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OEDGE Modeling of Deuterium Recycling in DIII-D* J.D. Elder, P.C. Stangeby, *U. Toronto;* S. Lisgo, *ITER*; A.W. Leonard, B.D. Bray, N.H. Brooks, *GA*; M.E. Fenstermacher, *LLNL*; M. Groth, *HUT*; J.A. Boedo, D.L. Rudakov, *UCSD*; J.G. Watkins, *SNL;* E.A. Unterberg, *ORISE* — The OEDGE code is used to examine the role of deuterium recycling on core and pedestal fueling. In a previously modeled DIII-D discharge, 119925, with a partially detached inner divertor, attached outer divertor and significant plasma wall interaction, it is found that the core fueling is dominated by target and volume recombination sources in the inner divertor where 53% of the neutral deuterium source accounted for 61% of the core influx. In addition, main chamber recycling accounts for 24% of the core influx but only 11% of the source. Sensitivity studies assess the effect of physically plausible variations of the "plasma background". The spatial distribution of the core neutral deuterium influx is reported for representative plasma solutions for attached, partially detached and fully detached divertors.

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