UF UNIVERSITY of FLORIDA

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June 1, 2010

Document Control Desk
U.S, Nuclear Regulatory Commission
Washington, DC 20555
Attn: Mr. Duane Hardesty

Dear Mr. Hardesty,

Subject: University of Florida Training Reactor (UFTR) License Renewal (TAC NO. ME 1586), DOCKET NO. 50-83

Enclosed is a document provide bases for Chapter 5 for renewal of Facility Operating License No. R-56 for the University of Florida Training Reactor (UFTR).

If you need further information, please do not hesitate to contact me at haghighat@ufl.edu or (352) 392-1401 x306.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 1, 2010

Sincerely,

Alireza Haghighat, PhD
FP&L Endowed Chair Professor
Director of UFTR

Lisa L. Purvis
Commission # DD608673
Expires November 3, 2010
Bonded Troy Fain - Insurance, Inc. 800-385-7019

Alachua County, Florida
June 1, 2010

Cc Jack Donohue, NRC
Gabriel Ghita, UF
David Hintenlang, Interim Chair
Brian Shea, UFTR Manager
Glenn Sjoden, RSRS Chair
UFTR – NRC file

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NRR

Bases for Section 5 (titled 'Design Features') of the UFTR's Technical Specifications

The UFTR uses an Argonaut design, which offers significant safety and security features. On the safety, the residual heat in the fuel is very low, thereby resulting in a unique shut down mechanism in the form of dumping of the coolant/moderation water. On the security, besides a secure confinement building and separation of the reactor cell from the other offices and labs of the reactor building, the reactor core is placed under ~50 tons of concrete, and the fuel is dispersed in an aluminum plate with aluminum cladding.

The primary cooling system is designed such that the reactor core is kept at low pressures and temperatures. This is achieved by the proper arrangement of the fuel bundles in a fuel box, which results in prevention of occurrence of local boiling at the maximum power; i.e., the combinations of coolant flow-rate, inlet coolant temperature, and the maximum operating power, keeps the system away from the Onset of Nuclear Boiling (ONB). The secondary cooling system provides the necessary mechanisms for the removal of heat from the primary cooling system and the isolation of the primary coolant from the environment and public. Aforementioned features further contribute to the safety margins of the UFTR.

Finally, the fuel storage facilities of the UFTR have been designed for maintaining a highly subcritical condition even under a flooding event.