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Numerical Investigation of NIF Diagnostic Commissioning Experiments on OMEGA A. SHVYDKY, P.W. MCKENTY, F.J. MARSHALL, R.S. CRAXTON, J.A. MAROZAS, R. EPSTEIN, S. SKUPSKY, R.L. MCCRORY, Laboratory for Laser Energetics, U. of Rochester — To assist in validating neutron-yield-target designs, which will be used to commission new diagnostics on the NIF, a series of experiments were performed on OMEGA investigating the ability of polar-drive (PD) illumination to provide a reliable and flexible source of fusion products. These experiments used thin D_2- and DT-gas–filled glass-shell, "exploding-pusher" targets that were imploded either in 40-beam PD geometry or in 60-beam symmetric geometry with the same total laser energy. The 2-D, radiation-hydrodynamics code *DRACO* was used to investigate the reduction in drive symmetry caused by PD and its effect on target performance by comparing with experimental observables including neutron yield, neutron-production-rate history, and self-emission images. Initial simulations are in good agreement with the experimental yield and indicate a modest 30% to 40% yield reduction for the PD implosions when compared with the equal-energy, symmetric drive implosions. The effect of SSD (both on and off) on the implosion characteristics will also be evaluated. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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