

Evaluation of Restoration Achievement for the Release of Upland Grasslands from Statutory Aftercare Provisions at a Surface Mine in South Wales, UK: The Deployment of Two Recently Developed Agricultural Methodologies¹

R Neil Humphries and R Thompson²

Historically, in the UK, the measures of success to document and assess the condition and suitability of land restored for agricultural purposes on completion of their statutory five-year aftercare period has been to describe the soil physical characteristics of the soil profile and less of available (chemically extractable) plant nutrients (P, K, Mg) and soil reaction (pH). Whilst still relevant, the realisation by parts of the agricultural industry that the sustainable use of soils is dependent on its biological and physical condition has led to the development and deployment of other indicator methodologies; such as laboratory microbial incubation (nutrient cycling) techniques and visual descriptors (physical structure) for the condition of the soil profile. In this paper the use of the historical approach is compared with both the incubation and visual assessment approaches now being used widely by the agricultural industry to assess two types of restored grassland due to be released from statutory aftercare at a mine site in South Wales, UK. All three methodologies indicate that land restored to open moorland grassland and enclosed pasture are in a sufficiently fit condition for the intended land agricultural use and could be released from the five-year aftercare requirement. We conclude that the newer agricultural approaches have additional merits and could be adopted routinely for the evaluation of restored land to agricultural grassland.

Additional Key Words: microbial incubation, nutrient cycling, soil structure, soil condition.

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2. R Neil Humphries (presenter), Natural Resources Manager, Celtic Energy Ltd, Caerphilly, CF83 2AX, Wales, UK and Robert Thompson, Operations Director, Celtic Energy Ltd, Caerphilly, CF83 2AX, Wales, UK.