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Diuron and its metabolites in groundwater: an example from the Chalk aquifer of South East England

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There is currently no legislative requirement to monitor pesticide metabolite concentrations in groundwater. However, reducing the impact of anthropogenic pollution on groundwater bodies and ameliorating any deterioration of water quality is central to key legislative drivers such as the EU Water Framework Directive and the proposed daughter Directive relating to the protection of groundwater. Results from pesticide monitoring surveys in the Chalk of South East England are presented. Diuron pollution was found to be widespread and had penetrated down to 30m within the aquifer. Between 2003 and 2004 diuron was observed in 90% of groundwaters analysed. Diuron occurrence could be related to landuse and may be associated with amenity sources. Pesticide concentrations also showed a correlation with changes in groundwater level and residence time. Metabolites of diuron were more prevalent than the parent compound for 60% of sites and showed temporal variability. Should legislative requirements for drinking water change to include both the parent compounds and metabolites (as is increasingly the case in the USA) these results suggest there could have serious implications in terms of the future management and treatment of groundwater resources.