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HW-57497

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This document consists of
2 pages. ~~Series A~~

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By Authority of CG-PR-2
DS 4445 10-12-90
Am Eick 2-8-93
JN Wells 2-8-93

September 17, 1958

R. G. Clough - Manager
B Processing Operation

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RECOMMENDED TUBE FLOW LIMITATIONS FOR B AND D PILE DOWNCOMERS

Recent inspections of the DR Pile rear downcomer have revealed that some failure of the welds which support the downcomer trays is occurring. Dislodgment of a downcomer tray is not considered to be a reactor safety problem but in the event of tray failure further damage to the downcomer would be expected plus damage to those parts of the 105 building where the water or its vapor gained access. An analysis of the sequence of events and possible damage to be expected in the event of tray failure is being prepared by SS Jones of Process And Reactor Development Operation. It is believed that the magnitude of possible damage and probabilities of tray failure are sufficient that certain precautions are necessary to minimize the possibility of damage.

The downcomer at F Reactor was inspected on August 29, 1958. No evidence of damage to the trays was found. Because of the design of the B, D, F type downcomers more resistance to damage is expected than for the H, DR and C downcomers. Hence, at the present time, particularly at D Reactor, flows are being increased as I & E fuel elements are being loaded. Increased flows will increase the probability of downcomer tray failure or will decrease the time required to cause tray failure. Increased flows will also raise the level of the water in the downcomer. HW-56981 recommends that the water level at the bottom of the B and D downcomers should not exceed 9 psi to prevent excessive stresses on the downcomer walls.

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9/17/58

Based on the above, the following recommendations are made:

1. Process water flow rates may be increased to 78,000 gpm but that this flow rate be established as firm flow limit.
2. A downcomer inspection should be performed at at least one of the two reactors not later than three months and preferatiy not earlier than six weeks after a flow rate of about 78,000 gpm has been attained.
3. The flow limit of 78,000 gpm should be maintained until (2) above, is completed and until instrumentation has been installed to measure the level of water in the downcomer and favorable results are obtained from both actions.

Raising flows as recommended can not provide assurance that damage to downcomer trays will be prevented, but should allow detection of damage before tray failure occurs.

If you have questions concerning this problem, I will be glad to discuss them with you at your convenience.

R. W. Reid - Supervisor
Process Engineering Operation
Research & Engineering Operation
IRRADIATION PROCESSING DEPARTMENT

RWR:ga

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5 / 14 / 93