

# University of Maryland

Department of Chemical and Nuclear Engineering  
COLLEGE PARK, MARYLAND 20742

July 23, 1984

Dr. Robert L. Tedesco  
Division of Licensing  
Office of Nuclear Reactor  
Regulation - Region I  
King of Prussia, PA 19406

50-266

Dear Dr. Tedesco:

This annual report is submitted in accordance with the requirements set forth in our Technical Specifications for the Maryland University Training Reactor. This report covers the time period from June 30, 1983 through June 30, 1984.

## A. Summary of Operation Experience

No major difficulties were encountered with the reactor during this reporting procedure. We continued to provide reactor service to the Nuclear Engineering courses, primarily, ENNU 320- Nuclear Engineering Technology. This service utilized the reactor five afternoons a week and two (2) hours on Saturday morning.

A significant amount of the reactor operation time was in support of a Chesapeake Bay Oyster-Radioisotopic analysis program.

The DOE "Reactor Sharing Program" was renewed at the same level of effort, for this period. This enabled us to use about five (5) students, on a part-time basis, to support the reactor operation.

Effort was directed toward:

- (a) Revision of Procedures
- (b) Development of new Reactor experiments relating to the Reactor Sharing Program.

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No major changes were made to the reactor during this year.

## B. Reactor Operations

During the period 30 June 1983 through 30 June 1984 the reactor was operated 148 times and produced a total of 12 megawatt-hours of energy.

## C. Equipment Surveillance and Tests

Control rod calibration and drop time were performed. No significant changes from previous measurements were observed.

| <u>Results:</u> | <u>Drop Time</u> |                     |
|-----------------|------------------|---------------------|
|                 | <u>Time</u>      | <u>Rod Position</u> |
| Shim I          | 0.720 Sec.       | 100% to 0%          |
| Shim II         | 0.675 Sec.       | 100% to 0%          |
| Reg. Rod        | 0.580 Sec.       | 100% to 0%          |

| <u>Rod Calibration</u> |                        |
|------------------------|------------------------|
|                        | <u>Total Worth, \$</u> |
| Shim I                 | 2.82                   |
| Chim II                | 3.00                   |
| Reg. Rod               | 2.46                   |

7-18-83

The regulation rod motor drive and supporting equipment were removed for inspection. The brass gear in the servo section was found to be defective. It was replaced. The noise associated with the reg rod in automatic mode disappeared.



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6-6-84

The accuracy of the conductivity probes in the demineralizer system was checked and found to agree with standard solution measurement.

All radiation monitors were checked and calibrated on a monthly basis.

D. Emergency Shut-down and Scrams

No emergency shut-down or scram occurred during this operating period.

E. Maintenance Items

2-24-83

Replaced bad cooling fan in radiation area monitoring system.

3-4-83

Replaced a transistor in driver board in log amplifier circuit.

5-14-84

Replaced ground strap to console. Repaired electrical connectors in pre-amp located on bridge and replaced high voltage connectors.

6-26-84

Replaced water filter in primary water system. No radioactivity found in filter. Flow rate increased from 170 Kg/min to 325 Kg/min (original valve).

June 1983

Check valves installed in secondary water



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system between heat exchange and source. One was. Also installed between the city water source and the demineralizer in the make up water system.

- F. A summary of the nature and amount of radioactive effluents released or discharged to the environment and or radioactive waste shipped off site for disposal.

During this reporting period no waste water containing any measurable radioisotope was discharged to the sewage system. In addition, monthly air samples were taken in the reactor area. The samples contained no activity greater than background.

- G. Radiation Exposures

In the period June 30, 1983 through June 30, 1984, approximately 447 people visited the reactor facility. This is in addition to the badged personnel taking reactor courses and operating personnel. In all cases the radiation received was negligible. Floor and area wipes have been routinely carried out with the results that any contamination was far below the maximum permissible level.

- H. Changes to the Facility on Procedures, Tests, and Experiments

All procedures have been reviewed and the following revised:

SP-200, 202, 203, 204, and 205. Additional surveillance procedures 206 and 207 have been added. O.P. - 100 has been added.

RLB:ga

Sincerely,

*Ralph L. Belcher*  
Ralph L. Belcher  
Nuclear  
Reactor  
Director



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