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Measuring Cherenkov Backgrounds from Proportional Counters in SNO[1] STANLEY SEIBERT, University of Texas at Austin, SUDBURY NEUTRINO OBSERVATORY COLLABORATION — In the current phase of operation of the Sudbury Neutrino Observatory, He-3 proportional counters have been deployed in the center of the detector to measure neutron production from neutral-current interactions between neutrinos and deuterons in the heavy water. Radioactive decays of Bi-214 and Tl-208 in the counters produce gammas of sufficient energy to photodisintegrate deuterons, which become a background to the neutral current measurement. We have measured the background rate in-situ using Cherenkov light detected with SNO's 9456 inward-looking photomultiplier tubes. A maximum likelihood method is used to separate backgrounds in the heavy water from backgrounds in the proportional counters based upon the spatial distribution of low energy Cherenkov event vertices. Uncertainties on the backgrounds have been estimated using calibration data taken with both a distributed Na-24 source, and a contained Th source deployed at various points in the detector.

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