Knocknacarriga Landfill Reg. No. H0277-01

Date: 14th October 2019

Response: Appeal of Conditions of Proposed Decision

Proposed Decision Appeal:

This report details Limerick City and County Council's appeal to the proposed decision issued by the Agency on the 17th of September 2019.

- **Condition 3.1 (c)** ***"Install three gas monitoring boreholes"*** **–**
  In relation to the age of the waste on the site, Section 4.3 of the Tier 2 report states the following:
  The waste body at Knocknacarrige is highly decomposed. Organic material, paper and cardboard and timber have fully decomposed. There are occasional textile and timber fragments. There was a low fraction of metal objects in the waste; any metal found was highly corroded.

  In relation to landfill gas Section 4.6 of the Tier 2 report states the following:
  The waste body at Knocknacarrige is over 30 years old and is unlikely to be producing significant quantities of LFG. No LFG was detected during the excavation of the trial holes although slight transient odours were detected when the waste body was disturbed. The landowner has never detected LGF odours or evidence of vegetation die in the vicinity of the waste body.

  The SPR scores in relation to landfill gas migration are both low (SPR 10 = 7 & SPR 11 = 0 - *Table 4 of the Tier 3 report).* As a result of the site investigation findings & the SPR scores no remedial measures were recommended in relation to landfill gas. Therefore, the requirement to ***"Install three gas monitoring boreholes"*** does not appear to collate with the findings of the site investigation.

- **Condition 3.1 (d)** ***"Install a low permeability landfill cap, minimum Im.."*** – The practicalities of installing such a cap on this steep slope site is highlighted. The installation of a low permeability landfill cap, minimum 1 meter, would be difficult to install on Health & Safety grounds on this steep slope and the remediation measures proposed in the Certificate of Authorisation application would seem adequate for this low risk site.

- **Condition 3.5 (b) "*monitoring on a biannual basis for leachate (sample, analyse, characterise, and measure the level of leachate) in all leachate monitoring boreholes..*" –**

The Geophysical survey, undertaken at the site in July 2013 states the following in relation to leachate:
There is an indication for a small amount of leachate on profile R1 at depth which has been shown on Figure 2 and is indicated on the map. This is likely caused by a small amount of groundwater flowing along a hydrogeological gradient that follow the general topography.

Section 4.7 of the Tier 2 report states:

No leachate sample was taken directly from the waste body. The site investigation showed that the upper 4 metres of the waste body was dry with no seepages or perched leachate.

During the course of the site investigations, the landowner indicated that during the operation of the landfill site in the 1980's, a 100 mm diameter pipe was laid from the floor of the old quarry to the drainage ditch which flows along the northern perimeter of the site. The pipe outfall was uncovered in the drainage ditch following site clearance and silt trenching.

Samples of the discharge from this pipe were taken in 2013 & 2018 and Section 4.7 of the Tier 2 report states:

The discharge at Knocknacarrige contains low levels of contamination and is consistent with leachate produced from a highly decomposed waste body. The result recorded for nitrates in 2018 sample is much higher than the 2013 sample results and than would be expected in methanogenic leachate and may be originating from fertiliser spreading on these lands. The landowner was recently consulted (January 2019) and he confirmed that he applies artificial fertiliser to these lands.

Therefore, this condition would appear not to be applicable as:

- Minimal leachate appears to be generated with leachate generated resulting from *a* small amount of groundwater flowing along a hydrogeological gradient
- Leachate generated appears to be discharged via a 100 mm diameter pipe
- No leachate monitoring boreholes are required to be installed

- **Condition 3.5 (c)** ***monitoring on a quarterly basis and for a period of at least two years to detect the presence and concentration of landfill gas in all monitoring boreholes;***

  As detailed in the comments in relation to Condition 3.1 (c) the requirement to *"Install three gas monitoring boreholes"* & subsequently *"monitoring on a quarterly basis"* does not appear to collate with the findings of the site investigation.

- **Condition 3.5 (d)** ***monitoring (sample, analyse and characterise) on a biannual basis of discharge from the pipe and the receiving surface water drain upstream and 500m downstream of the outlet from the pipe***
  The draft CoA does not specify what parameters are to be monitored.

- **Condition 3.5 (e)** ***monitoring (sample, analyse and characterise) on a biannual basis of groundwater from at least three groundwater monitoring boreholes, two of which shall be downgradient of the closed landfill***

  Section 4.8 of the Tier 2 report states:

  The GSI geological map indicates that the site is underlain by the Ballysteen Formation which is described as fossiliferous dark-grey muddy limestone. These muddy limestones are not generally liable to karstification. No karst features were detected during the geophysical survey of the site.

  The SPR scores in relation to leachate migration via groundwater are all low (SPR 1 – SPR 7 SPR 11 - *Table 4 of the Tier 3 report).* As a result of the site investigation findings & the SPR scores leachate migration via groundwater was not identified as a risk.

  Therefore, the requirement to *"monitoring (sample, analyse and characterise) on a biannual basis of groundwater"* does not appear necessary based on the findings of the site investigation.

- **Condition 3.10.1** ***Groundwater monitoring wells shall be constructed having regard to the guidance given in the Agency's landfill manual "Landfill Monitoring***
  There is no requirement to install groundwater monitoring wells, therefore this Condition is not applicable.

- **Condition 3.13 (i)**
  The local authority shall establish, maintain and implement a communications programme to inform the occupiers and owners of land and buildings adjacent to the closed landfill of the risks posed by landfill gas and its migration.

Condition 3.13 (ii)
The communications programme shall inform future occupiers and owners of properties what they can and should do to protect their property and health and members of the public.

Condition 3.13 (iii)
The local authority shall communicate directly, either in writing or in person, at least once each year with said occupiers and owners of properties.

As detailed in the comments in relation to Condition 3.1 (c) & Condition 3.5 (c) the requirement to *"Install three gas monitoring boreholes"* & subsequently *"monitoring on a quarterly basis"* does not appear to collate with the findings of the site investigation. Therefore, the requirements for a communications programme (Condition 3.13 (i) – (iii)) in relation to the risks posed by landfill gas and its migration would not appear to be necessary.

- **Condition 3.13 (iv)**
The local authority shall, as part of the communications programme, publish landfill gas and landfill leachate monitoring data biannually in a manner accessible by the public.

As detailed in the comments in relation to Condition 3.1 (c) & Condition 3.5 (c) the requirement to *"Install three gas monitoring boreholes"* & subsequently *"monitoring on a quarterly basis"* does not appear to collate with the findings of the site investigation.

- **Condition 2.3 Environmental Liabilities**

What financial provision is required considering the risk assessment for the site has shown this as a low risk site. Limerick City & County Council will ensure any contractor(s) engaged to undertake the remediation works will have adequate insurance in place to cover any incidents/accidents that may arise during restoration.

Signed: John O Carroll

John O Carroll,
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