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HW-75590

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GENERAL ELECTRIC

HANFORD ATOMIC PROJECTS OPERATION - RICHLAND, WASHINGTON

DATE
November 14, 1962

TITLE

PCA #2-142

EXCESSIVE VSR'S OUT OF SERVICE, B REACTOR

AUTHOR

A. K. Hardin

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By Authority of CG-PR-2, EXPIRES: FIRST MINIMUM OUTAGE
D. S. Harris, 3-15-94.
By Gerri Maley, 4-4-94.
Verified By J. E. Savely 4-15-94

O. H. Greager, Manager
Research & Engineering Section

W. J. Ferguson, Manager
R-3 Reactor Operation

PROCESS CHANGE AUTHORIZATION #2-242

EXCESSIVE TRIPS OUT OF SERVICE, B REACTOR

- Refs: 1. Process Standard 1-001, Section 90.01 B, HW-46000 B
2. Process Standard 1-001, Section 100.01, HW-46000 B
3. Process Standard 1-030, Section 130.01, HW-46000 B
4. Process Standard 1-030, Sections 140.02 and 140.03, HW-46000 B.

The reference Standards specify the number of VSRs necessary to meet speed, and total control requirements under operating and shutdown conditions respectively. During operation, two VSRs are permitted out of service while during shutdown, two may be out of service without restrictions, only for the first eight outage hours.

For approximately two weeks prior to the current outage, #35 VSR had been tied out as a result of a channel obstruction. On November 2, 1962, inspection revealed a segment of graphite partially blocking VSR channel #35. During the current outage on November 14, 1962, a test of VSR drop times showed that #37 VSR dropped only 10 feet before an obstruction was met, while #21 VSR dropped approximately 100 feet of travel before it stopped.

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Authorization was verbally given at 3:00 p.m., November 14, 1962, to resume operation with VSR's 35 and 37 tied out, and VSR 21 in service, but scrammable to only 80% of its normal travel. The authorization was contingent upon the following requirements:

1. Rod Repairs - Rehabilitation of VSR channels 21, 35 and 37 will be initiated on the next minimum outage. As a minimum requirement, work will be done on at least two channels in an effort to meet all requirements of Process Standard C-090.

2. Speed of Control

- a. Maximum permissible power level, 1900 MW at equilibrium.
- b. Flux squared weighted exposure at equilibrium, between 400 and 600 MWD/T.
- c. Power levels during startup shall not exceed those values permitted for the graphite temperature at any specific time as defined on the accompanying curve in this PCA. Flux squared weighted exposure for startup $\leq$ 400 MWD/T.

3. Total Control

- a. During the first 8 outage hours following the next reactor shutdown, before lock bars are installed on ball hoppers; 2 splines must be charged in columns 56, 57, or 58 and between rows 8 and 14.

If VSR #21 is to be removed from the reactor, spline charging shall be done according to Process Standard C-100, Section 100.02.

- b. After 8 hours, while lock bars are on ball hoppers, 10 splines must be charged for VSR #35 and 10 splines for VSR #37 while these rods are out of the reactor. Spline charging shall be done according to Process Standard C-100, Section 100.02.

This PCA was verbally authorized at 3:00 p.m. on November 14, 1962, and will expire on the first minimum outage.

APPROVED:

R. W. Reid, Manager
Process Technology Sub-Section

J. W. Baker, Manager
B Processing Operation

FWR:AKH:MEL:gz

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POWER LEVEL VERSUS GRAPHITE STRINGER TEMPERATURE

BASIS

1. Flux squared weighted exposure for startup ≤ 400 MWD/T.
2. VSR's 35 and 37 tied out.
3. VSR 21 in service but drops only 80% of its normal travel.
4. VSR system drop time 2.3 seconds, maximum.

Average of the Maximum Graphite Temperature on
Each Stringer in °C.

DATE

FILMED

8/17/94

END