

June 27, 2011

Prof. Sastry R Sreepada,  
Department of Mechanical, Aerospace and Nuclear Engineering,  
Building JEC- room 2032,  
Rensselaer Polytechnic Institute,  
110 8th Street  
Troy, NY 12180-3590

SUBJECT: RENSSELAER POLYTECHNIC INSTITUTE - ISSUANCE OF RENEWED  
FACILITY OPERATING LICENSE NO. CX-22 FOR THE RENSSELAER  
POLYTECHNIC INSTITUTE CRITICAL EXPERIMENTS FACILITY (TAC  
NO. ME1591)

Dear Dr. Sreepada:

The U.S. Nuclear Regulatory Commission (NRC) has issued renewed Facility Operating License No. CX-22 for the Rensselaer Polytechnic Institute Critical Experiments Facility in response to the application for renewal dated November 19, 2002, as supplemented by letters dated July 21, July 28, and September 3, 2008; June 28, August 31, October 14, and October 28, 2010; and February 14 and May 9, 2011. The renewed facility operating license is effective on the date of this letter and expires at midnight, 20 years from its date of issuance, unless terminated sooner.

In accordance with agency practice, the NRC has restated the license in its entirety, incorporating all changes and amendments made since the issuance of the original license. Enclosed with the renewed facility operating license is a copy of the safety evaluation report associated with the renewal. A Notice of Issuance of Renewed Facility Operating License No. CX-22 is being sent to the Office of the *Federal Register* for publication. The environmental assessment was sent to you under a separate cover letter.

S. Sreepada

- 2 -

If you have any questions regarding this action, please contact me at 301-415-2784 or by electronic mail at [William.Kennedy@nrc.gov](mailto:William.Kennedy@nrc.gov).

Sincerely,

**/RA/**

William B. Kennedy, Project Manager  
Research and Test Reactors Licensing Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

Docket No. 50-225

Enclosures:

1. Facility Operating License No. CX-22
2. Safety Evaluation Report

cc: See next page

Rensselaer Polytechnic Institute  
Critical Experiments Facility

Docket No. 50-225

cc:

Mayor of the City of Schenectady  
Schenectady, NY 12305

Tim Rice  
Chief, Radiation Section  
Division of Hazardous Waste and Radiation Management  
NY State Dept. of Environmental Conservation  
625 Broadway  
Albany, NY 12233-7255

Peter F. Caracappa, Ph.D, CHP  
Radiation Safety Officer  
NES Building, Room 1-10, MANE Department  
Rensselaer Polytechnic Institute  
110 8th St.  
Troy, NY 12180-3590

Mrs. Jessica Berry, RCF Supervisor  
NES Building, Room 1-10, MANE Department  
Rensselaer Polytechnic Institute  
110 8th St.  
Troy, NY 12180

Peter Collopy, Director EH&S  
Rensselaer Polytechnic Institute  
21 Union Street  
Gurley Building 2nd Floor  
Troy, NY 12180

Alyse Peterson, State Liaison Officer Designee  
Senior Project Manager  
Radioactive Waste Policy and Nuclear Coordination  
New York State Energy Research & Development Authority  
17 Columbia Circle  
Albany, NY 12203-6399

Test, Research, and Training  
Reactor Newsletter  
University of Florida  
202 Nuclear Sciences Center  
Gainesville, FL 32611

S. Sreepada

- 2 -

If you have any questions regarding this action, please contact me at 301-415-2784 or by electronic mail at [William.Kennedy@nrc.gov](mailto:William.Kennedy@nrc.gov).

Sincerely,

**/RA/**

William B. Kennedy, Project Manager  
Research and Test Reactors Licensing Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

Docket No. 50-225

Enclosures:

1. Facility Operating License No. CX-22
2. Safety Evaluation Report

cc: See next page

**DISTRIBUTION:**

PUBLIC PRTA r/f RidsNrrDprPrta RidsNrrDprPrtb RidsNrrDpr  
 RidsOgcMailCenter RidsNrrOd GLappert, NRR WKennedy, NRR  
 ACCESSION NO.: Package: ML111110663 Letter: ML111110670 Appendix: ML111110680  
 Enclosure: ML111110690 \*Input Provided by Memo ML103090096, \*\*Concurrence via e-mail

Office	PRLB:PM	Tech Editor**	PRLB:LA**	PFAB:BC*	OGC	PRLB:BC	DPR:D	NRR:D	PRLB:PM
Name	WKennedy	JDougherty	DBaxley	CRegan	NLOw/ changes SUttaI	JQuichocho	TMcGinty	ELeeds	WKennedy
Date	5/2/2011	4/15/2011	5/9/2011	12/9/2010	6/1/2011	6/13/2011	6/14/2011	6/27/2011	6/27/2011

**Official Record Copy**

RENSSELAER POLYTECHNIC INSTITUTE

DOCKET NO. 50-225

FACILITY OPERATING LICENSE

Renewed License No. CX-22

1. The U.S. Nuclear Regulatory Commission (“the Commission”) has found that:
  - A. The application for renewal of Facility Operating License No. CX-22 filed by the Rensselaer Polytechnic Institute (“the licensee”) dated November 19, 2002, as supplemented by letters dated July 21, July 28, and September 3, 2008; June 28, August 31, October 14, and October 28, 2010; and February 14 and May 9, 2011, (“the application”), complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (“the Act”), and the Commission’s rules and regulations set forth in Title 10, Chapter 1, of the *Code of Federal Regulations* (10 CFR);
  - B. The facility will operate in conformity with the application as amended, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance that (i) the activities authorized by this license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission’s regulations;
  - D. The licensee is technically and financially qualified to engage in the activities authorized by this license in accordance with the rules and regulations of the Commission;
  - E. The applicable provisions of 10 CFR Part 140, “Financial Protection Requirements and Indemnity Agreements,” have been satisfied;

- F. The issuance of this license will not be inimical to the common defense and security or to the health and safety of the public;
  - G. The issuance of this license is in accordance with 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," of the Commission's regulations and all applicable requirements; and
  - H. The receipt, possession and use of byproduct, source, and special nuclear materials as authorized by this license will be in accordance with the Commission's regulations in 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," 10 CFR Part 40, "Domestic Licensing of Source Material," and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material."
2. Accordingly, Facility Operating License No. CX-22 is hereby renewed in its entirety to read as follows:
- A. This license applies to the Critical Experiments Facility (herein "the facility") owned by the Rensselaer Polytechnic Institute, located in Schenectady, New York, and described in the licensee's application for license renewal, as supplemented.
  - B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses the Rensselaer Polytechnic Institute as follows:
    - 1. Pursuant to subsection 104c of the Act, and 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to possess, use, and operate the facility as a utilization facility in accordance with the procedures and limitations described in the application and set forth in this license.
    - 2. Pursuant to the Act and 10 CFR Part 70, the following activities are included:
      - a. to receive, possess, and use, in connection with operation of the facility, up to 21.12 kilograms of contained uranium-235 in SPERT (F-1) fuel pins;
      - b. to receive, possess, and use, in connection with operation of the facility, up to 4.8 kilograms of contained uranium-235 in uranium fuel in the form of low enriched (4.8 weight percent or less) light water reactor type fuel of typical power reactor design

- c. to receive, possess, and use, in connection with operation of the facility, up to 80 grams of contained plutonium in the form of plutonium-beryllium neutron sources;
  - d. to receive, possess, use, but not separate, in connection with operation of the facility, such special nuclear material as may be produced by operation of the facility; and
- 3. Pursuant to the Act and 10 CFR Part 40 to receive, possess, and use, in connection with operation of the facility, up to 6 kilograms of depleted uranium and up to 100 grams of natural uranium.
  - 4. Pursuant to the Act and 10 CFR Part 30, to receive, possess, and use, in connection with operation of the facility, such byproduct material as may be produced by operation of the reactor, which cannot be separated except for byproduct material produced in non-fueled experiments.
- C. This license shall be deemed to contain and is subject to the conditions specified in 10 CFR Parts 20, 30, 40, 50, 51, 55, 70, and 73 of the Commission's regulations; is subject to all applicable provisions of the Act, and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:
- 1. Maximum Power Level

The licensee is authorized to operate the facility at steady state power levels not in excess of 100 watts (thermal).
  - 2. Technical Specifications

The Technical Specifications contained in Appendix A are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. Physical Security Plan

The licensee shall fully implement and maintain in effect all provisions of the physical security plan approved by the Commission and all amendments and changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p), respectively. The approved plan, which is exempt from public disclosure pursuant to the provisions of 10 CFR 73.21, is entitled, "Security Plan, RPI Reactor Critical Facility (RCF), License No. CX-22, Docket No. 50-225," dated January, 1987, as amended by licensee letters dated February 5, and June 9, 1987.



- D. This license is effective as of the date of issuance and shall expire at midnight twenty years from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation

Attachment:  
Appendix A, Technical Specifications

Date of Issuance: June 27, 2011