Calderdale Borough Council

Human Health Risk Assessment Peer Review

Belmont Industrial Estate Calder Valley Skip Hire

July 2024

Document Control Sheet

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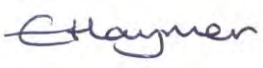
1	18/07/2024	D Clampin	Issued to Client	First Issue

	Name	Job Title	Signature
Prepared By	D Clampin	Principal Consultant	
Approved By	E Haymer	Principal Consultant	

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1 Introduction

Bureau Veritas has been appointed by Calderdale Borough Council to peer review the Human Health Risk Assessment submitted in support of the Environmental Permit (EP) Application by Calder Valley Skip Hire Ltd (CVSH). CVSH propose to operate a new small waste incineration plant (SWIP) at their waste transfer station (WTS) site in Sowerby Bridge, West Yorkshire.

The EP application (Ref. S13/006) included a supporting Human Health Risk Assessment (HHRA) which considers the impact of the application on sensitive receptors.

The primary purpose of this report is to ensure that the Human Health Risk Assessment submitted by the applicant follows an appropriate methodology and makes reference to, and uses as far as possible, the guidance that is available locally and nationally for such an assessment.

The health impact assessment has thus been peer reviewed in order to inform the Council around issues that may constitute the need for:

- any further clarification: namely those issues for which further detail would provide for additional transparency and/or a clearer understanding on; or
- an omission: those issues deemed within the peer review to be lacking within the assessment, which may prevent the authority from making an informed decision related to the impacts of the proposed permitted activities.

This review is based on the following document as it relates to impact of the application with regards to human health:

- Calder Valley Skip Hire Small Waste Incineration Plant: Human Health Risk Assessment, February 2022, Report Reference: C98-P09-R01, Gair Consulting Ltd

A previous review of the Air Quality information submitted with the scheme has been completed. While that assessment work is related to human health, this review focuses specifically on the HHRA and its methodology and conclusions.

Other relevant documents, such as the technical information for the proposed incinerator and appeal decisions, are considered within the context of the above specifically reviewed documents.

2 Methodology

A number of methodologies can be applied to the peer review of Human Health Risk Assessments. In brief, the assessment should comply with:

- the need to clearly set the defined existing conditions at the Site;
- the extent to which the application is likely to impact on human health around the site; and
- an assessment of the significance of such impacts as benchmarked against relevant and available criteria.

The whole assessment should be made against prevailing environmental policies set by Government, local and regional bodies and relevant best practice guidance.

The methodology applied for the current peer review is to benchmark the HHRA against the following criteria, considering:

- Identification of relevant health risk pathways;
- Justification for 'scoping out' of certain pathways;
- Identification and recognition of different types of impact (e.g. inhalation; sensitivity of receptors);
- Reference to the correct and up-to-date health impact standards, objectives and guidelines;
- Adherence to current best practice in assessment methodology;
- Identification of sensitive receptors and the appropriate categorisation;
- Correct predictions of impacts;
- Correct quantification of effects of mitigation measures;
- Justification of conclusions; and
- Discussion of gaps in knowledge/uncertainties in the results and/or conclusions, and the reasons for these.

This peer review has adopted the following structure for the conclusions of the critique:

- Are the findings of assessment robust, appropriate and defensible?
- Are there any deficiencies, errors or areas of improvement?
- Potential changes in the results or conclusions.

3 HHRA Peer Review Findings

3.1 Summary of the document in context of the Wider Application

This document was submitted as part of the previous permit application which was dismissed after Judicial Review. There are no apparent changes to the HHRA submitted as part of the current application and the previous application. It is acknowledged that the specifics of the HHRA were not a significant point of contention through the Judicial Review process.

3.2 Legislative and Policy Context

The assessment is based on the application of the US EPA Human Health Risk Assessment Protocol. This methodology is followed and is appropriate for this specific assessment of human health risk related to potentially toxic emissions from a development.

There is no reference to any UK based Health Impact Assessment (HIA) guidance (e.g., Public Health England's, 'Health Impact Assessment in Spatial Planning a guide for local authority public health and planning teams'[1]). It is acknowledged that the HHRA is a specific study on the potential imbibement of toxic chemicals released and has followed an appropriate methodology for assessing this where a wider HIA may consider broader socio-economic health indicators which may be affected by a development.

The document has used as a policy reference for the assessment Environment Agency guidance. This is considered to be appropriate and the most relevant guidance in the absence of any Local Authority specific approach to Human Health Risk assessments.

The Defra study 'WR 0608' has been used to obtain emissions for PCBs. This is consistent with industry standard best practice approach.

Appropriate WHO and UK COT guidelines have been used for the purpose of assessing significance.

3.3 Baseline Conditions

While not explicitly stated, it is assumed that there were no available baseline or background measurements of any assessed pollutant to understand baseline concentrations of dioxins/furans/PCBs.

Swimming and fishing have been screened out as likely to not be significantly affected. While this is accepted it would be beneficial to include a review of potentially affected receptors to screen these out. For example it may have been worth consideration of popular wild swimming spots (a map of popular spots can be found on www.wildswimming.co.uk). It is noted that popular wild swimming spot 'Gaddings Dam' is around 10 km from the site. Based on the distance it is considered that this can be screened out but would have been helpful to include these considerations within the assessment.

It is noted that site is adjacent to River Ryburn but it is accepted that fishing will lead to minimal intake of toxic substances based on nature of recreational fishing taking place.

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1 https://assets.publishing.service.gov.uk/media/5f93024ad3bf7f35f184eb24/HIA_in_Planning_Guide_Sept2020.pdf

Both Residential and Farming receptors have been included as appropriate. The residential receptor locations do not align with the findings of the Air Quality assessment. The greatest affected receptor in the Air Quality assessment in '5' which is located on Rochdale Road close to the entrance of the site. This has not been modelled in the HHRA.

3.4 Assessment Methodology

The HHRA draws on the findings of the Air Quality Assessment prepared by RPS.

The assessment has assumed a lifetime of individual of 70 years. Average UK life expectancy is closer to 80 years (depending on gender) according to the Office of National Statistics2. It would be beneficial to understand the source and justification for using a 70 year lifespan and how this may affect the findings.

The assessment has used IRAP modelling software which is designed to meet the US EPA HHRA assessment methodology. The method for inputting information involves using the air dispersion modelling from ADMS software outputs and adapting these to input into the IRAP software. There is a specific plugin for IRAP called 'Air 2 Risk' which adapts ADMS files for use in IRAP. It is not apparent that this has been used but the methodology for adapting the ADMS outputs appears to be align with appropriate processes but has been calculated manually rather than using the plugin.

There have been multiple sensitivity tests completed for the ADMS modelling as part of the Air Quality assessment, for example using CALMS modules and different surface roughness values to emulate the trees around the site. It should be clarified whether the HHRA has used these same worse case assumptions within the ADMS outputs which have been used in the IRAP software.

UK children have been assumed to be 5 kg heavier than the default value for HHRAP. This is based on a 'typical' approach but is not supported by any evidence of typical weights of children or further justification. Assuming a higher weight does not represent a worse case approach given the intake dose is divided by weight so a higher weight would be associated with a greater distribution of a toxic compound, so a lower dose per kg.

It is difficult to follow the formula/calculation in section 4.2.1. There is a reference to the exposure frequency being 350 days per year. It would be helpful to understand the reasoning as to why exposure would not occur on 15 days of the year.

3.5 Results and Impact Assessment

The majority of results show that the intake through the various pathways would be well below relevant thresholds and unlikely to cause significant adverse health impacts. The exception is the comparison of the total potential intake with the COT TDI at the worse affected receptors that shows that children would experience up to 92.1% of the total intake as a percentage of the tolerable daily intake at the closest farm receptor.

At the nearest residential receptor on Rochdale Road, the modelling shows that a child would experience up to 90.2% of a tolerable daily intake. Given that the location of this worst case receptor does not align with the worst case receptor from the Air Quality assessment, it would be beneficial to include a receptor at the same location to confirm that there is no significant human health impacts.

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2 https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies/bulletins/nationallifetablesunitedkingdom/2020to2022#:~:text=Life%20expectancy%20at%20birth%20in%20the%20UK%20in%202020%20to,from%2083.0%20years%20for%20females.

4 Conclusions and Recommendations

A Human Health Risk Assessment (HHRA) has been submitted in line with US EPA methodology to identify different pathways for potentially toxic and harmful chemicals from a development being imbibed by humans.

While the report is generally well structured and thorough, there are several points of clarification which would make for greater comfort in its conclusions:

- The modelled residential receptors do not align with the Air Quality Assessment. Of particular concern is the worst case modelled receptor from the Air Quality Assessment (identified as '5' within the AQA) has not been modelled in the HHRA. It would be beneficial to include this.
- It should be confirmed that the ADMS model outputs used for the IRAP software were based on the worse case sensitivity tests from the Air Quality modelling assessment.
- There are some assumptions used in the assessment which would benefit greater evidence, i.e. assumption of a 70 year lifespan and assumption of 20 kg average child weight.