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A Feasibility Study of ELM Control Coils for JET C.G. LOWRY, EFDA JET, A. BROOKS, PPPL, M. COLE, ORNL, T. EDLINGTON, UKAEA, T. EVANS, GA, J. HARRIS, ORNL, R. HAWRYLUK, PPPL, L. HORTON, EFDA JET, D. HOWELL, UKAEA, R. KOSLOWSKI, Y. LIANG, FZ Juelich, A. LOVING, E. NARDON, UKAEA, G.H. NEILSON, PPPL, H. OMRAN, D. RENDELL, UKAEA, M. SCHAFFER, GA, J. STRACHAN, PPPL, Y. SUN, FZ Juelich, T.N. TODD, UKAEA, I. ZATZ, PPPL — As part of its efforts in preparing for ITER operations, JET is investigating the feasibility of including RMP coils for ELM control. The objective is to provide a system which will make scenario development more ITER relevant, and extend the experimental basis for the physics understanding of ELM suppression, in particular towards conditions close to those of ITER. The study, being conducted under an EU-US collaboration, has considered various coil configurations, including in- and ex-vessel coils. Vacuum field calculations show that in-vessel configurations can produce a much higher fraction of resonant to non-resonant perturbations, but present difficulties related to feedthroughs, vacuum compatibility, and remote handling, although the lower required currents are beneficial. The paper will present the physics criteria used to choose the configuration and outline the technical solutions adopted.

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