research

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