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Neutron Background Evaluation for Dark Matter Detectors at **DUSEL** JASON SPAANS, University of South Dakota, CLEAN/DEAP COLLAB-ORATION — One of the fundamental mysteries in the 21st century is the nature of dark matter in the universe. A study by the National Academies on the Physics of the Universe identifies this phenomenon as one of the most important experimental pursuits of modern science. A compelling explanation requires physics beyond the Standard Model in the form of Weakly Interacting Massive Particles (WIMPs) that could be detected directly as they recoil from massive and ultra-pure detector targets operating deep beneath the Earth's surface. The Homestake Mine in western South Dakota has been confirmed as the site for the Deep Underground Science and Engineering Laboratory (DUSEL), and the US high energy and nuclear physics communities have indicated a strong intention to play a leading role in future neutrino and dark matter experiments as part of DUSEL programs. The institutions in South Dakota intend to play a key role in the worldwide effort to identify cosmological dark matter at Homestake. The purpose of this project is to identify the neutron-induced backgrounds for the liquid argon detector proposed for the dark matter search.

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