


*This Report has been cleared for submission to the Board by Warren Phelan, Circular Economy Programme Manager*

*Signed: Eve O'Sullivan* *Dated: 8 February 2024*

 <p>Environmental Protection Agency An Ghníomhaireacht um Chaomhánú Comhshaoil</p>	<p><b>OFFICE OF ENVIRONMENTAL SUSTAINABILITY</b></p>
<p><b>ADDENDUM TO THE TECHNICAL COMMITTEE REPORT ON HISTORIC LANDFILL CERTIFICATE OF AUTHROISATION, H0023-01</b></p>	
<b>TO:</b>	Board of Directors
<b>FROM:</b>	Martin Doyle, Inspector <span style="float: right;">Circular Economy Programme</span>
<b>DATE:</b>	8 February 2024
<b>RE:</b>	Addendum to the Technical Committee Report regarding representation made by Kildare County Council, in relation to historic landfill application number H0223-01 (Digby Bridge), submitted to the Board on 19 December 2023.
<b>Applicant:</b>	Kildare County Council
<b>Location/address:</b>	Digby Bridge, Sallins, County Kildare
<b>Application date:</b>	6 November 2020

Following representations made by Kildare County Council in relation to historic landfill application reference H0223-01, a Technical Committee (TC) Report was presented to the Board of the Agency on 19 December 2023. The decision of the Board was deferred pending additional information and further consideration of the representations made by the applicant. This addendum report should be read in conjunction with the original TCR dated 14 December 2023.

**Clarification/Information requested by Board**

The Board requested:

1. Information on the potential risks posed by the historic landfill to the environment, and in particular those associated with leachate migration, and consideration of the adaptive groundwater monitoring programme proposed by the applicant.
2. Consideration of staged measures to address the risks posed by landfill gas to nearby receptors taking account of the proposed adaptive groundwater monitoring programme.

**1. Applicant proposed actions to mitigate risks from migration of leachate to groundwater:**

The landfill is classified as high risk due to migration of leachate into the underlying aquifer. As set out in the TCR, groundwater vulnerability at the site is classified as high and monitoring wells downgradient of the wastebody show exceedances in groundwater threshold values and drinking water parametric values. However, to futher assess and determine the nature and extent of risks posed by landfill leachate

to groundwater, the applicant proposed to monitor the natural attenuation of pollutants through an adaptive groundwater monitoring programme. The applicant considers that this is an appropriate option where the extent of off-site migration and nature of off-site impact can be shown to be limited. The programme involves installation of 5 additional groundwater monitoring points, as per Appendix 1, and in the event monitored parameters are exceeding the relevant standards/regulations significantly or frequently, further assessment/remediation may be implemented.

The main aims of the programme would be to:

- Establish the distance downgradient from the site where Drinking Water Standards or Groundwater Threshold Values are no longer exceeded;
- Confirm whether springs, seeps and land drains downgradient of the site are impacted by leachate from the landfill;
- Verify wells within the groundwater pathways, at least within the established distance of groundwater quality impact, are not used for potable water;
- Verify if hazardous hydrocarbon compounds are present in groundwater on the site;
- Establish a database of results enabling identification of patterns and trends concerning chemicals loading and groundwater quality impacts;
- Quantify seasonal groundwater level fluctuations to determine whether the waste mass becomes saturated periodically or otherwise.

Table 1 outlines the applicant’s recommended actions under the proposed adaptive monitoring programme.

<b>Table 1. Proposed Elements of Adaptive Monitoring Programme of Groundwater</b>	
<b>Onsite requirements:</b>	
<b>Action:</b>	<b>Details:</b>
Routine Leachate Sampling and Analysis	Sampling and analysis of leachate from 8 wells, including determination of hazardous hydrocarbon compounds.
Routine Groundwater Sampling and Analysis	Sampling and analysis of groundwater from 8 wells, including determination of hazardous hydrocarbon compounds.
Routine monitoring of Groundwater Levels	Quarterly measurements of groundwater levels at 8 wells.
<b>Offsite requirements:</b>	
Installation of 5 offsite monitoring wells	Two nested well pairs (Gravel Formation/Rickardstown Formation) Two individual wells in Gravel Formation One additional well in Rickardstown Formation.
Routine Groundwater Sampling and Analysis	Sampling and analysis of groundwater, including determination of hazardous hydrocarbon compounds.

Initial sampling of springs, seeps and land drains downgradient of site.	Sampling to take place at 3 locations.
Installation of pressure transducers (2)	Required for continuous monitoring of groundwater levels/fluctuations.
Reconnaissance and topography survey	Groundwater truthing of springs and seeps, to include land drain details with measurements of flow and other karst features in wider area downgradient of site.

Where the adaptive monitoring programme determines the Trigger Values for the various pollutants are significantly and/or frequently exceeded, the applicant's report indicates further assessment of additional onsite remedial action(s) may be required. Such options include (but not be limited to):

- Groundwater Pump and Treatment System; and
- Installation of a Low Permeability Cap.

It is proposed to amend the draft Certificate of Authorisation to remove the requirement to install a landfill cap and instead incorporate the suggested adaptive monitoring programme for landfill leachate. These proposed amendments to the draft Certificate of Authorisation are set out in the section 3 below.

## **2. Applicant proposed actions to mitigate risks associated with landfill gas migration:**

The applicant did not object to any of the Conditions relating to the gas management system as proposed in the draft Certificate of Authorisation but highlighted that the installation of the landfill cap could have a detrimental effect on the lateral migration of landfill gas. In order to mitigate the risks posed by lateral migration of landfill gas from the site to nearby dwellings (estimated as High, Class A), the applicant's risk assessment recommended installation of a gas extraction system with flaring as the preferred option. The system would require an initial testing phase, a requirement under Condition 3.1, and subsequently detailed design to determine the exact specifications.

A permanent gas extraction system with flaring would be installed and operated for an expected further 6 to 8 years. Monitoring of the landfill gas was recommended to confirm negative pressure inside the landfill was being maintained through checks carried out on the gas flows within the waste mass and monitoring wells around the landfill. These conditions have been incorporated in the draft Certificate of Authorisation (Conditions 3.2 and 3.10 respectively).

In the event that further remediation actions, including the implementation of a landfill cap, are concluded following the Adaptive Groundwater Monitoring Programme, the current conditions related to the gas management system can be amended to accommodate any required alterations:

*Condition 3.2 "The local authority shall implement, unless otherwise agreed by the Agency, the following measures....."*

An additional amendment is also recommended to Condition 3.2(c)(v) to allow alterations to the gas management infrastructure if required as a result of the adaptive groundwater monitoring programme. Consequently, additional time is also provided on Condition 3.6 which requires the submission of the validation report to increase to 9 years from 36 months.

As proposed in the TCR, the TC recommends that regarding the applicant's concerns on the timeframe of 24 months within Condition 3.2, the TC considers that an additional 6 months is provided to enable adequate time for the Local Authority to implement all requirements. The TC recommends that Condition 3.2 is also updated to enable the Agency to amend timeframes as required.

### **Proposed changes to draft Certificate of Authorisation**

Following the the Board's requests, it is proposed to incorporate the applicant's proposed adaptive monitoring programme and associated elements, e.g. resultant remedial measures, within the draft Certificate of Authorisation and amend the following conditions as outlined below.

To address the applicant's concerns regarding the timeframe for implementation the following amendment to Conditions 3.2 is proposed:

Proposed amendment to Condition 3.2:

3.2 The local authority shall implement, unless otherwise agreed by the Agency, the following measures within **30** months of the date of grant of this Certificate of Authorisation, **or as otherwise agreed by the Agency:**

To provide for inclusion of the proposed adaptive monitoring programme, insertion of new Conditions 3.2(c) and 3.2(d) are proposed:

Insertion new Condition No. 3.2(c) and 3.2(d), and re-numbering of subsequent conditions, to read as follows:

- (c) Within 6 months of the date of grant of this Certificate of Authorisation, implement the Adaptive Groundwater Monitoring Programme as set out in Attachment D1 – Remediation Plan of the application. The programme shall include:**
  - (i) A final report, submitted to the Agency after 48 months for approval, detailing the outcomes achieved, monitoring conclusions and proposed remediation options including timeframes for implementation.**
- (d) Implement the remediation options as set out in Condition 3.2(c). Where relevant, drawings showing 'as built' elements shall be submitted to the Agency within three months of the completion of works.**

To allow for the inclusion of the proposed adaptive monitoring programme and associated extended timelines, amendments to Conditions the following conditions have been amended:

Amend Condition No. 3.2 and 3.6 to read as follows:

- 3.2 On agreement by the Agency, the gas management system infrastructure, may be removed or altered in accordance with any recommendations arising from the gas pumping trial in accordance with Condition 3.1 **or the Adaptive Groundwater Monitoring Programme as set out Condition 3.2(c);**
- 3.6 The local authority shall compile a validation report in accordance with the requirements of the Code of Practice. Unless otherwise agreed, the validation report shall be submitted to the Agency within **9 years** of the date of grant of this Certificate of Authorisation.

As a result of the implementation of the adaptive groundwater monitoring programme, it is recommended to remove the requirement for the installation of the landfill cap under Condition 3.2(b) and the reference to the cap under Conditions 3.9(a) and 3.12 as follows:

Delete Condition No. 3.2(b) and re-number subsequent conditions and references accordingly.

Amend Condition No. 3.9(a) and 3.12 to read as follows:

- 3.9 The local authority shall, within 30 months of the date of grant of this Certificate of Authorisation, submit a drawing showing the following elements interpolated:
- (a) Extent of the waste body;
- 3.12 The local authority shall, on a quarterly basis, beginning immediately after the installation of the gas management system required under Condition **3.2(b)**, for a period of one year and thereafter if required by the Agency, complete indoor and outdoor air monitoring for Methane and Carbon Dioxide in all relevant buildings including domestic dwellings. The assessment of the monitoring results shall identify the impact, if any, from the migration of gas.

#### Appropriate Assessment – Addendum Report Review

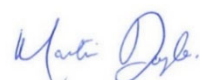
I have reviewed the Inspector's Appropriate Assessment Screening in the Inspector's Report and, taking into account all representations received, and the content of the TC report, I am satisfied that the Inspector's Report provides an adequate examination and evaluation of the effects of the activity on the European Sites concerned, North Dublin Bay SAC (site code: 000206), North Bull Island SPA (site code: 004006), South Dublin Bay SAC (site code: 000210), South Dublin Bay and River Tolka Estuary SPA (site code: 004024), Ballynafagh Bog SAC (site code: 000391), Ballynafagh Lake SAC (site code: 001387), Mouds Bog SAC (site code: 002331), Pollardstown Fen SAC (site code: 000396), Red Bog, Kildare SAC (site code: 000397) and Poulaphouca Reservoir SPA (site code: 004063) in the light of their conservation objectives. reviewed the Appropriate Assessment

I note that updated Conservation Objectives have been issued by the National Parks and Wildlife Service for European Site(s), Ballynafagh Lake SAC (site code: 001387), Pollardstown Fen SAC (site code: 000396) and Poulaphouca Reservoir SPA (site code: 004063), as per Table 3 below since completion of the Inspector's Report. These updated Conservation Objectives have been reviewed and considered and I am satisfied that the Inspector's Report provides an adequate examination and evaluation of the effects of the activity on the European Site(s) concerned, in light of their updated conservation objectives.

<b>Table 4. Updated Conservation Objectives</b>
NPWS (2021) Conservation objectives for Ballynafagh Lake SAC [001387]. Generic Version 1.0. Department of Housing, Local Government and Heritage.
NPWS (2022) Conservation objectives for Pollardstown Fen SAC [000396]. Generic Version 1.0. Department of Housing, Local Government and Heritage.
NPWS (2022) Conservation objectives for Poulaphouca Reservoir SPA [004063]. Department of Housing, Local Government and Heritage.

The EPA was notified on 12 July 2023 by the Department of Housing, Local Government and Heritage of the Minister's intention to designate a new European site, namely the North-west Irish Sea candidate Special Protection Area (site code: 004236). I have reviewed and considered the Appropriate Assessment Screening and the new qualifying interests and conservation objectives of the North-west Irish Sea SPA and I am satisfied that inclusion of the North-west Irish Sea SPA does not change the determination that an Appropriate Assessment of the activity is not required. I am satisfied that the reasons stated in the screening determination are still appropriate.

Signed



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Martin Doyle  
Inspector.

# Appendix 1: Additional Groundwater Monitoring Points

