

Assessment of risk to future groundwater resources from on-site FMD burials in NW Region.

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During the Foot and Mouth Disease (FMD) outbreak the Environment Agency issued approximately 800 Groundwater Regulations Authorisations across England and Wales for the on-farm burial of carcasses and pyre ashes. In the NW Region 32% of burials overlie the Permian and Triassic Sandstones with the greatest concentration of burials occurring in Cumbria. The time available for consideration of suitable sites was severely constrained by the nature of the emergency and the need for quick burial, particularly before the mass burial sites were available. There were other important constraints such as data availability and restriction on site access. Set against the imperative of eliminating FMD, a priority for the Agency at the time was protection of existing water supplies and minimising the longer term impact on the water resource consistent with the requirements of the Regulations. In the longer term, groundtruthing was carried out and sites were subject to further reassessment and the necessary monitoring and remedial measures put in place.

A review has been carried out to provide a systematic compilation of the data and to allow a wider view of the impact of the burials on the groundwater resource. The review provided a quantitative cross check against the more intuitive decisions made at the height of the emergency and included assessment of *cordons sanitaire* leading to a protocol for handling new applications for water abstraction in the vicinity of known burials. Key elements of the project included the development of a quick to use modelling tool geared specifically to a FMD source term to predict contaminant transport, and characterisation of sites into 38 type scenarios to allow fate and transport to be explored. The outcome was confirmation that the overall residual impact from the FMD burials was minimal and effects very localised. .

Development of a Groundwater Risk Assessment tool for screening FMD sites

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Abstract

We generally strongly advocate the use of site specific conceptual models and developing risk assessments to reflect the specific hydrogeological setting. At the end of the Foot and Mouth epidemic, however, it was necessary to prioritise resources for monitoring many sites and to identify sites where more detailed assessment may be required. ESI were commissioned by the Environment Agency to develop a screening tool to both reflect the local hydrogeology and nature of the contaminant source, and also allow a rapid ranking of priority amongst the sites. This screening had necessarily to be based on often sketchy site characterisation supplemented by generic data.

This paper examines the approach we developed to address these two competing demands of the development: to remain true to the hydrogeological setting whilst at the same time allowing rapid evaluation based on limited data. It was found necessary to develop a new source term for risk assessment model of the burial sites based on the very recent research undertaken by the Agency. We also found that we needed to construct a more realistic (less conservative) representation of the water balance for the generic settings in order to obtain a realistic discrimination and prioritisation between sites, given the conservative estimates of the geological barrier properties. Finally, we show how GIS was used to facilitate the presentation of the results and address the larger scale risk to water resources at the catchment scale.