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Background Characterization at HFIR for Reactor Antineutrino Measurements BLAINE HEFFRON, University of Tennessee, Knoxville, COREY GILBERT, ALFREDO GALINDO-URIBARRI, Oak Ridge National Laboratory — Surface based reactor antineutrino experiments are challenging due to backgrounds from cosmic rays and reactor processes. Therefore it is important to measure these backgrounds with and without shielding to determine the feasibility of antineutrino detection. Currently, both inverse-beta decay and coherent elastic neutrino nucleus scattering are both physical processes used to detect antineutrinos. Oak Ridge National Laboratory houses the High Flux Isotope Reactor (HFIR), an 85 MW research reactor with a fuel composition consisting of highly enriched 235U. Both in situ measurements at the experimental site within HFIR and simulations using the MCNP and GEANT4 codes are described.

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