

SEMI-ANNUAL THERMOCOUPLE CALIBRATION PROCEDURE

Objective: To insure the TRIGA fuel temperature safety-limit setting is maintained at its proper value and the thermocouple system is operating properly (Technical Specification 4.2(2)).

- Procedure:**
1. Disconnect thermocouple input #3* and attach the Leeds and Northrup millivolt potentiometer (ME176 or equivalent) with -EMF to centertap of the BNC connector and the +EMF to the ground side of the connector.
 2. Input 0.80 mV and record the "as found" temperature and zero setting below.
Indicated Temperature (as found): _____ °C Zero set @ _____
Input 20.65 mV and record the "as found" temperature and gain setting below.
Indicated Temperature (as found): _____ °C Gain set @ _____
 3. Input 0.80 mV and adjust the zero so that the meter reads 20°C.
Zero set to _____
Input 20.65 mV and adjust the gain so that the meter reads 500°C.
Zero set to _____

4. Repeat steps 2 and 3 until readings are maintained.

	0.80 mV Input		20.65 mV Input	
	Temperature	Zero Setting	Temperature	Gain Setting
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____

5. Input the following voltages and record the meter readings.

Millivolts	Expected Temperature	Indicated Temperatures		
		TC#1	TC#2	TC#3
0.80	20°C	n/a	n/a	_____
4.10	100	n/a	n/a	_____
8.13	200	n/a	n/a	_____
12.21	300	n/a	n/a	_____
16.40	400	n/a	n/a	_____
20.65	500	n/a	n/a	_____

7. Check the scram point by setting the meter limit indicator and slowly increasing the potentiometer voltage until a scram is achieved.
Scram at: _____ mV Indicated Temperature: _____ °C
8. Recalibrate scram set point if necessary. (Scram @ 200°C.)
Scram at: _____ mV Indicated Temperature: _____ °C
9. Disconnect the potentiometer and reconnect the thermocouple inputs.
10. Measure the temperature of the tank water: _____ °C (use a non-mercury thermometer)
11. Fuel temperature indications:
TC #1: _____ °C TC #2: _____ °C TC #3: _____ °C
(Fuel temperature and tank-water temperature should agree within 5°C or ground loop problems may exist.)

12. Core Configuration Number: _____
Instrumented Fuel Element Location: _____

13. Date calibration completed: _____

14. Senior Operator signature: _____

* Throw meter short switch before disconnecting, connecting test leads, or changing thermocouple select switch.

Form approved by Reactor Safety Committee:

Reactor Administrator: *Mitchell R. Schmidt* Date: May 25, 1988