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SPEED-OF-CONTROL LIMITS FOR H REACTOR

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This document classified by:

R. Nilson

April 30, 1964

This document consists of
2 pages.

Classification Cancelled and Changed To

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R. W. Reid, Manager
Process Technology
1704-D, 100-D Area

By Authority of DS Lewis
CG-PR-2 4-14-94
By J. E. Savely 4-19-94
Verified By Jerri Mahaley
4-19-94

SPEED-OF-CONTROL LIMITS FOR H REACTOR

- Refs: 1) HW-63157, "Parametric Analysis of Hanford Speed-of-Control Criterion," R. Nilson, R. E. Tiller, and J. C. Peden, July, 1961.
- 2) HW-55500 RD, "Technical Bases for Standards," Staff of Process and Reactor Development Sub-Section, April 1, 1960.

Due to the irregular flux pattern in the top portion following the April 19 startup of H Reactor, speed-of-control limits were evaluated to include the effects of the accompanying decreased worth of the vertical safety rod system.

The worth of the VSR system for the skewed flux condition was calculated to be 60 per cent of the normal strength. For the calculations, the skewed flux condition was assumed uniform from the top of the reactor to the bottom, which is conservative. Prior work in this field (Reference 1) shows that such a reduction in the VSR system worth imposes at most a 20 per cent compensating reduction in permitted power level for a given reactivity gain upon water loss.

For the record, there would have been no reduction in equilibrium power (Administrative Limit) necessary up to an exposure of 400 Mwd/t for speed-of-control requirements. Limits which should have been followed for startup are shown in the table below. It is our understanding that the startup limits were not exceeded.

MASTER

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R. W. Reid

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Graphite Temperature,
Flux-Squared Weighted

Power Level,
% of Administrative Limit

20	34.9
50	38.3
100	46.9
150	61.2
200	71.8
300	96.6
400	100.0
500	100.0

JP Hamric

Reactor Physics Unit
Process and Reactor Development SS

R Nilson

Approved: R. Nilson, Supervisor
Reactor Physics Unit
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