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FLOW TESTS OF PRODUCTION MODELS OF REACTOR
OUTLET REPLACEMENT HARDWARE

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8. FW Van Wormer
9. GE Wade
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To: N. F. Fifer

From: M. R. Kreiter

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By Authority of WA Snyder

CG-PR-2, 3-17-94

By MK Hanson 4-16-94

Verified By J. M. Maly, 4-18-94

FLOW TESTS OF PRODUCTION MODELS OF C-REACTOR
OUTLET REPLACEMENT HARDWARE

Hydraulic characteristics of the two production model "threadless" elbows which you submitted for flow testing have been determined. The two elbows differed in that one provided for a water thermocouple and an RTD (Dwg. H-1-13326, Pt. 1), while the other provided for a water thermocouple only (Dwg. H-1-13326, Pt. 2). Results of the flow tests and comparison with the pressure drop across the old style slip-joint type pigtail and threaded elbow are presented on the attached figure.

The highest flow resistance was offered by the elbow containing only the thermocouple and is described by Curve A. Slightly less flow resistance is offered by the production model of the elbow containing the thermocouple and RTD as shown in Curve C. Previously reported data^{(1)*} shown in Curve B, indicates slightly higher pressure losses for an assembly similar to the production model associated with the data presented in Curve C. Both production models exhibit a somewhat higher pressure loss than the old slip-joint type pigtail and threaded elbow, the demand characteristics of which are shown in Curve D. This increase in pressure loss will result in a central zone tube flow decrease of about 0.2 gpm and 0.5 gpm for the RTD-thermocouple elbow and the thermocouple only elbow respectively.

*(1) Letter from E. D. Waters to N. F. Fifer, dated 7-20-62

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N. F. Fifer

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12-4-62

Previous studies^{(2)*}, confirming the absence of critical flow at an outlet coolant temperature of 110 C and normal reactor rear header pressures, should also apply to the present studies in that the most restrictive components, (i.e. pigtail and rear header connector) were the same in both studies. For this reason the heated test was not repeated and the data for these tests were obtained only at coolant temperatures of about 15 C.

(2)* ibid

M.R. Kreiter
Engineer,
Thermal Hydraulics Operation
HANFORD LABORATORIES

MR Kreiter:gf

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