



# THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

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MURRAY R. EDELMAN

VICE PRESIDENT  
NUCLEAR

May 13, 1983

PY-CEI/NRR-0042 L

Mr. B. J. Youngblood, Chief  
Licensing Branch No. 1  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Perry Nuclear Power Plant  
Docket Nos. 50-440; 50-441  
SER Outstanding Issue No. 19  
Emergency Planning Submittals

Dear Mr. Youngblood:

In a transmittal dated April 4, 1983, we included a revised response to Round 2 Question I.2, dealing with off-site doses based on containment leakage. We committed to provide plots showing the gamma dose rate versus time, dependent on the amount of fuel inventory released. This letter forwards these curves and the instructions for their use.

If you have any questions regarding this submittal, please feel free to contact us.

Very truly yours,

Murray R. Edelman  
Vice President  
Nuclear Group

MRE:kh

cc: Jay Silberg, Esq.  
John Stefano  
Max Gildner

Attachment

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## CONTAINMENT RADIATION PLOT INSTRUCTIONS

Theoretical curves of gross gamma dose rate versus time are given for a range of potential source terms. To determine the meaning of the measured dose rates:

1. Determine the Time after reactor shutdown.
2. Locate the radiation monitor Dose Rate Reading on the graph for the time after shutdown.
3. Determine the percent fuel inventory released to the containment air corresponding to the measured dose rate by taking the ratio of the measured dose rate to the dose rate given on one of the curves for a known percent inventory, i.e., interpolate between curves.
4. On the attached table relate the percent fuel inventory released, as calculated in the previous step, to the approximate source and damage estimate.

- NOTE: (1) The curves account for the finite containment volume seen by the detector but do not account for any monitor physical or shielding characteristics or calibration uncertainties.
- (2) The curves assume that only airborne noble gases and iodines are significant. Sprays (if used) would make the iodine and any particulate contribution insignificant. However, particulate plateout on surfaces and direct shine doses from components may make the readings unreliable.

The calculation of monitor response did not include any particulates since the noble gases and iodines are the most significant contributors to dose rate in the containment.

TABLE: Percent of Fuel Inventory Airborne in the Containment  
vs. Approximate Source and Damage Estimate

<u>Curve No.</u>	<u>% Fuel* Inventory Released</u>	<u>Approximate Source and Damage Estimate</u>
1	100	100% Fuel Damage, potential core melt
2	10	Total clad failures, core partially uncovered
3	1	Approximately 10% clad failure
4	-	100% coolant release

The curves represent direct readings from the Reactor Building High Range Area Monitors (D19-N200 A & B), at elevation 689 feet, inside containment.

\*100% Fuel Inventory = 100% Noble Gas, 25% Iodine

# DOSE RATE AT CONTAINMENT MONITOR

