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FINAL REPORT - RADIOMETALLURGICAL
EXAMINATION OF SELF SUPPORTED FUEL ELEMENTS
PT-IP-84-A (RM-400)

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- FINAL REPORT -

RADIOMETALLURGICAL EXAMINATION OF SELF SUPPORTED
FUEL ELEMENTS PT-IP-84-A (RM-400)

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FINAL REPORT

RADIOMETALLURGICAL EXAMINATION OF SELF SUPPORTED
FUEL ELEMENTS PT-IP-84-A (RM-400)

INTRODUCTION

During the examination of the first two elements received, some incipient corrosion pitting was found in the canwall under the support tabs.⁽¹⁾ To determine the seriousness of this pitting two other elements, pieces 9 and 17 from series 2R tube 1869B, which had been irradiated for 812 MWD/T, were selected for examination.

SUMMARY AND CONCLUSIONS

The canwall under the support tabs on pieces #9 and #17 was examined and no evidence of any corrosion was found that might seriously affect the canwall integrity.

DETAILS

Three of the supports on each element were sectioned longitudinally and the canwall under the support tabs was examined. The canwall under all the support tabs examined was free from any severe corrosion pitting. There was no evidence of any aluminum oxide deposit under the tabs which might promote an accelerated corrosion attack, as was found during the examination of the ruptured Doe elements under RM-402⁽²⁾. The Doe elements had a surface temperature of 315°C while the surface temperature of the I & E elements probably did not exceed 125°C. Although there might have been some localized overheating under the support tabs on the I & E elements, the conditions were not severe enough to damage the M-388 alloy canwall.

- References: (1) HW-62731 - Secret - Interim Report - Radiometallurgical Examination of Self Supported Fuel Elements PT-IP-84-A (RM-400)
- (2) HW-62953 - Confidential - Radiometallurgical Examination of Doe Element Failure Irradiated Under PT-IP-190-A (RM-402)

R. Teats, Engineer
Radiometallurgy Laboratory
MATERIALS DEVELOPMENT OPERATION

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Support

Canwall

Neg. #13487

50 X

Support

Canwall

Neg. #13486

50 X

Longitudinal sections through support tabs on
element #17 showing canwall on either side of
spot weld.