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Indirect drive fast ignition target design for the National Ignition Facility[1] DANIEL CLARK, PETER AMENDT, MAX TABAK, RICHARD TOWN, Lawrence Livermore National Laboratory — The approaching completion of the National Ignition Facility (NIF) in 2010 offers the prospect of large-scale Fast Ignition (FI) experiments in the 2011 time frame. Since NIF will initially be configured in an indirect drive mode, however, capitalizing on this opportunity requires the development of indirect drive FI targets. Previously [Nuc. Fusion **47** 1147 (2007)] we developed a single-shock, direct drive target design optimized for producing a minimum hot spot radius and maximal areal density as appropriate for FI. Here we describe an adaptation of this design to the indirect drive requirements of NIF. It is found that a modest peak radiation temperature of 210 eV and a reasonable pulse length ($\sim$ 30 ns) and laser energy ($\sim$ 400 kJ) can yield a highly compact fuel assembly with a reasonable areal density ($\sim$ 2.0 g/cm^2). The two-dimensional hydrodynamics of the interaction of this spherically imploding capsule with the reentrant guide cone is also investigated. It is found that a strong axial jet, directed from the center of the stagnating fuel into the cone tip, is a recurring feature of the implosion. Mitigating the damaging effect of this jet is an important and continuing design consideration.

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