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Summary of Two-Shock Campaign results using 1-D and 2-D simulations[1] PAUL BRADLEY, BRAIN HAINES, Los Alamos Natl Lab — The 2-shock campaign[2] was a series of NIF capsule implosions that used a 675 micron outer radius capsule with a roughly 175 micron thick 1-% Si-doped ablator. These capsules were used to test several hypotheses for yield degradation, including shock convergence mis-timing, increased surface roughness, and increases to the convergence ratio (initial to final inner radius ratio). We use the xRAGE Eulerian Adaptive-Mesh-Refinement computer code to model these implosions in 1-D (using a turbulent mix model) and in 2-D (no mix model). We find that in our 2-D simulations, we do not require a mix model to match the data, as the fill tube, glue spot and surface roughness are enough. We start by comparing our results to DD, DT, and TT yields, along with the DT/TT ratio, burn weighted DT Tion value and burn width. We match most results for the gas filled capsules within the error bars. Many capsules have a separated reactant consisting of a 3 micron innermost CD layer surrounding an HT gas fill, where the DT yield is a mix diagnostic. We match the data where the convergence ratio is about 13; we underpredict the yield in 2-D for convergence ratios of 16 to 20. [2]G.A. Kyrala et al. Phys. Plasmas, 25, 102702 (2018).

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