



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

JUL 7 1979

MEMORANDUM FOR: Distribution

FROM: John Buchanan, Environmental Protection Standards Branch  
Office of Standards Development

THRU: *E. F. Conti* Enrico F. Conti, Chief, Environmental Protection  
Standards Branch, SD

SUBJECT: USE OF TLD'S AS NOBLE GAS EFFLUENT MONITORS FOR POWER  
REACTORS - SUPPLEMENTAL INFORMATION FROM CANADA

Lake Barrett, in his memorandum of June 28, 1979, reports that TLD's have been installed in the ventilation stack release points of Swedish power reactors to provide some quantitative information for large accidental releases if the effluent monitors go offscale.

A similar use of TLD's in Canada has been reported by Ontario Hydro 1/2/. The gamma-ray energy response characteristics and wide detection range of TLD's indicated that they could be employed as a backup to the on-line stack effluent noble gas monitors, particularly for emergency purposes.

An experimental setup was installed in the Pickering NGS ventilation stack. Both the noble gas gamma radiation in the stack and external background radiation were detected coincidentally with two sets of TLD's which were periodically evaluated. The noble gas effluent was coincidentally measured with a gamma-ray spectrometer and the Ci-MeV totalized for each TLD evaluation period. They concluded that TLD's in such an arrangement could measure noble gas release levels of <1% of their emission limits with good accuracy.

Based on the reports from Sweden and Canada, it appears that the use of TLD's as backup noble gas effluent monitors for U.S. power reactors merits further study.

References:

1/M. J. Kabat, "Monitoring of Gaseous Effluents in Ontario Hydro", Monitoring of Airborne and Liquid Radioactive Releases from Nuclear Facilities to the Environment, IAEA Safety Series No. 46, pp. 49-50 (1978). This article is extracted from the following paper:

2/"Recent Developments in Gaseous Effluent Monitoring in Ontario Hydro", Monitoring of Airborne and Liquid Releases from Nuclear Facilities. (Proc. Symp. Portoroz, 1977), IAEA, Vienna (1978), 261.

*John D. Buchanan*

John D. Buchanan  
Environmental Protection Standards Branch  
Office of Standards Development

cc: See Attached

7908150745

H

696

014  
103

JUL 7 1979

DISTRIBUTION

L. Barrett, P-238  
R. Dangart, P-730  
P. Stoddart, P-730  
T. Murphy, P-712  
H. Krug, P-712  
R. W. Houston, P-608  
L. J. Cunningham, EW-359

695 015  


JUL 7 1979

PDR

A → R

cc: J. Miller, 216  
O. Eisenhut, 528  
R. Mattson, P-1102  
G. Knighton, 238  
F. Miraglia, P-433  
B. Grimes, 340  
J. Collins, P-730

7/11 Ireland

- a) document control
- b) assign for consideration  
in HTLL by Design Request Group  
(C. Long)

RJM

Copy to

Long  
Olshinski  
Stoddart  
Barrett

Smith - Cat.

PDR

POOR ORIGINAL

596

016

~~1~~