Improved Constraints on the hep Solar Neutrino and Diffuse Supernova Neutrino Background Fluxes with SNO ANDREW MASTBAUM, Univ of Chicago, SNO COLLABORATION — The Sudbury Neutrino Observatory (SNO) has demonstrated that the apparent deficit in solar neutrinos observed on Earth is due to matter-enhanced flavor transitions and provided precise measurements of the relevant model parameters. The low backgrounds and large, spectral $\nu_e - d$ cross section that enabled this program also give SNO unique sensitivity to two yet-unobserved neutrino signals of interest: hep solar neutrinos and the $\nu_e$ component of the diffuse supernova neutrino background (DSNB). We have developed a combined hep and DSNB search making use of the full SNO dataset. We perform both a cut-and-count analysis and a multidimensional spectral fit, improving upon previously reported constraints based on the initial phase of SNO running only.