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UK Health Security Agency: public health risk assessment of air quality results for Jameson Road landfill site

UKHSA has carried out a public health risk assessment for the latest air quality monitoring results for Jameson Road landfill including the Mobile Monitoring Facility monitoring and the diffusion tube data monitoring.

To assess the potential risks to health from exposure to emissions from landfills, individual chemical air quality monitoring data is compared to appropriate standards or health-based guideline values. The selection of the appropriate value will be dependent on various factors including the monitoring data received, and the duration of exposure. Several factors are considered as part of the risk assessment including the magnitude of the exceedance, and the duration of exposure, both of which are considered when interpretating the data with respect to the conclusions of any risk assessment.

Mobile Monitoring results

The most recent results from the Environment Agency's Mobile Monitoring Facility have been reviewed (9 May 2024 – 15 August 2025). There is a period (June 2025 - August 2025 – specific dates not defined) where there is missing data which is not explained within the EA report. As a consequence, there is a period of time for which the assessment cannot be undertaken, and this does impact the conclusions of the public health risk assessment.

Hydrogen sulphide (H_2S) (assessed for both acute and lifetime exposure health impacts), particulate matter, sulphur dioxide and methane results were all found to be below the relevant health based guideline values. For H_2S, lifetime exposure impacts were assessed against the US EPA RfC of 2 µg/m^3 (1ppb). The average H_2S concentration for the monitoring period is below the US EPA RfC. Exposure to concentrations of H_2S above the US EPA RfC does not necessarily mean health effects will occur, but it reduces the margin of safety that is considered desirable to protect health.

H_2S results were recorded above World Health Organization (WHO) odour annoyance levels for approx. 0.5% of the monitoring period (NB the period of missing data impacts this percentage). When exposures are above the WHO odour annoyance guideline level for H_2S, there is potential for a significant amount of odour complaints because odours can become a

nuisance and start to affect people, causing temporary symptoms including headache, nausea, dizziness, watery eyes, stuffy nose, irritated throat, cough, particularly if a person has a pre-existing respiratory condition, sleep problems and stress. Individuals will react differently to the odour of hydrogen sulphide. Some people may be more sensitive to hydrogen sulphide odour than others.

Diffusion Tube Monitoring results

The results from 20 passive H_2S tubes and 20 passive Volatile Organic Compound (VOC) diffusion tubes that were deployed across the town of Fleetwood by the Environment Agency in conjunction with Wyre Borough Council from 5 - 19 August 2025 have been reviewed. There are numerous potential sources of H_2S and VOC within the environment including car exhaust fumes and industrial activities. Therefore, species identified by the diffusion tubes are not necessarily associated with the landfill.

Over the measuring period (14 days) the average H_2S concentration for individual diffusion tubes at each location was well below the WHO guidelines for both human health (150 $\mu g/m^3$ over a 24-hour averaging period) and odour annoyance (7 $\mu g/m^3$ over a 30-minute averaging period). This reported data is averaged over a period of two weeks, and therefore does not show short-term temporal variability in H_2S concentrations that may be caused by changes in meteorological conditions, site activity, etc. It is possible therfore that members of the public may have been intermittently exposed to higher concentrations of H_2S during the sampling period than those reported.

No values exceeded the US EPA RfC used to assess lifetime exposure risk. The RfC is an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.

For the VOC diffusion tubes, considering key VOCs that are typically considered in a public health risk assessment for landfills, for the species identified VOC106 (toluene), VOC111 (xylene, and toluene), VOC112 (benzene), VOC121 (benzene), none were identified at concentrations which exceeded the relevant standards and health-based guidance values.

The conclusions and recommendations are below and are unchanged from our previous positions.

Conclusions

Overall, the results for H_2S and the other substances monitored do not indicate an exceedance of the relevant standards or toxicological health-based guidance values. Based on the currently available monitoring data, there would be minimal risks to health at these levels of exposure from a toxicological perspective.

However, there are periods where the H_2S concentration exceeds the WHO guidance values for odour annoyance. During periods of exceedance odours can become a nuisance and start to affect people. People living around the site may experience temporary symptoms including irritation to the eyes, nose and throat, in addition to headache, nausea, dizziness, watery eyes, stuffy nose, irritated throat, cough or wheeze, sleep problems and stress described above. People who have health conditions that affect breathing, such as asthma and chronic obstructive pulmonary disease (COPD), may experience increased frequency and/or severity of symptoms.

Recommendations

It could be useful to compare the monitoring results with the location of the landfill site, the prevailing wind direction, and a map of odour complaints to assess any correlations.

UKHSA recommends that all measures are taken to reduce the offsite odours from the landfill site, as it is acknowledged that odours can affect an individual's wellbeing.

Residents should contact NHS 111 or their GP if they have concerns about individual circumstances. This will ensure provision of health advice and allow the DPH and local ICB to better understand the impact of the landfill on health in the local area.