

POOR ORIGINAL

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MEMORANDUM FOR: Brian K. Grimes, Program Director
Emergency Preparedness Program Office

THRU: Steve L. Ramos, Chief
Emergency Preparedness Development Branch

FROM: Ed Williams
Emergency Preparedness Development Branch

SUBJECT: AIRBORNE RADIOIODINE ALARM LEVEL FOR THE TSC AND EOF

I have reviewed the measurement sensitivity for the airborne radioiodine alarm, in the TSC and EOF within the context of Section 6.4 of the SRP. The thyroid dose limits for CR personnel are 30 rem over the course of the accident. This course of the accident seems to be based on an exposure time of 5 days (food and water stored) or 6 days (breathing air with the CR sealed). Assuming a maximum exposure time of >6 days (150 h), the alarm level should not exceed 200 mrem/h. Over this time period, all of the radioiodines will decay to <1% of their initial activity except for ¹³¹I. Using the NCRP values for ¹³¹I dose to the adult thyroid, a concentration of $1.75 \times 10^{-7} \mu\text{Ci/cc} \approx 200 \text{ mrem/h}$. This number is safe sided in that for releases during the first ~ 8 h after shutdown, this concentration would provide a thyroid dose of ~ 60 mrem/h based on the Tables in the EPA Manual (which in turn are based primarily on the RSS WASH-1400) with all the radioiodines present.

Therefore, I would recommend a sensitivity of $1.7 \times 10^{-7} \mu\text{Ci/cc}$ or less for the airborne radioiodine emergency alarm level in both the EOF and TSC.

Original Signed By

Ed Williams
Emergency Preparedness Development Branch

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OFFICE	EPDB:EPPO	C-EPDB:EPPO			
SURNAME	EWilliams:kb	SLRamos			
DATE	10/31/80	10/3/80			