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Revisited TSUNAMI simulations for the NIF mini-chamber

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The National Ignition Facility (NIF) will offer unique opportunities to study material response to neutron and x-ray pulsed irradiation. However near-target experiments and beyond-baseline targets will produce a significant amount of ablation debris and large x-ray fluences that cannot be accommodated by the first wall and final optics. To mitigate this issue, a protecting “mini-chamber” was proposed and documented by Peterson and Scott^{1–3}. This mini-chamber would be installed inside the main NIF chamber and would protect the actual first wall from x-rays and neutron damage and may, depending on its actual design, offer large, cold areas for debris condensation. The latest version of the gas dynamics and heat transfer code TSUNAMI has been used to update and improve the previous predictions of the mini-chamber performance.

[1] P.F. Peterson and J.M. Scott, “The Mini-Chamber, An Advanced Protection Concept for NIF,” *Fusion Technology*, 30, 442—447, 1996

[2] P.F. Peterson and J.M. Scott, “NIF Mini-Chamber Design Review,” University of California, Department of Nuclear Engineering, UCB-NE-4219, 1997

[3] P.F. Peterson and J.M. Scott, “Chamber-Protection Issues for Near-Target Experiments in NIF,” *Fusion Technology*, 34, 772—776, 1998

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