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Equilibrium Reconstruction of Post Thermal-Quench DIII-D Disruptions[1] LANG LAO, General Atomics, GREGORIO TREVISAN, ORAU / General Atomics, YUEQIANG LIU, STEFANO MUNARETTO, PAUL PARKS, CARLOS PAZ-SOLDAN, EDWARD STRAIT, General Atomics — Equilibrium reconstruction of tokamak plasmas during disruptions is critical to gain physics insight and to develop effective mitigation and control strategies. Reconstructions of such plasmas are challenging due to the development of large attached halo currents flowing in the open magnetic field line region and 3D effects. In this contribution, equilibrium reconstructions of several DIII-D pellet-induced disrupting plasmas are presented. Similar to previous results, the plasma boundaries remain very similar after the thermal quench. During the early current quench phase, the plasmas stay nearly axisymmetric as the halo currents start to flow poloidally. The plasma shapes remain diverted for a short period before hitting the inner vessel wall and become limited. As the current further decays, the plasma continues to shrink and starts drifting vertically until reaching the vessel top or bottom. During this phase, the current profiles continue to peak with a significant increase of the plasma internal inductance. Later in the current quench phase, 3D effects become more important. Details of the 3D and runaway electron effects and use of the new DIII-D 3D magnetic probes to guide reconstructions of 3D perturbed equilibria will be discussed.

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