

AMBIENT AIR QULITY REPORT

COMPLETED FOR:

**Bucks Recycling Ltd
Building 214
Westcott Venture Park
Westcott
Aylesbury
Bucks
HP18 0XB**

Report Number :	9328		
Date of Survey :	31st July 2019		
Survey Completed By :	Jon Lowrence Grad IOSH AFOH TFAAM		
Name :	Written By: Trish Kinta	Checked By: Jon Lowrence Grad IOSH AFOH TFAAM	Authorised : Sarah Lowrence Grad IOSH AFOH
Job Title :	Administrator	Consultant	Consultant
Date :			
Signature :			

Introduction

Bucks Recycling Limited, Westcott recycling plant, requested Agility Risk & Compliance to undertake an ambient dust monitoring project to establish fugitive nuisance dust emissions from the building materials waste recycling site.

Objectives of the Project

This document outlines the results of the dust deposition gauge/s and the methods by which Bucks Recycling Limited continue to systematically, reduce and where possible prevent air quality fugitive dust emissions from the site.

It will serve as a working document with the specific aim of ensuring that:

- Dust/particulates are considered as part of routine management, operation and control.
- The risk of unplanned dust releasing incidents that could result in annoyance is minimised
- Dust is primarily controlled at source by good operational practices, the correct use and maintenance of plant and operator training.

To achieve these objectives, this Ambient Dust Air Quality Monitoring Report is structured to identify the following.

- All potential fugitive dust sources & sensitive receptors;
- Quantify fugitive nuisance dust emissions from the site.
- Controls that are in place to manage the generation of fugitive dust and prevent its release.

Site Setting

The site is located within the Westcott Venture Business Park in Aylesbury, the site occupies a boundary to the North / East of the site with Ashenden Road, Wescott.

The sites perimeter fence Northern / Eastern boundary, is located next to a field and ~ 100 metres beyond this are residential housing located on Ashenden Road, this housing was identified as Sensitive Receptors.



Dust Sources on Site

The dust sources identified on the site were as follows;

- 1). Site roadways to access / egress the site by skip lorries.
- 2). Processing / recycling plant.

Air Quality

Although there is no universally recognised definition of dust, it is usually considered to comprise particles with diameters ranging from 1 to 75 μm (millionths of a metre or thousandths of a millimetre) and is both suspended in air and deposited from air. Particles less than 1 μm behave more like gases than solids and are generally termed 'fume'.

Dust is not typically associated with human health effects as most dust particles are too big to be inhaled, but can cause eye, nose and throat irritation and can result in deposition on cars, windows and other property.

Typical UK Background Dust Deposition Rates;

Location	Dust Deposition Rate, mg/m ² /day		
	50th percentile (median)	90th Percentile	95th percentile
Open Country	38	103	140
Residential Areas and the Outskirts of Towns	56	146	203
Commercial centres of Towns	90	199	261

It is recommended, therefore, that an assessment criterion of 200 mg/m²/d is applied as a control level for this project, on the basis that this represents an appropriate high quality standard for EU Member States.

Clearly, the assessment of compliance with this criterion will be conducted on a retrospective basis but, in order to allow for intervention (Information from EA M17 – Monitoring of particulate matter around waste facilities).

Annoyance Factors

The precise distance from its source at which dust deposition will occur will depend on the nature of the activity on site, wind direction, wind speed, particle size distribution and moisture content, which all influence whether the potential for dust annoyance exists.

The degree of annoyance depends on the rate of deposition, and is discernible at two levels:

- Annoyance experienced when the dust cover is sufficient to be visible when contrasted to an adjacent clean surface, such as when a finger is wiped across the surface. This is particularly annoying when it occurs regularly over long periods; and
- Severe annoyance experienced when the dust cover is perceptible without a clean reference surface for comparison.

Annoyance complaints are usually associated with periods of peak deposition, occurring during particular weather conditions.

There is a 'normal' level of dust deposition in every community (i.e. the existing baseline) and it is only when the rate of deposition is considered high relative to the existing baseline, or when a different type of dust occurs (for example different colour or texture), that complaints tend to occur.

The effect of dust on a community will therefore be determined by three main factors:

- Short term dust events/ emissions during periods of dry weather;
- The frequency or regularity with which these occur; and
- The duration of activities which contribute to dust emissions.

The smallest particles of dust (i.e. in the size range of 10-30 μm) have the potential to travel the furthest from where they are generated, but these normally make up only a small proportion of the dust that originates from waste sites. Furthermore these particles tend to fall out of the atmosphere within 100 - 250m of the point of release, although the smallest particles (those less than or equal to 10 μm in diameter - PM10) can travel in excess of 1 km and sometimes hundreds of kilometres from the point of release.

Pollutant Pathways

Fugitive dust released during the recycling processing activities could be transported from source to target receptors via the atmosphere.

The level of dispersal/dilution is dependent on the atmospheric stability, wind speed and direction. The greatest risk of dust dispersal occurs during calm dry conditions with little vertical dispersion. This is not to say, however, that impacts from fugitive dust may not occur in other weather conditions.

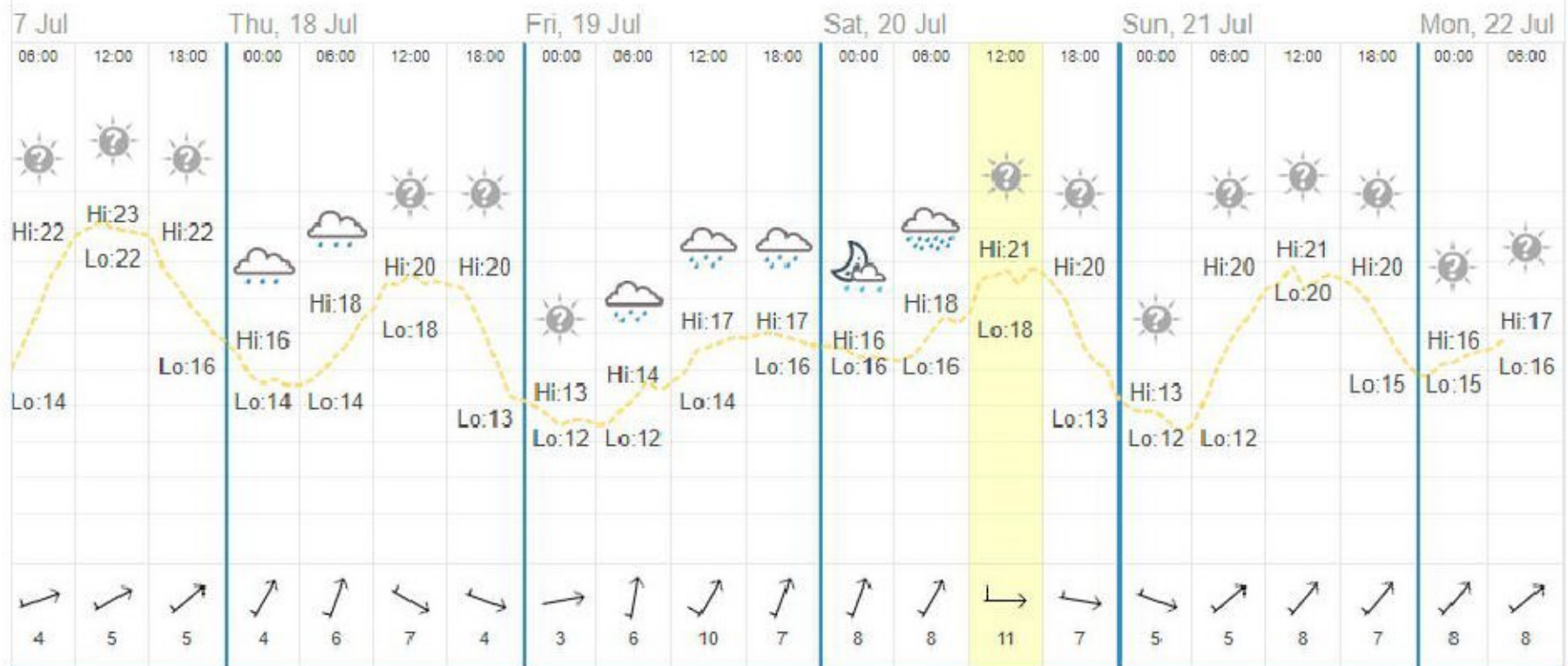
The following weather conditions were recorded for the 2 week period of the monitoring.

The predominant wind direction was from the north west to the north east for the period of the sampling.

select month: Past 2 Weeks

Past Weather in Aylesbury — Graph

°C



Saturday, 20 July 2019, 12:00 — 18:00



21 / 18 °C

Mild.

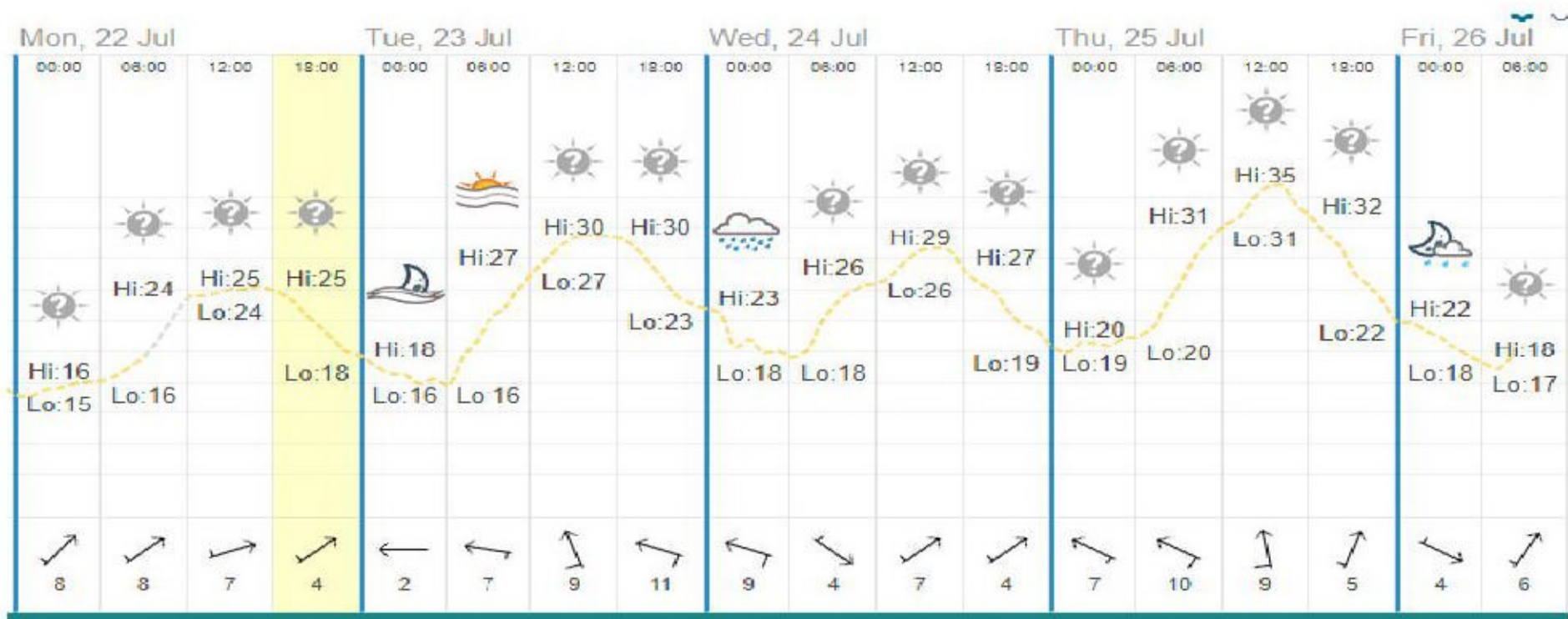
Humidity:
Barometer:

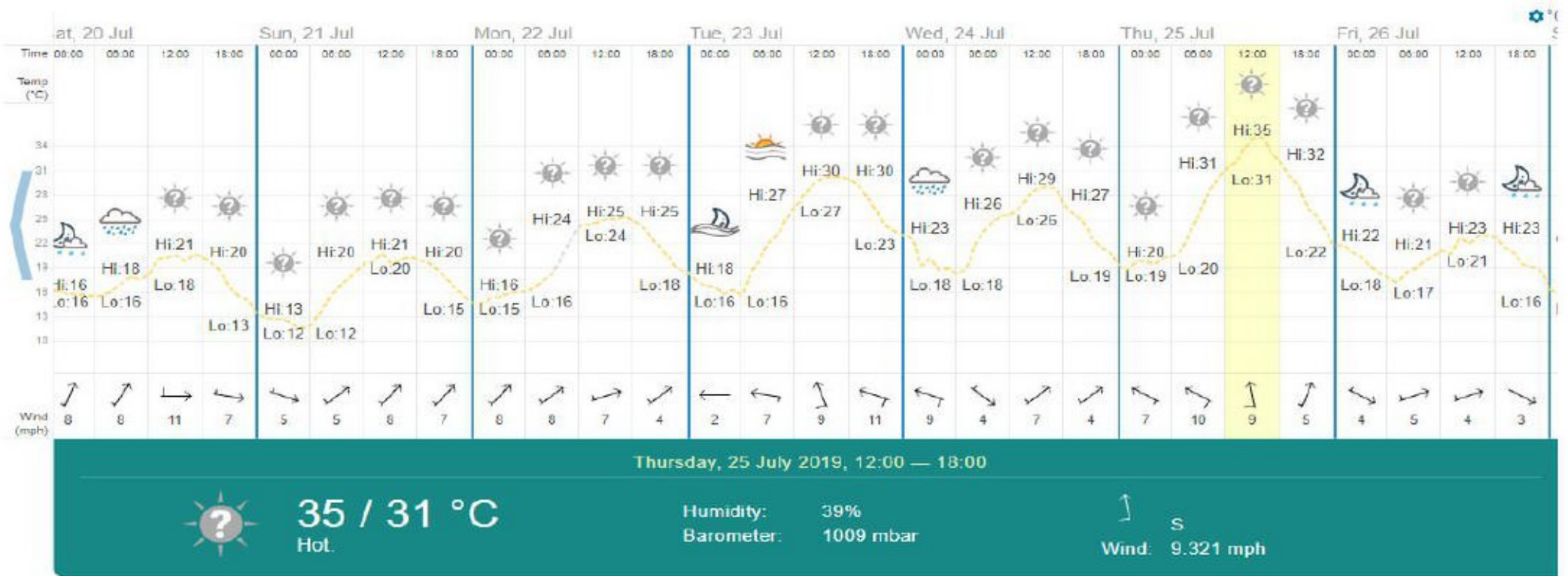
66%
1009 mbar



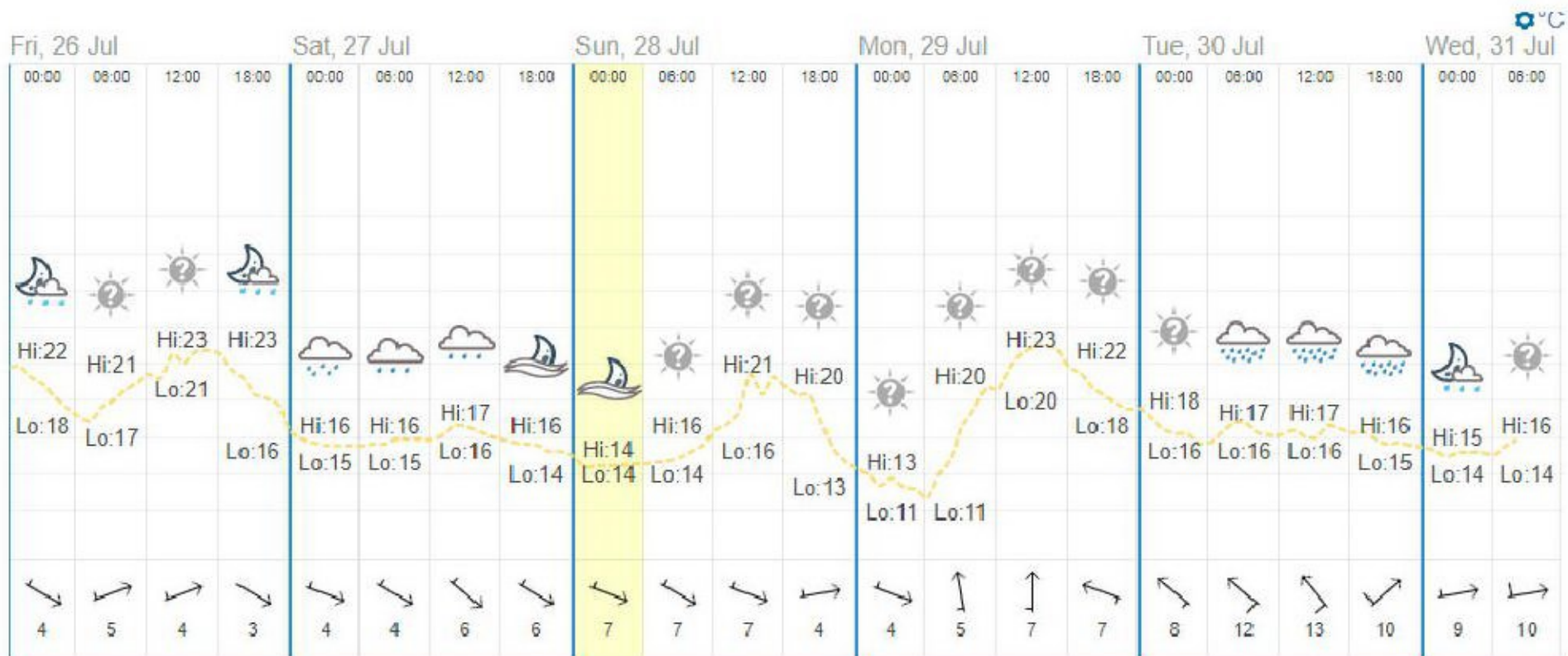
W

Wind: 10.564 mph





Bucks Recycling – Ambient air quality monitoring.
 July 2019.
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Sunday, 28 July 2019, 00:00 — 06:00

14 °C

Humidity: 98%
Barometer: 1006 mbar

↙ WNW
Wind: 6.836 mph

Bucks Recycling – Ambient air quality monitoring.
July 2019.
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Sampling & Analysis Methodology.

Four frisbee type deposit gauges were located around the site perimeter fence, located to the North, South, West & East as denoted by the attached plan of the locations.

The frisbee deposit gauges measure nuisance dust as dustfall - Measurement of deposition rate ($\text{mg m}^{-2} \text{ day}^{-1}$): sampling by passive collection of dust into a Frisbee deposit gauge & gravimetric analysis. This is a custom and practice method exist Reference the Stockholm Environment Institute at York (SEI-Y) method (Vallack, H.W. (1995), A Field Evaluation of Frisbee-Type Dust Deposit Gauges, Atmospheric Environment, 29. 1465- 1469).

The deposit gauges were located in each position for a period of 2 weeks (14 days) and subsequent gravimetric analysis was completed by SOCOTEC Laboratories (UKAS Accredited).

Extract from EA M8 – Monitoring of ambient air

This is the preferred method for measurement of dustfall by gravimetric means.

This method gives a great improvement in performance over BS gauge and ISO gauge. A polyester foam dust trap was used to reduce contamination from falling leaves, etc.

The Inverted Frisbee is mounted horizontally on a pole 1.75 m above the ground. Deposited matter on the collection surface, and the insoluble matter in the rainwater collection are quantitatively removed and separated by gentle vacuum filtration.

Insoluble matter dried and determined gravimetrically. Expressed as $\text{mg m}^{-2} \text{ day}^{-1}$. The Shape has superior collecting efficiency and aerodynamic characteristics that make it suitable for short-term sampling periods of about a week, but usually exposed for longer as custom and practice default nuisance limits are based on monthly exposures.

The frisbee deposit gauges measure nuisance dusts, these may be from the site or may be blown from other sources (eg. Surrounding farmland / industry), but provide a good indication of typical dust levels passing the sites perimeter boundary/s.

Control Measures in Place

- The existing control measures in place are to suppress dusts on the site roadways;
- The use of fixed water sprinkler systems to water the roadways when the site is operational.
 - The use of water bowsers to soak the roadways not served by fixed sprinkler systems.
 - Part containment of dusts within the recycling / processing area, by use of building containment and sorting cabins.
 - Watering of skip tipping / depositing area in dry conditions.
 - Site bund approximately 3 – 4 metres height surround the site towards the Ashenden Road.

Photographs;



Site roadways sprinkler water system for dust suppression.



Use of water bowser for dust suppression on site roadways

Sampling Locations



East of the site Frisbee on perimeter fence.

(field with Ashenden Road beyond)



South of the site frisbee, at the perimeter fence (Near to site access roadways).



North of the site frisbee
on top of the site bund.



West of the site frisbee
at perimeter boundary

(Prevailing wind enters
from this direction)

Results

The laboratory results of nuisance dust emissions from each of the frisbee deposit gauges were analysed by SOCOTEC Laboratories Report Number FD / 15925.

The results are based on a 2 week sample period from the 17th July 2019 to the 31st July 2019.



Location	Result (mg / m ² d)	Control Level (mg / m ² d)
North	56	200
West	18	200
South	81	200
East	27	200

Discussion

The results show all samples measured over a 2 week sample period, were all below the control level, the highest result being for the South deposit gauge.

This deposit gauge being nearest the site roadway for access / egress from the site, which as expected produced the highest results, but the results were 41% of the acceptable control level of 200 mg/m² d.

ANALYSIS RESULTS

 1015	 SOCOTEC
OCCUPATIONAL HYGIENE AND ENVIRONMENTAL MONITORING LABORATORY TEST REPORT	
Site: Bucks Recycling Ltd.	
Client: Eaglesafety & Environment Ltd Pant y Gelynen Cefn Coch Welshpool United Kingdom SY21 0A	
Job Number: 31955 Report Number: FD/ 15925 Report Date: 20/08/2019	
Method N°. ENV/FD01: The determination of Fugitive Dust Based on BS 872: 2005 UKAS accredited tests are denoted by an asterisk(*)	
SOCOTEC does not accept any responsibility for the sampling associated with the results reported below. The dust samples will be retained at the laboratory for a period of 6 months in case extended analysis is required in future. Liquids associated with dust samples are not normally retained at the laboratory.	
Report Comment:	
Approved by: <div style="background-color: black; width: 200px; height: 40px; margin: 5px 0;"></div> <p style="margin-left: 100px;">John Perry, Senior Analyst Environmental Laboratory Direct Dial: 01283 554488</p>	



TEST REPORT



Report Number FD/ 15925 Job Number 31955 ID Number 167349
 Site Description Bucks Recycling Ltd.
 Sample 1 NORTH
 Date Received 02/08/2019 Sampling Period 17/07/2019 to 31/07/2019 14 Days

UKAS accredited tests are denoted by an asterisk(*)

Method ENV/FD01 **Gauge Type** Frisbee deposit gauge

* Dust mass (mg) 31

Deposition ($\text{mg}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$) 56

Detection Limit (mg) 0.5 Date Tested 19/08/2019

Method

Result	LOD		Date Tested	
	Measured Value *	Units	Reported Result	Units
No additional tests requested				



TEST REPORT



Report Number FD/ 15925 Job Number 31955 ID Number 167350
 Site Description Bucks Recycling Ltd.
 Sample 2 WEST
 Date Received 02/08/2019 Sampling Period 17/07/2019 to 31/07/2019 14 Days

UKAS accredited tests are denoted by an asterisk(*)

Method ENV/FD01 **Gauge Type** Frisbee deposit gauge

* Dust mass (mg) 10

Deposition ($\text{mg}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$) 18

Detection Limit (mg) 0.5 Date Tested 19/08/2019

Method

Result	LOD		Date Tested	
Test / Direction	Measured Value *	Units	Reported Result	Units
No additional tests requested				



TEST REPORT



Report Number FD/ 15925 Job Number 31955 ID Number 167351
 Site Description Bucks Recycling Ltd.
 Sample 3 SOUTH
 Date Received 02/08/2019 Sampling Period 17/07/2019 to 31/07/2019 14 Days

UKAS accredited tests are denoted by an asterisk(*)

Method ENV/FD01 **Gauge Type** Frisbee deposit gauge

* Dust mass (mg) 45

Deposition ($\text{mg}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$) 81

Detection Limit (mg) 0.5 Date Tested 19/08/2019

Method

Result	LOD		Date Tested	
	Measured Value *	Units	Reported Result	Units
No additional tests requested				



TEST REPORT



Report Number FD/ 15925 Job Number 31955 ID Number 167352
 Site Description Bucks Recycling Ltd.
 Sample 4 EAST
 Date Received 02/08/2019 Sampling Period 17/07/2019 to 31/07/2019 14 Days

UKAS accredited tests are denoted by an asterisk(*)

Method ENV/FD01 **Gauge Type** Frisbee deposit gauge

* Dust mass (mg) 15

Deposition ($\text{mg}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$) 27

Detection Limit (mg) 0.5 Date Tested 19/08/2019

Method

Result	LOD		Date Tested	
	Measured Value *	Units	Reported Result	Units
No additional tests requested				