

Ambient Air Monitoring Team

Study of Ambient Air Quality at Cannock

3 February 2020 and 17 June 2020

The Environment Agency is responsible for the regulation of the Environmental Permit held by Biffa Waste Services Ltd for Poplars Landfill Site and Anaerobic Digestion Facility in Cannock. The landfill has operated since the 1970's and is located within the void of a former opencast coal mine. The landfill is located in an urban area, with residential properties within 100 metres of the site boundary.

The requirement to measure emissions to air from the landfill site are set out in the environmental permit. In addition to operator monitoring on the site, the Environment Agency carried out an ambient air monitoring study between the 3 February 2020 and 17 June 2020. The overall objective of the study was to identify the local sources of air pollution and to quantify the environmental impact of the emissions from these sources on the surrounding area and the local community.

What did the study involve?

The Ambient Air Monitoring (AAM) team installed a Mobile Monitoring Facility (MMF) to the north east of Poplars Landfill Site on the 31 January 2020, in the car park of Newhall Farm pub in Cannock. Data was collected between the 3 February 2020 and 17 June 2020 (136 days). Five minute average concentrations of hydrogen sulphide and methane were measured over the monitoring period alongside wind direction and wind speed measurements.

One of the possible impacts associated with landfill sites is nuisance odours. Quantifying and characterising odours is very challenging because each person's sensitivity to odours can vary. Measuring odours can be very difficult because the gases are made up of a mixture of different pollutants. Landfill gas is made up of a large proportion of methane.

By measuring methane we can infer if there is a source of landfill gas being measured at the

monitoring location, from the direction of the landfill site. We were also able to measure hydrogen sulphide, which has an associated odour.

Hydrogen sulphide concentrations were compared against the relevant World Health Organisation guidelines for human health and odour. There are no objectives or guidelines for methane emissions, its main environmental impact is from its relatively high potential for global warming.

The wind direction and pollutant data was used to assess from which wind directions the highest concentrations were measured.

What did the results show?

An assessment of the meteorological conditions over the monitoring period showed that the wind came from the direction of the landfill site towards the monitoring site about 33% of the time.

Comparison of the hydrogen sulphide data against the relevant World Health Organisation WHO guidelines showed that concentrations were below health limits. Levels were only found to be above the 30-minute mean odour guide level on four occasions, on the 5 February 2020 (0.1% of the monitoring period).

Consideration of the directional sources of hydrogen sulphide and methane suggested that the highest contributing sources were seen from the direction of the landfill site, alongside lower contributing sources from other directions.

Further work

No further ambient air monitoring studies are planned to take place at Cannock by the Environment Agency but our regulatory work will continue at Poplars Landfill Site and Anaerobic Digestion Facility.

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