MASTER

INFORMATION CATEGORY

UnclassifiedK. L. Rièke 9/13/63
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Subject: Pressure Relief Holes in Nozzle End
of Inner ReflectorASTRONUCLEAR LABORATORY

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PROBLEM

Radial pressure relief holes are to be drilled at the nozzle end of the inner reflector to relieve the pressure on the low pressure side of the nozzle flange-inner reflector interface seal. These holes must be sized for a low pressure ratio to minimize the barrel lift-off and the leakage exit velocity.

CONCLUSIONS

There are to be 24 holes, 0.100 inches in diameter, located symmetrically around the circumference. At 100% power, this results in a calculated leakage flow rate of approximately 0.06 lbs/sec with a pressure ratio of 1.002 across the relief holes.

Tests have been initiated in the Fluid Flow Laboratory to determine the effectiveness of the seal as a function of the upstream pressure, temperature, and seal pressure drop. However, data is not yet available from these tests. Therefore, these holes have been sized assuming a 0.0001 inch total seal leakage gap all around.

The hole sizes are only specified for use in the ND101 and ND207 reactors. The aforementioned experimental data must be incorporated into the analysis before the hole sizes for ND102 will be specified.

SIGNED

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