



THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

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MURRAY R. EDELMAN
VICE PRESIDENT
NUCLEAR

March 15, 1983
PY-CEI,NRR-0024 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. 10
Containment Purge

Dear Mr. Youngblood:

This letter and its attachments is provided to supplement our previous response, dated December 2, 1982, regarding continuous containment purge. As a result of recent discussions with the NRC staff, we have re-defined the design objective to maintain the peak total fraction of MPC less than .25 for the iodine isotopes. The requirements for intermittent containment purge were then re-evaluated and the results are provided in Attachment 1.

Based on realistic expected coolant leakages and estimated personnel occupational exposure levels inside containment, CEI proposes that intermittent containment purge be permitted for the Perry Nuclear Power Plant up to a limit of 4750 hours per year. A re-assessment will be made based on actual Perry operating experience and will be provided prior to startup following the first regularly scheduled refueling outage.

Details of the airborne radioactivity data collection program, the containment access management program and the purging criteria will be provided no later than six months prior to fuel load.

We believe this information should enable this issue to be resolved in the next supplement to the Perry SER.

Very truly yours,

Murray R. Edelman
Vice President
Nuclear Group

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cc: Jay Silberg, Esq.
John Stefano
Max Gildner

Attachments

13001

PERRY NUCLEAR POWER PLANT

Purge Times:

A. 12-hour buildup w/4 hour purge

$$\frac{365 \text{ days}}{.5} \times 4 \text{ hrs./purge} = 2920 \text{ hrs. (100\% efficiency)}$$

SRV (MSIV Closure)

$$3 \text{ times/year} \times 60 \text{ hrs.*} = 180 \text{ hrs.}$$

* 36 hrs. to reduce levels to MPC values plus 24 hrs. during subsequent access.

$$\text{Contingency to cover uncertainties} = \frac{1650}{4750} \text{ hrs.}$$

B. Basis for contingency:

1. Uncertainty in purge efficiency for removal of radioisotopes.
Varying the mixing efficiency has the following effect:

	100%	90%	70%
1-131 (Conc.)	1.0	1.06	1.21
Whole Body Dose Rate	1.0	1.04	1.14

Therefore, $3100 \times .21 = 650 \text{ hrs.}$

2. Purge required to cleanup discharges from single SRV discharges.
Purge required for periods of unexpected high leakage rates,
e.g. high leakage in drywell with concurrent drywell bypass
leakage, large RWCU leakage, RCIC turbine pump test, etc. = 1000 hrs.

Perry

Leakage	2000 lb/hr SRV's 1/50 gpd reactor water (.00001 gpm)		
Purge	5000 cfm continuous	5000 cfm 2550 hrs/yr*	5000 cfm 4750 hrs/yr**
Occupancy (manhours/yr.)	6270		
Results			
Dose Rate			
Thyroid (mr/hr)	1.9	11	3.9
Whole Body (mr/hr)	.11	0.21	.18
FMPC			
Iodine	.12	.67	.24
Noble Gases	1.2	2.4	1.9
Man-Rem			
Thyroid	11.9	69	24.5
Whole Body	.7	1.3	1.1

* Based on 3 days between purge with 10 hour purge.

** Based on a purge frequency of 12 hours with a 4 hour purge.