Abstract Submitted for the DPP09 Meeting of The American Physical Society

NIF ignition target requirements, margins, and uncertainties: Status Nov. 2009 S.W. HAAN, J.D. SALMONSON, D.S. CLARK, D.D. HO, B.A. HAMMEL, D.A. CALLAHAN, C.J. CERJAN, M.J. EDWARDS, S.P. HATHCETT, O.L. LANDEN, J.D. LINDL, B.J. MACGOWAN, M.M. MARINAK, D.H. MUNRO, H.F. ROBEY, B.K. SPEARS, L.J. SUTER, R.P. TOWN, S.V. WEBER, Lawrence Livermore National Laboratory, D.C. WILSON, Los Alamos National Laboratory — We describe simulations of NIF ignition targets, including Be, CH, and C-ablator designs. Requirements define all aspects of the experiment: fabrication, laser pulse, and features of pre-ignition experiments. We describe a model, normalized to simulations, that characterizes the margin of the target as a function of input parameters and uncertainties. The model is used to quantify the impact of each requirement, and to project the probability of ignition, both shot-to-shot variations and given systematic errors. This presentation emphasizes changes in the requirements and margin modeling in the last year, and the relative performance of the final CH, Be, and C designs. Recent work has concentrated on surface perturbations on the CH ablator, and composition variations in the Be shells. LLNL-ABS-414529. Prepared by LLNL under Contract DE-AC52-07NA27344.

> S.W. Haan Lawrence Livermore National Laboratory

Date submitted: 10 Jul 2009

Electronic form version 1.4