



Rensselaer

DEPARTMENT OF MECHANICAL,
AEROSPACE, AND NUCLEAR ENGINEERING

RCF 11-SRS-02

March 07, 2011

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Re: Operations Report for the Rensselaer Polytechnic Institute Reactor Critical Facility, NRC License CX-22, Docket Number 50-225.

To Whom It May Concern:

This document constitutes the calendar year 2010 (CY2010) Operation Report of the Rensselaer Polytechnic Institute (RPI) Reactor Critical Facility (RCF) to the U.S. Nuclear Regulatory Commission (NRC) and the RPI management.

The RCF operated successfully during CY2010. The RCF was used for one laboratory course, three senior design projects (one during the 2009-2010 academic year and two during the 2010-2011 academic year), and supported one introductory course in the Nuclear Engineering curricula. The facility staff is in the process of training five new Senior Reactor Operators, two of whom took their NRC licensing exams during the week of October 18, 2010 but did not pass all of the written sections. Their re-examination is planned for early 2011. Plans to schedule exams for the remaining three operators have not been made.

Work proceeded on critical experiments with the 0.640" pitch lattice plates. Critical measurements were performed with the 332-pin and 333-pin configurations. Some subcritical experiments were also conducted with fewer pins. The SPERT(F1) fuel is 4.81 w/o enriched high density UO₂ pellet fuel clad in stainless steel, so it is similar to power plant reactor fuel. The RCF is now the only facility in the U.S. carrying out reactor physics experiments in support of the power reactor function. These experiments have been designed to be similar to power reactor startup measurements.

An NRC inspection was performed in August 2010. NRC findings have been reported in other correspondence. Based on the results of that inspection, no safety concerns or non-compliances with NRC requirements were identified.

Training and proficiency requirements for all licensed operators have been reviewed and are current. In January 2010 Dr. Jeffery Geuther resigned as Facility Director and terminated his license. Dr. Timothy Trumbull was appointed to that position. In January 2011, Dr. Timothy Trumbull resigned as Facility Director and Dr. Sastry Sreepada was appointed to this position. Dr. Trumbull continues as Adjunct Professor. In July 2010 Mrs. Jessica Berry resigned from the Operations Supervisor position and Mr. Jason Thompson was appointed to this position. Both

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Dr. Trumbull and Mrs. Berry retained their SRO licenses. Mr. Colin Sweet terminated his license. Total staffing on December 31, 2010 is four licensed SRO's and five trainees.

Dr. Michael Podowski is on sabbatical and has resigned as Chairman, Nuclear Safety Review Board (NSRB) in July, 2010, and Dr. Yaron Danon has been appointed to that position.

The Technical Specifications, App. A to the USNRC License CX-22 requires reporting the following operational items:

1. Changes to the facility design: None.
2. Significant Maintenance, repairs, or other work performed on RCF systems: None.
3. Changes in operating procedures which relate to the safety of RCF operations: None.
4. Surveillance checks, tests, and calibrations were conducted and logged as required. In July 2010 an emergency preparedness drill was conducted at the RCF.
5. Changes, tests, or experiments requiring authorization from the USNRC under 10CFR50.59(a) or (b): None.
6. The following staff changes occurred in CY2010: Dr. Guether resigned and was replaced by Dr. Timothy Trumbull who later resigned and was replaced by Sastry Sreepada as Facility Director, Mr. Jason Thompson replaced Mrs. Jessica Berry as Operations Supervisor. Mr. Colin Sweet has terminated his SRO license. Dr. Yaron Danon has replaced Dr. Michael Podowski as Chair, NSRB.
7. Calculated Thermal Power: Approximately 0.036 kwhr for all CY2010, far less than the 200 kwhr/yr limitation in the Technical Specifications.
8. There were several unplanned scrams in the report interval. Some were a result of accidentally securing the air compressor causing the fast-dump valve to open. Others were traced to noisy instrumentation requiring cable connections to be re-made and/or tightened.
9. Maintenance operations were carried out and logged with satisfactory results.
10. No liquid discharges were performed in CY2010.
11. Environmental monitors recorded doses at or below the level of background for all monitoring periods.
12. The recorded collective dose for personnel monitoring at the facility was 22 mrem. The monitoring badges have a minimum detectable dose of 10 mrem per badge per calendar quarter

Sincerely,


Dr. Sastry Sreepada, Director
RPI Reactor Critical Facility
3/7/2011

Cc:

Dr. Yaron Danon, Chairman
RPI NSRB

Dr. Tim Wei, Chairman
MANE

Dr. David V. Rosowsky,
Dean Of Engineering

Dr. Peter Caracappa
RPI Radiation Safety Officer

Mr. Jason Thompson,
Operations Supervisor,

Dr. Tim Trumbull
Adjunct Professor