



Rensselaer Polytechnic Institute Troy, New York 12181

March 1, 1983

Director, Region I
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

Re: Annual Operating Report
License CX-22
Docket 50-225

Dear Sir:

This report is submitted as required by the Technical Specifications for the Rensselaer Polytechnic Institute Critical Experiments Facility for the period March 1, 1982 to March 1, 1983.

Through periods January, 1982 to May, 1982 and July, 1982 to August, 1982 the Facility was used to conduct a graduate level course on reactor experiments for classes of 11 to 4 students respectively. The facility was also used for 2 weeks in July and August to conduct an operational reactor Physics and Engineering Course for 6 engineers from Northeast Utilities. Further, one student was involved in project work at the Facility to satisfy degree requirements. The reactor experiments course is currently being taught to 15 students and one student is working on a Master's project. Two Master's projects were completed during the report period.

Routine scheduled maintenance was performed in June, January and February.

The experiments, operations, and topics covered in association with the use of the facility remain the same as described in previous reports.

All activities and experiments have been conducted in accordance with our NRC reactor license CX-22. There have been no changes to our Technical Specifications and our activities did not involve any unreviewed safety questions.

Specific references to Technical Specifications section 6.6.1 are as follows:

- a.1 The reactor parameters affecting reactor performance remain within the license limits for the new core configuration. Each of the reactor parameters has changed in a conservative direction from the standpoint of the Design Basis Accident.

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- a.2 Required tests and inspections were completed with satisfactory results.
- a.3 There have been no changes, tests, or experiments which required authorization from the NRC pursuant to 10CFR50.59(a).
- a.4 The Nuclear Safety Review Board includes: Dr. R.T. Lahey, Jr. Dr. D.R. Harris, Dr. F.E. Wicks, Dr. J.M. Wu, Dr. M. Becker, Dr. O.C. Jones Jr., Dr. R.C. Block and Mr. R.M. Ryan.

b. Power Generation

Power level is generally controlled to less than 10 watts at steady-state. Critical operation is generally conducted less than 2-hours per day. The reactor was operated less than 45 days during the report period. Therefore, a conservative overestimate of the integrated reactor thermal power for this report period is 0.9 kilowatt-hours.

c. Shutdowns -

- 1. Linear Power Channel 1 - total 4
 - a. Range high level exceeded - operator action - 2
 - b. Instrument malfunction - 2
- 2. Linear Power Channel 2 - total 7
 - a. Range high level exceeded - operator action 4
 - b. Instrument malfunction - 3
- 3. Log N and Period Channel 1 - total 4
 - a. High Range - operator action - 1
 - b. Instrument malfunction - 5
- 4. Log N Period Channel 2 - total 11
 - a. High Range - operator action - 1
 - b. Instrument malfunction - 10
- 5. Door Bypass - total 2
 - a. Operator error - 1
 - b. Malfunction - 1

d. Maintenance -

- 1. The Log N and Period Channel 2 - repaired.
- 2. Repaired air monitor amplifier.
- 3. Repaired heating system.
- 4. Repaired Period Recorder by replacing amplifier tube.

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5. Repaired safety amplifier by replacing tubes.
 6. Repaired 3 area gamma monitors by replacing tube.
 7. Repaired air compressor by replacing belts.
- e. There were no changes, tests or experiments carried out without prior NRC approval.
- f. There were no radioactive effluents released or discharged to the environs.
- g. Radiation Monitoring -

The environmental monitoring program yielded the following summary of TLD doses taken at the exclusion area boundary and the site boundary.

<u>Station No.</u>	<u>Dose (Rem)</u>
3 Exclusion Area Boundary	.023
4 " " "	.092
5 " " "	.077
6 Site Boundary	.089
7 Control (GE Guard Station)	.037

- h. Radiation Exposure

Facility personnel exposures were all less than 500 mRem for the report period.

All activities and experiments were conducted in accordance with License CX-22.

Sincerely yours,

Frank Wicks

Dr. Frank Wicks, Supervisor
Critical Experiments Facility
L. David Walthousen Laboratory

D.R. Harris

Dr. Donald R. Harris, Director
Critical Experiments Facility
L. David Walthousen Laboratory

FEW:cap

cc: R.T. Lahey, Jr.
R.E. Scammell