

Abstract Submitted  
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**Characterization of the Radiation Environment During and Following Operation of the DIII-D Tokamak**<sup>1</sup> VICTORIA RISO, SUNY-Buffalo, D.C. PACE, C.M. COOPER, GA — A survey of the gamma ray spectrum throughout the machine hall of the DIII-D tokamak provides a detailed mapping of its energy and temporal evolution. Engineering issues related to the structural effects of radiation produced by a fusion power plant will significantly affect the cost-effectiveness of the resulting energy. While existing magnetic confinement facilities produce considerably less neutron and gamma radiation than that expected from a power plant-scale facility, it remains useful to examine the latent gamma spectrum of the surrounding structures. The DIII-D tokamak produces  $\sim 10^{16}$  neutrons per run day (resulting primarily from beam-target DD fusion), with  $\sim 75$  run days per year, leading to the activation of support structures with a short half-life. Measurements are made using bismuth germinate scintillator detectors operated in pulse height analysis mode. These detectors are placed throughout the machine hall and acquire gamma data both during experiments and for some time afterward. Results of these surveys from the 2015 experiments will be presented.

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