ARROW 12
Your ref WS010003
Alan Watson ARROW ref 10024954
and Nicola Escott ref 10024302

Conflicts of the Whitemoss Proposals with the Landfill Directive (1999/31/EC)

This submission contains extracts from relevant sections of the Landfill Directive and extracts from the applicant's Hydrogeological Risk Assessment which support the verbal statement made at the Open Floor Hearing on 23 October, 2014.

Introduction:

Whilst this matter will be considered to some extent as part of the permitting process is cannot be left entirely to the Environment Agency as there are land use planning implications – not least in relation to the source of any additional clay which would be required and the capacity of the site. There is, of course, also the important consideration of compliance with European Law and it would be inappropriate to issue a DCO to an application which was not in compliance with the requirements of the Landfill Directive

Whilst checking the proposals against the obligations arising from the Landfill Directive for the DCO hearing we were concerned to note that the clay liner proposed in the application appears not to be in accordance with the requirements of Annex 1 (below). This include a requirement for 5m of clay with a maximum hydraulic conductivity of 1x10-9 m/s:

….continued

Landfill directive:

3.2. The geological barrier is determined by geological and hydrogeological conditions below and in the vicinity of a landfill site providing sufficient attenuation capacity to prevent a potential risk to soil and groundwater.

The landfill base and sides shall consist of a mineral layer which satisfies permeability and thickness requirements with a combined effect in terms of protection of soil, groundwater and surface water at least equivalent to the one resulting from the following requirements:

— landfill for hazardous waste: $K \leq 1{,}0 \times 10^{-9}$ m/s; thickness ≥ 5 m,

— landfill for non-hazardous waste: $K \leq 1{,}0 \times 10^{-9}$ m/s; thickness ≥ 1 m,

— landfill for inert waste: $K \leq 1{,}0 \times 10^{-7}$ m/s; thickness ≥ 1 m,

m/s: meter/second.

This compares with the 1m of clay in the application (see, for example, the Hydrogeological Risk Assessment which confirms this):

> 3.6.1. The sideslope liner will comprise a minimum 1m thick compacted low permeability clay liner with a maximum hydraulic conductivity of 1x10-9 m/s, a 2mm thick double textured HDPE geomembrane with a drainage geocomposite sufficient to provide a pathway for perched leachate and to provide protection to the underlying geomembrane. (HRA)

This suggests that the application is not in accordance with the Landfill Directive.

The Directive does make provision for equivalent protection which could be achieved, for example, by using lower permeability clay. In this case, however, the maximum hydraulic conductivity of the clay is only claimed to be 1x10-9m/s as in the Directive.

Furthermore the lack of compliance with the landfill directive cannot be explained by the provision of an HDPE liner giving total equivalence because Para 3.2 relates specifically to the mineral layer – an additional artificial sealing liner is still required (see Para 3.3 of Annex 1 which says “in addition to the geological barrier”):

3.3. In addition to the geological barrier described above a leachate collection and sealing system must be added in accordance with the following principles so as to ensure that leachate accumulation at the base of the landfill is kept to a minimum:

Leachate collection and bottom sealing

Landfill category	non hazardous	hazardous
Artificial sealing liner	required	required
Drainage layer ≥ 0,5 m	required	required

Para 3.3 of the Directive also recommends that an artificial sealing liner should be provided for the landfill cap in cases, like here, where leachate is a potential hazard to the environment:

If the competent authority after a consideration of the potential hazards to the environment finds that the prevention of leachate formation is necessary, a surface sealing may be prescribed. Recommendations for the surface sealing are as follows:

Landfill category	non hazardous	hazardous
Gas drainage layer	required	not required
Artificial sealing liner	not required	required
Impermeable mineral layer	required	required
Drainage layer > 0,5 m	required	required
Top soil cover > 1 m	required	required.

We note, however, that the applicant has not included an artificial sealing liner and only proposes a clay cap:

Following completion of filling the landfill will be capped with a 1m thick clay cap covered with a geocomposite drainage layer underlying restoration materials. (HRA 1.1 iii)

In the light of the extremely long timescale for which this site would pose an Environmental Hazard (see ARROW 6) we consider that an artificial sealing liner on the cap is essential.

Para 3.4 of Annex 1 includes provision to reduce the requirements for the basal liner and cap:

3.4. If, on the basis of an assessment of environmental risks taking into account, in particular, Directive 80/68/EEC ([1]), the competent authority has decided, in accordance with Section 2 ('Water control and leachate management'), that collection and treatment of leachate is not necessary or it has been established that the landfill poses no potential hazard to soil, groundwater or surface water, the requirements in paragraphs 3.2 and 3.3 above may be reduced accordingly. In the case of landfills for inert waste these requirements may be adapted by national legislation.

This applies only in circumstances where the collection and treatment of leachate is not necessary or there is no potential hazard to soil, groundwater or surface water. This clearly does not apply to Whitemoss.