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COMMENTS ON "SAFETY ANALYSIS REPORT - SNAPTRAN 2/10A-1 SAFETY TESTS

NFI:CEB

The calculations of the off-site doses, both inhalation and whole body doses, appear to be satisfactory, and this office verifies the results by independent calculations to sufficient accuracy. The ingestion dose calculation on page 183 does not appear to be set up properly, but this may be a typographical error. The amount of milk consumed in the dose calculation is not mentioned. An independent calculation reveals that for one quart of milk consumed, a figure of about 340 mrem is attained at the site boundary, so that their final result is probably correct. It should be pointed out, however, that this dose is only from one quart of milk and does not consider the total dose from continuous milk consumption after the test which can be 11 times the 340 mrem figure. Since the report assumes 100% release of fission products from the excursion and 1% of the beryllium, it appears that the release figures are well in accordance with 10 CFR, Part 100 recommendations and, therefore, sufficiently pessimistic.

The estimated plume rise of 100 m is quite uncertain. If the winds are in excess of 10 mph, the effective plume rise will probably not be that high and even a zero release height is credible. This will not affect the computed doses off-site appreciably but can affect the doses in the immediate area of the release point.

A consideration should have been made of the possibility of an unexpected wind shift carrying the material from the release point to the nearest on-site inhabited area, the Technical Service Facility (TSF) about 2000 m south of the test site. An independent calculation of an assumed release with no plume rise and a direct trajectory from the test site to the TSF area indicates that the total dose should be less than 1 rem during lapse conditions. With inversion, the doses will be considerably higher, but it is felt that sufficient meteorological control can be exercised to prevent the occurrence of an unexpected wind shift and an inversion simultaneously. The onset and duration of the inversion can be forecast with considerable accuracy.

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Some further comments which do not bear too much on the safety of the test are:

Page 68 - A discrepancy of 17% between the diffusion coefficient values as used in the HTRE hazard report and those given by the Weather Bureau in IDO-12015 is hardly significant, and the statement that the Weather Bureau found the latter values to be more accurate is not relevant or completely correct.

Page 158 - There appears to be some confusion in the specific wind directions for the tests. A grid 60° wide should definitely be planned, since experience with the SPERT I destruct and other tests have indicated that a grid of this width is necessary for operational purposes.

Page 167 - The cloud height formula used has not received substantial verification experimentally and can, therefore, only be considered to be quite approximate. As mentioned above, very low effective plume heights would probably be expected during winds in excess of 10-15 mph.

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✓ CC: Bill Gammill