



DEPARTMENT OF VETERANS AFFAIRS
 Medical Center
 4101 Woolworth Avenue
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January 27, 1994

In Reply Refer To: 636/151

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

SUBJ: 10 CFR 50.59 Report -

REF: License R-57

1. The following report is submitted for the period January 1, 1993, to December 31, 1993, in accordance with Paragraph 50.59, Title 10, Code of Federal Regulations.
2. During the above period there were no changes in performance characteristics or tests which require inclusion in the annual report.
3. The quarterly fuel element surveillance tests indicate that the inspected elements are in good condition.
4. The energy generated by the reactor during the reporting period was as follows:

January, 1993	774.63	KW-hours
February	555.00	
March	1,304.40	
April	1,878.90	
May	1,764.30	
June	1,563.90	
July	1,170.30	
August	2,501.70	
September	2,428.20	
October	1,153.50	
November	1,368.90	
December	<u>1,956.60</u>	
	18,420.33	KW-hours

5. During the report period there were 7 unscheduled shut downs. Three of the shut downs were caused by noise spikes in the hospital power, one by the loss of hospital power, one by noise in the NM 1000, and one by a short in the Reg Rod drive. The seventh scram was caused by experimenting to see at what power the Reg Rod should be lowered from 640 in order to reach 18 kW when the reactor was loaded with 40 samples prior to start-up.

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6. Maintenance problems and the corrective maintenance performed were as follows:

- a. Noise in the NM 1000 caused a period scram. The problem was corrected by tightening the grounding lock nut on the fission counter.
- b. Pneumatic tube vacuum cleaner motor failed. The malfunction was caused by a broken brush which caused the brush to heat up and trip the thermal protect. The brush was replaced.
- c. The sample grapple would not release samples. The problem was corrected by cleaning the contacts.
- d. Leak in receiver of pneumatic tube. The leak was repaired with epoxy and a titanium patch.
- e. The linear recorder suddenly drove negative while the reactor was at 18 kW. (the recorder reading is merely a visual aid since all reactor control is done with the NM 1000 and the independent per cent power unit). All readings on the Burr-Brown microterminal, the per cent power meter and the recorder log recorder were reading properly. The problem was determined to be a latch-up of the voltage to current converter that drives the liner recorder pen. This converter is independent of the scrams. Turning off and re-booting the computer solved the problem.
- f. During the control and interlock check prior to start-up, the safety down light extinguished when 2 rods were withdrawn simultaneously. Physical observation showed that the rod was still down. An adjustment of the rod down foot that controlled the microswitch in the rod drive mechanism solved the problem.

7. Summary of radioactive effluents released or discharged beyond the effective control of the license:

- a. Liquid - none
- b. Airborne - less than 0.1 Ci.
- c. Solid - none

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9. The reactor continues to be used as a neutron source for neutron activation analysis of biological samples and for hot atom chemistry research. In addition the reactor is being used for training Fort Calhoun Station Power Reactor Operators.



JOHN J. PHILLIPS
Director

cc: Region IV Office of Inspection and Enforcement