50-199

FACILITY OPERATIONS REPORT
MANHATTAN COLLEGE ZERO POWER REACTOR (MCZPR)

9/1/84 - 8/31/85

This report has been prepared in accordance with the requirements of paragraph 6.6.1 "Reports" of the Technical Specifications for the MCZPR to summarize facility operations for the annual reporting period ending 8/31/85.

1.0 Summary of Reactor Operating Experience

The MCZPR, whose operating license No. R-94 was renewed for 20 years on March 26, 1985, is used for undergraduate teaching and licensee training. There have been no major changes in the reactor operating procedures since initiation of operations in 1964. The MCZPR is licensed for a maximum 0.1 Watt steady power rating, and thus the operating procedures are considerably less complex than for other research and test reactors. In summary, the sequence of major steps leading up to reactor operations is;

(1) Prior to startup, the reactor console check out is performed and the results recorded in the log book.

(2) If the console check out is satisfactory, the reactor console power circuit breaker and the instrument power switches are turned on.

(3) Calibration procedures are then conducted prior to all operating sequences. In the control system, meters, monitors and recorders are calibrated and in the water purification system the water level is checked and maintained at the prescribed 7-foot height from the bottom of the reactor tank.

8510170383 850831
PDR ADOCK 05000199
R PDR

A020
1/1

(4) Immediately after the calibration process, instrument readings are recorded in the log book, and the control power switch and reactor switch are turned on.

(5) Upon completion of this preoperational sequence, the record is dated and initialed on the recorder chart, and the reactor startup process is initiated.

Currently, and during the reporting period, the MCZPR is being used primarily for teaching purposes. A total of 10 experiments are conducted using the reactor which are cyclically run by 3-4 student groups in 2 academic semesters. In addition, operational training is offered to applicants who are preparing for the reactor operator's license examination. During the 1984-85 period, 5 senior reactor operator candidates from the Power Authority of the State of New York (PASNY) and 1 Manhattan College trainee participated in the training program at the MCZPR facility. Two of our experimental procedures, "Startup and Operational Procedures", and "Approach to Criticality" were performed more than 50 times during the training program. The MCZPR has been shown to be quite adequate as a training vehicle to prepare for the NRC's license exam in addition to the basic instructional use it provides.

During the 1984-85 reporting period, changes were made in the personnel administering and operating the facility as follows:

Reactor Administration - Dr. Robert Berlin
Department of Mechanical Engineering

Chief Reactor Supervisor - Dr. Jih-Perng Hu
Department of Mechanical Engineering

Reactor Supervisor - Bro. Gabriel Kane, F.S.C.
Department of Physics

2.0 Unscheduled Shutdown

There were no unscheduled shutdowns during the 1984-85 reporting period.

3.0 Major Prevention and Corrective Maintenance Operations With Safety Significance

There were no major preventive and corrective maintenance operations aside from the routine replacement of the water filter and resin in the demineralizer.

4.0 Major Changes In Reactor Facility and Procedures and Development of New Tests

There have been no major changes in the reactor facility nor the procedures. Furthermore, there were no new tests or experiments performed during the 1984-85 reporting period that were significantly different from those performed previously and described in the Safety Analysis Report (SAR).

5.0 Results of Radiation Surveys

Radiation surveys were conducted by the Health Physicist during October 1984, and April 1985 and verified by the Reactor Operations Committee and the Radiation Safety Officer. Radiation measurements in air samples and water samples were <0.005 μCi/ml for both surveys. In addition wipe tests (moist filter paper) taken at selected locations in the lecture room, counting room, MCZPR room, and of the sources showed levels <0.005 μCi/mg removable activity. These results were consistent with activity levels measured at the locations during prior years, and are essentially negligible.

6.0 Summary of Radiation Exposures

In no instance have either facility personnel or visitors received exposures greater than 25 percent of that allowed or recommended. Based on a whole body investigative level of 125 mrem/quarter (level I), the maximum quarterly exposure received during the reporting period by any individual was 8% of the investigative level. The exposure levels are obtained monthly through film badge readings and validated by quarterly reviews by the Radiation Safety Officer.

Manhattan College

MANHATTAN COLLEGE PARKWAY
BRONX, NEW YORK 10471
(212) 548-1400

MECHANICAL ENGINEERING DEPARTMENT

October 10, 1985

U.S. Nuclear Regulatory Commission
Region I Office
631 Park Avenue
King of Prussia, Pennsylvania 19406

Docket No. 50-199

Dear Sirs:

Attached is the annual Facility Operations Report for the Manhattan College Zero Power Reactor (MCZPR) covering the period from 9/1/84-8/31/85. We trust it provides all the desired information.

Very truly yours,

Robert E. Berlin
Reactor Administrator

REB/pem

cc: Director, Office of Nuclear Reactor Regulation
Nuclear Regulatory Commission
Washington, D.C. 20555

A020
1/1