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Status of National Spherical Torus Experiment Liquid Lithium Divertor[1] H.W. KUGEL, M. VIOLA, R. ELLIS, M. BELL, S. GERHARDT, R. KAITA, J. KALLMAN, R. MAJESKI, D. MANSFIELD, A.L. ROQUEMORE, H. SCHNEIDER, J. TIMBERLAKE, L. ZAKHAROV, PPPL, R.E. NYGREN, SNL, J.P. ALLAIN, Purdue University, R. MAINGI, ORNL, V. SOUKHANOVSKII, LLNL — Recent NSTX high power divertor experiments have shown significant and recurring benefits of solid lithium coatings on plasma facing components to the performance of divertor plasmas in both L- and H- mode confinement regimes heated by high-power neutral beams. The next step in this work is the 2009 installation of a Liquid Lithium Divertor (LLD). The 20 cm wide LLD located on the lower outer divertor, consists of four, 80 degree sections; each section is separated by a row of graphite diagnostic tiles. The temperature controlled LLD structure consists of a 0.01cm layer of vacuum flame-sprayed, 50 percent porous molybdenum, on top of 0.02 cm, 316-SS brazed to a 1.9 cm Cu base. The physics design of the LLD encompasses the desired plasma requirements, the experimental capabilities and conditions, power handling, radial location, pumping capability, operating temperature, lithium filling, MHD forces, and diagnostics for control and characterization.

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