CONTROL ROD MOVEMENT OR REPAIR PROCEDURE

Objective: To move the control rods in a safe manner while insuring that the reactor remains in a subcritical configuration.

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- Procedure: 1. Check out the reactor using TRIGA Preliminary Check Sheet (Form NEL-001 B.1).
 - Remove fuel elements from selected rings which have total reactivity worth at least \$0.50 greater than the total worth of all control rods. List the order of removal and storage positions.
 - Preplanned Fuel Movement Sequence

FUEL ELEMENT STORAGE POSITION REACTIVITY WORTH 2. 4 Interesting or statement wateress in a sector statement of the statement of the state provide state ------5. and a second sec 6. 7. and the state of t 8. a bella interresent contacto de constitución de TOTAL WORTH OF FUEL REMOVED TOTAL CONTROL ROD WORTH

 Insert cadmium plug into the central irradiator (worth > \$1.00).

DIFFERENCE (> \$0.50)"

- Withdraw the most reactive rod, not being moved, to its fully up position. An operator must be at the console during all procedures involving positive reactivity insertions.
- Loosen securing bolts of desired rod and remove from its present position. Following maintenance activity, replace control rod in original core position or locate in new preplanned core position. Record all control rod movements below and in the Operations Log.

| Control Rod | Core Position | Moved to | Final Core Position |
|-------------|---------------|------------------------|---|
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- Repeat steps 4 and 5 if other control rods are removed. Enter N/A above as necessary for control rods not affected by this procedure.
- 7. Check rod drive cables for proper tension. Drive control rod

Form NEL-014 Sheet 2 RSC Approval: 5/25/88

servo-mechanism to check for freedom of movement.

- 8. Withdraw the safety rod to its up position.
- 9. Remove the cadmium plug.
- 10. List all fuel movements to reestablish the core in the critical configuration. (Note: some control rod locations will necessitate adding more fuel than was taken out; therefore, an operator must monitor the power and approach to critical measurements taken to insure that the reactor will be subcritical by > \$.50 when all rods are inserted.

Preplanned Fuel Movement Sequence

| | FUEL ELEMENT | STORAGE POSITION | CORE POSITION |
|-----|--|--|--|
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 Perform rod worth calibrations using the rod drop procedure (Form NEL-003).

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| Safety Shim-saf Regulatin | |

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Core Specifications

Shut Down Margin Excess Reactivity

| \$ | (> \$.50)* |
|-----|------------------------------|
| \$i | _(> \$.50)* _(< \$2.80)** |

- 12. Date procedure started:
- 13. Date procedure completed:
- 14. Senior Operator approval:

* Required by Technical Specification 3.2(1). ** Required by Technical Specification 3.2(4).

Form approved by Reactor Safety Committee:

| Reactor Administrator | Autrich Black which | Date | May 25.1988 |
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