

Radiological Habits Survey: Metals Recycling Facility, 2018

A direct radiation observation survey

Cefas contract C7325

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1. Introduction

This report describes the findings of a direct radiation observation survey in the vicinity of the Metals Recycling Facility (MRF) located at the Lillyhall Industrial Estate near Workington in Cumbria. The MRF nuclear licensed site is operated by Cyclife UK Limited (formerly Studsvik UK Limited) who also hold the site licence.

The MRF site is a small low hazard facility that receives metallic waste items contaminated with low levels of radiological contamination from clients within the UK nuclear industry. The waste is processed and cleaned by techniques including size reduction and shot blasting. The metals are recycled, and the treatment residues are disposed of at the Low-Level Waste Repository near Drigg (www.cyclife-edf.com).

The facility is regulated by the Office for Nuclear Regulation and the Environment Agency. Under the Radioactive Substances Regulation of the Environmental Permitting Regulations 2018, Cyclife UK Limited is permitted to undertake radioactive substances activities at the MRF. The permit allows discharges of gaseous waste to the environment via a main stack and aqueous waste to the sewer. Low discharge limits are set for both aqueous and gaseous discharges. The permit includes conditions requiring Cyclife UK Limited to monitor discharges and undertake environmental monitoring. An elevated dose rate (from direct radiation) was recorded in 2016, which was reported in the Radioactivity in Food and the Environment report (RIFE-23), and this was the first time a dose value was reported for the MRF (EA, FSA, FSS, NRW, NIEA and SEPA, 2018).

The Centre for Environment, Fisheries & Aquaculture Science (Cefas) undertook the direct radiation observation survey on behalf of the Environment Agency, the Food Standards Agency, and the Office for Nuclear Regulation. This was the first habits survey to be carried out at the MRF and it was undertaken to ensure consistency with other nuclear licensed sites in the UK. The aim of the survey was to review habits relevant to public radiation exposure from the MRF via direct radiation occupancy in the vicinity of the site. The focus of the observation survey was the area adjacent to a waste container park on the site that had resulted in the elevated readings in 2016. The information from the survey will form part of the formal public dose assessments for the site.

The survey was funded by the Environment Agency, the Food Standards Agency and the Office for Nuclear Regulation to support their roles in protecting the public from the effects of radiation.

2. Survey area

The survey area included the sections of the roundabout and roads (A595 and Braithwaite Road) adjacent to the container park at the Metals Recycling Facility, shown in Figure 1. The survey did not include the nearby businesses due to the distance of these properties from the MRF site.

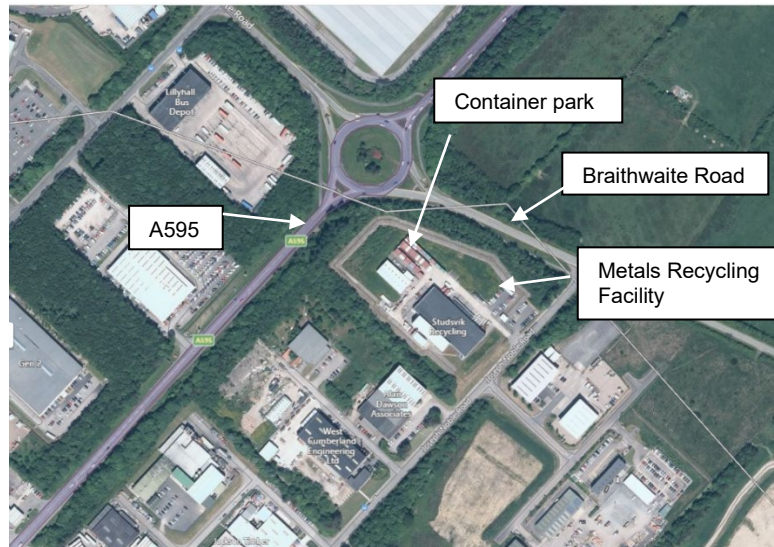


Figure 1. The Metals Recycling Facility (directly to the south of the roundabout). Image courtesy of Bing Maps.

3. Conduct of the survey

The fieldwork was carried out on 6th August 2018, by a team of two people (from Cefas and the Office for Nuclear Regulation). The team undertook a brief observation survey of the activities at the roundabout and the roads closest to the container park.

A meeting was held with a representative from the MRF to discuss the site activities and local knowledge of the area. The waste containers are located near the site perimeter fence and are close to the roundabout. Those containing waste at elevated levels are not stacked any higher than the fence and are shielded by other containers. There is a bunding wall in front of the containers, which is partly for shielding. There is also a tritium store on site but there is no direct radiation from this store.

4. Information recorded

The site is on the Lillyhall Industrial Estate and is remote from residential areas. The container park is bordered by a roundabout and two main roads (the A595 and Braithwaite Road), which have pedestrian footpaths. Figure 2 and Figure 3 show the footpath and a

cycle path on Braithwaite Road adjacent to the MRF. There is dense vegetation between the site fence and the footpaths, as shown in Figure 4.

At the time of the observation, there was little traffic and the vehicle waiting time at the roundabout was minimal. Figure 5 and Figure 6 show the average number of vehicles at the roundabout, which were stopping for a few seconds at most. Several cyclists and one jogger were observed on the paths adjacent to the container park and the time spent cycling and jogging past the containers was very brief. An electricity box is located on the path beside the roundabout but no further information regarding the occupancy of workers who service this box could be obtained.

Information obtained from MRF representatives confirmed that the activities near the site were driving, cycling, jogging and walking. The people walking in the area were primarily employees from the businesses on the industrial estate walking at lunchtime. Traffic was primarily free flowing at the roundabout and might only back up if there is an accident on the A595.



Figure 2. Braithwaite Road looking towards the Lillyhall roundabout (the MRF is to the left of the sign)



Figure 3. Braithwaite Road and cycle path looking towards the Lillyhall roundabout (the MRF is to the left of the sign)



Figure 4. A595 (south) looking towards the Lillyhall roundabout (the MRF is to the right of the trees)



Figure 5. Braithwaite Road looking towards the Lillyhall roundabout (the MRF is to the left of the sign)



Figure 6. A595 (south) looking towards the Lillyhall roundabout (the MRF is to the right of the path)

5. Conclusion

The direct radiation observation survey undertaken at the Metals Recycling Facility focussed on the area adjacent to the waste container park that had resulted in the elevated dose rates in 2016. This area included a roundabout and two main roads, the A595 and Braithwaite Road. The activities identified in the area were driving, cycling, jogging and walking. The traffic was free flowing and the stopping time at the roundabout was several seconds at most. The time spent by people walking, jogging and cycling on the paths was brief due to the short distance around the container park area. Quantitative data were not obtained for the time spent undertaking the activities as it was minimal.

6. References

EA, FSA, FSS, NRW, NIEA and SEPA, 2018. Radioactivity in Food and the Environment, 2017. EA, FSA, FSS, NRW, NIEA and SEPA, Bristol, London, Aberdeen, Cardiff, Belfast and Stirling. RIFE (23).

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