

The University of Utah TRIGA Reactor  
Annual Operating Report  
July 1, 1982 to June 30, 1983

A. NARRATIVE

1. Operating Experience

The reactor was critical 70.55 hours and produced 4475.4 kWh of power. The TRIGA was used for laboratory teaching, system tests, power measurements, as sample irradiations.

2. Changes in Facility Design

No changes in facility design were made during the reporting period.

3. Surveillance Tests

a. Control Rod Worth

Core Configuration #14

9 August 1982

Safety	\$1.66
Shim	\$1.61
Reg	\$ .43
Excess Reactivity	\$1.39
Shut Down Margin	\$ .65

Core Configuration #14

1 February 1983

Safety	\$1.69
Shim	\$1.55
Reg	\$ .43
Excess Reactivity	\$1.30
Shut Down Margin	\$ .68

Core Configuration #15

3 March 1983

Safety	\$1.76
Shim	\$1.33
Reg	\$ .38
Excess Reactivity	\$1.05
Shut Down Margin	\$ .66

Core Configuration #15

19 May 1983

Safety	\$1.70
Shim	\$1.23
Reg	\$ .46
Excess Reactivity	\$1.11
Shut Down Margin	\$ .58

b. Control Rod Inspection

The biennial control rod inspection is scheduled for January, 1984. Rod drop times were measured 8/9/83, 2/1/83, 3/3/83, and 5/19/83. All rod drop times were found to be less than .5 seconds.

c. Reactor Power Level

Calorimetric power calibrations were performed 8/4/82, 8/27/82, and 2/8/83. The following results were obtained.

<u>Date</u>	<u>Meter</u>	<u>Actual</u>
8/4/82	80 kW	46 kW
8/27/82	84 kW	82 kW
2/3/83	80 kW	26 kW

The differences between meter and actual readings occur because of core configuration changes and channel calibrations.

d. Fuel Inspection

Biennial fuel inspection is scheduled for January, 1984.

e. Fuel Temperature Calibration

Fuel temperature circuits were calibrated 8/2/82 and 2/23/83. The circuits were calibrated to less than 5°C error over the range 0°C to 500°C.

B. ENERGY OUTPUT

The reactor was critical for 70.55 hours and produced 4475.4 kWh of energy. The total hours operated since initial criticality is 639.24 hours and the total energy produced is 23888.4 kWh.

C. INADVERTANT SCRAMS

<u>Number</u>	<u>Type</u>	<u>Cause</u>	<u>Action</u>
5	Power Supply	Voltage drop to ion chamber power supply	Initial: restart or terminate Final: repair scram relay
2	Linear Recorder	Scale shift signal spike	Caution trainee on proper scale shift
1	Linear Recorder	Signal spike (source unknown)	Restart
1	High Log	Calibration	Restart
1	Linear Recorder	x-y plotter feedback	Restart
1	Not classified	Weak Magnet	Increase magnet current Restart

#### D. MAJOR MAINTENANCE

A new floor mounted recirculator pump was installed in the demineralizer system in September, 1982.

Ventilation damper solenoids were replaced March 1983.

Heavy water tanks drained and cleaned April-May, 1983. Tanks were reinstalled after procedure.

#### E. CHANGES PURSUANT TO 50-59

The "Procedure to Change Tank Water" was changed, then reviewed and approved by the Reactor Safety Committee.

#### F. RADIOACTIVE EFFLUENTS

1. Liquid Waste - None
2. Gaseous Waste - Negligible

The TRIGA was run for 4475.4 kWh at powers to approximately 80 kW. At this level Ar-41 production is negligible. Our stack monitor will detect 33% of 10 CFR 20 Table I for Ar-41 and we have seen nothing in the monitor.

3. Solid Waste - None

#### G. RADIATION EXPOSURES AND SURVEYS

<u>Name</u>	<u>Dose</u>
G.M. Sandquist	Minimal (less than 10 mrem, gamma and x-ray)
K.C. Crawford	Minimal
K. Farid	Minimal
Control :	10 mrem

No staff member received more than 100 m rem/yr. No visitors received a measurable dose. Monthly surveys have indicated no contamination.

#### H. ENVIRONMENTAL SURVEY

Environmental surveys have been taken continuously since construction of the reactor and the latest report of 12 October 1982 has identified no measurable increase in radiation. The Protection Agency installed an air monitoring station outside the reactor building two years ago. The system monitors tritium in moisture, noble gases, gamma radiation, and particulates. Information from this station has indicated no unusual changes in radiation.

Prepared by Kevan Crawford  
Senior Reactor Engineer

Approved by Harold K. [Signature]  
Reactor Administrator

THE  
UNIVERSITY  
OF UTAH

DEPARTMENT OF  
MECHANICAL AND  
INDUSTRIAL ENGINEERING  
MEB 3008  
SALT LAKE CITY, UTAH 84112

1 September 1983

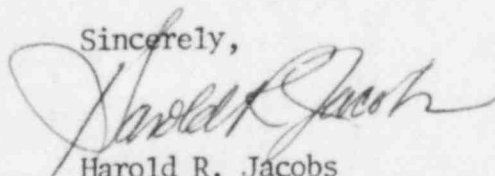
Director  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Director:

Enclosed you will find a copy of the Annual Operating Report for The University of Utah TRIGA reactor covering the period from July 1, 1982 to June 30, 1983.

If you should have any questions concerning the report please let me know.

Sincerely,



Harold R. Jacobs  
Reactor Administrator

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Enclosure

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