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**The resilience of highly dissipative exhaust scenarios at JET to seed impurity mixes and divertor geometry** MARCO WISCHMEIER, Max Planck Institute of Plasma Physics, ALEXANDER HUBER, Forschungszentrum Juelich, JET CONTRIBUTORS TEAM — A fusion power plant with an ITER like lower single null divertor requires more power dissipation, $f_{diss}$, between the core plasma and the divertor target plates than existing devices and ITER. A $f_{diss}$ >90% of the total heating power will be needed, accounting for losses from radiation, perpendicular transport and CX processes. Thereby more than 70% being radiation on closed field lines (cf. ITER 30%). Completely detached divertor targets with $T_e$ <5eV will reduce erosion in an environment with a large fraction of radiating seed impurities. On JET with metal PFCs highly dissipative regimes with completely detached divertor targets and small ELM regimes have been achieved using a variety of seeding species at the highest available heating powers of up to ˜29MW. Varying the admixture of Ar and $N_2$ alters the ratio of core to divertor radiation but not the achievable $f_{diss}$ with completely detached divertor targets. For the same fueling gas throughput confinement in unseeded JET ILW discharges with an open horizontal divertor (CC) is improved compared to vertical target geometry (VV). However, with $N_2$ as well as with Kr seeding the maximum achievable $f_{diss}$ are equal for both configurations, with confinement being equal and degraded compared to CC but similar to unseeded VV conditions.

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