

Industry code of practice on perimeter soil gas

Introduction

Traditionally, our regulatory focus was to prevent the lateral migration of landfill gas by containing it within the site and monitoring around the perimeter of sites to identify emissions. Many operators of existing landfills in England and Wales have not therefore established background concentrations of methane and carbon dioxide in the ground around their sites. Our guidance on the management of landfill gas (LFTGN03) issued in 2004, recommended that compliance limits were set in the permit at 1%v/v above background for methane, and 1.5%v/v above background for carbon dioxide.

This guidance did not however consider how background concentrations of soil gases should be set. There can be significant variation in the concentration of background soil gases, particularly carbon dioxide as it is produced by a number of natural processes. Consequently, when compliance limits were set for perimeter monitoring boreholes in Pollution Prevention and Control (PPC) permits for landfill (now environmental permits), they were often not based on site specific background data.

We agree with the waste management industry that a robust and scientific method of quantifying background concentrations of gas in land surrounding landfills is required to allow an appropriate level of regulation.

Industry Code of Practice

The waste management industry has published an Industry Code of Practice (ICOP) on perimeter soil gas, to provide guidance on determining appropriate action levels, compliance limits, and action protocols for managing the information gathered from perimeter monitoring wells around landfill sites. The ICOP was developed by major waste companies and landfill gas consultants in cooperation with us through the Landfill Regulation Group (a joint Environment Agency and waste industry stakeholder group). A copy of the [ICOP](#) is available from C & P Environmental consultants.

The ICOP presents “best available” approaches to establishing background methane and carbon dioxide concentrations at sites ahead of, and even following, the placement of waste in an engineered cell. Statistical techniques are proposed to define background concentrations for stable and unstable data sets and derive compliance limits and action levels based on these concentrations.

The ICOP proposes that no compliance limits should be set for carbon dioxide in the permit, unless there is a sensitive receptor where there is a risk to human health. We accept this is a reasonable approach.

Our regulatory approach

We will require operators to set action levels as part of their gas management plan and to monitor perimeter boreholes and assess carbon dioxide concentrations against the action level to prompt investigatory action and inform regular reviews of the conceptual model. This means that operators must continue to act responsibly and transparently on the environmental impact of their landfill sites.

We will continue to set compliance limits in the permit for methane. These will generally be set at background levels (established in accordance with the ICOP) + 1% v/v to ensure that the migration of landfill gas is minimised in accordance with the Landfill Directive.

Existing permits

We will apply these changes during the landfill sector permit review programme which is due to start in 2012. We will require the operator to supply an interpretation of monitoring data from their site to establish background concentrations of soil gas and to propose action levels for methane and carbon dioxide, and compliance limits for methane. In addition the operator will need to develop and provide action plans to explain how they plan to investigate and remediate any breach of an action level or compliance limit. These plans will form part of the operator's gas management plan or management system for the site and be incorporated into the permit.

If an operator wishes to change the perimeter borehole compliance limits then he will need to apply to vary his permit and supply the above information.

We will only vary a permit to remove carbon dioxide compliance limits (on application or during the permit review programme) where we are satisfied that the operator has carried out a robust statistical analysis of monitoring data to establish background concentrations. and proposed realistic action and compliance levels.

Our approach to compliance assessment

Until such time as the permit is varied, the compliance limits in the permit remain in force. We will score a breach of a carbon dioxide compliance limit as having no environmental impact (actual or potential) with a Compliance Classification Scheme score CCS 4 providing:

- there is no sensitive receptor and risk to human health
- the operator is following an agreed action plan or taking actions in line with the ICOP to investigate and remediate the breach.

In any other circumstances we will score in accordance with our CCS scoring guidance.

Another proposal that arose from the discussions around the development of the ICOP was to move to a risk based CCS scoring scheme. This is under development and will be out for consultation later this year.

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