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A Monte Carlo Simulation of the SNO Neutral Current Detector Array[1] JOCELYN MONROE[2], Massachusetts Institute of Technology, SNO COLLABORATION — The third phase of the Sudbury Neutrino Observatory is designed to make a systematically independent measurement of the total boron-8 solar neutrino flux, above the deuteron break-up threshold. A neutral current detector (NCD) array of 40 gas-filled proportional counters was deployed in the heavy water target. The dominant background to the neutron capture signal is from alphas produced in the uranium and thorium decay chains inside NCD constituent materials. We have developed a full Monte Carlo of the signal and background processes that accurately simulates pulse shape characteristics in the NCD array. This detailed model is of general interest to experiments using pulse shape analysis with proportional counters.

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