



Fermilab

R.P. NOTE # 25 - S. Velen

Neutron Dosimeter Intercomparison

In November and December 1979 a crude intercomparison of various personnel dosimeters was performed. The dosimeters were placed on one gallon plastic containers filled with water and placed in various mixed beam-on radiation areas around the Lab. These locations and the results are shown in Figure 1.

One can conclude that the photon and/or muon dosimetry is reasonably consistent, and that, as expected, the neutron dosimetry is not consistent, due to the high energy dependence of the dosimeters, particularly the TLD dosimeters.<sup>1</sup>

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SV/be  
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<sup>1</sup> The Hanford TLD Multipurpose Dosimeter, BNWL-SA-3955, May 28, 1971

FIGURE 1 - DOSIMETER RESULTS (MREM)

	Track Etch Dosimeter		PNL TLD-ALBEDO Dosimeter				
	Fast Neutron	Film	Fast Neutron	$\gamma^*$	$\gamma^*$	Fast Neutron	Thermal Neutron
#1	M	M	M	M	34	0	0.3
#2	M	M	M	40	42	0	0.4
#3	130	70	410	300	560	3.8	
#4	120	70	damaged	390	390	5.7	
#6	70	40	damaged	230	190	3.9	
#7	-	-	-	18	0	0.2	

#1 - Proton - On roof over EE1

#2 - Proton - In Hyperon Portakamp

#3 - Meson @ 1475' M3 East facing M2

#4 - Meson @ 1475' M3 East facing U.S.

#6 - M3 Portakamp facing M3 line

#7 - Control

\* $\gamma$  can be any minimum ionizing particle.

M = Minimal