Experimental Investigation of ITER Startup and Rampdown Scenarios in the DIII-D Tokamak\textsuperscript{1} G.L. JACKSON, A.W. HYATT, J.R. FERRON, T.C. LUCE, D.A. HUMPHREYS, T.W. PETRIE, General Atomics, T.A. CASPER, Lawrence Livermore National Laboratory — ITER scenario studies have focused on the current flattop phase, but reaching current flattop and successful discharge termination (i.e. a “soft landing”) must also be considered. Experiments in DIII-D have simulated ITER discharges including low inductive electric field ($E_\phi \leq 0.3 \text{ V/m}$), startup limiting on the low field side (LFS), and $\ell_i$ control mostly for vertical stability control. ITER-like LFS startup has been achieved in two scenarios: constant $q_{95}$ (small bore) and a larger volume diverting earlier in time to reduce heat flux to the outer wall (large bore). With a large bore startup, both hybrid and ITER baseline H-mode discharges have been obtained during the flattop phase. We will present the effects of variations in density, auxiliary power, and current ramp rate on $\ell_i$. Low voltage startup, $V_{\text{loop}} \geq 2.2 \text{ V (0.21 V/m)}$ with EC assist will be discussed and initial results simulating the ITER rampdown phase will also be presented.

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