

AUG 22 1975

POOR ORIGINAL

50-346

Thomas M. Novak, Chief, Reactor Systems Branch, TR

DAVIS-BESSE I RADIOLOGICAL CONSEQUENCES OF RHR DESIGN BASIS ACCIDENT

With reference to your memo of Davis-Besse 1 RHR Design dated 8/20/75, RPS calculated the dose to personnel entering containment to open the bypass valve after single failure of one of the motor-operated isolation valves. In our calculations we have used an occupancy time of 10 minutes under no containment purge conditions and airborne radioactivity concentrations of noble gases based on 6.5 hours of leakage of 140 gal/min of maximum isotopic concentrations (1% failed fuel) reactor coolant water. Table I is a breakdown of source terms used and doses attributed to each radionuclide. The "k" factor in the table is based on a 20 meter radius hemisphere and is the fraction of the semi-infinite dose based on this finite radius. We have also tabulated the semi-infinite dose (last column in table) so that we could compare this result with the applicants apparent method of calculation.

Results show that the skin beta dose is 840 mrem and the whole body dose (which include the dose received to the lens of the eye) is 144 mrem. Thyroid dose calculations during containment occupancy were not made since the applicant plans on using Scott airpacks during this 10 minute operation. This work was performed by S. Block, RPS/RAB.

Submersion and inhalation doses were determined for individuals at the site boundary following purging of reactor containment. Table II shows the source terms used for these calculations. The 5 percentile X/Q (5.4×10^{-4} sec/m³) was used to evaluate this occurrence. The calculated adult total body dose, skin dose and dose to the thyroid for this release were 0.07, 0.1b and 24 rem respectively. This work was performed by M. Parsont and K. Eckerman, RIS/RAB.

Original signed by Jacob Kastner

Jacob Kastner, Chief,
Radiological Assessment Branch
Division of Technical Review

Enclosure:
As stated

cc: see next page

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| OFFICE → | TR:RA | TR:RA <i>OSE</i> | TR:RA | | |
| SURNAME → | SBlock <i>yes</i> | WKreger | JKastner <i>JK</i> | | |
| DATE → | 8/22/75 | 8/22/75 | 8/22/75 | | |

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AUG 22 1975

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