

Viridor, Grundon and Ford EfW

Ford Circular Technology Park – Ford ERF and WSFT

Plume Visibility Modelling Results

1 Introduction

This technical note presents the results of the plume visibility modelling. The ADMS dispersion model used for the detailed modelling of process emissions includes a function to model the visible plume, and this has been used to determine the extent of the plume from the stack. All inputs to the model are presented in Appendix C3.

The following parameters have been calculated:

- The length of the longest visible plume;
- The number of visible plumes during daylight hours;
- The percentage of modelled daylight hours with any visible plume; and
- Percentage of visible plumes with a length of more than:
 - 20m;
 - 50m;
 - 100; and
 - 200m.

2 Results

The following tables set out the results of the modelling for the five years of meteorological data.

Table 1: Summary

	2014	2015	2016	2017	2018	Average
Length of longest visible plume	383	367	427	439	367	396
% of modelled daylight hours with any visible plume	86.7%	83.3%	86.0%	88.8%	89.8%	86.9%
% visible plumes > 20m length	55.0%	51.3%	49.2%	56.7%	62.3%	54.9%
% visible plumes > 50m length	21.1%	20.9%	20.7%	25.0%	25.8%	22.7%
% visible plumes > 100m length	3.7%	2.7%	3.0%	4.3%	5.1%	3.8%
% visible plumes > 200m length	383	367	427	439	367	396

Table 2: Breakdown

Year	2014	2015	2016	2017	2018	Average
Total number of visible plumes in daylight hours	855	917	957	889	1090	941.6
% of modelled daylight hours with any visible plumes	19.8%	20.8%	21.9%	20.3%	25.2%	21.6%
Number of visible plumes in daylight hours						
>20m from stack	741	764	823	789	979	819
>50m from stack	470	470	471	504	679	519
>100m from stack	180	192	198	222	281	215
>200m from stack	32	25	29	38	56	36
Percentage of daylight hours a plume is visible						
>20m from stack	17.2%	17.3%	18.8%	18.0%	22.6%	18.8%
>50m from stack	10.9%	10.7%	10.8%	11.5%	15.7%	11.9%
>100m from stack	4.2%	4.4%	4.5%	5.1%	6.5%	4.9%
>200m from stack	0.7%	0.6%	0.7%	0.9%	1.3%	0.8%
Percentage of visible plumes which the length is						
>20m from stack	86.7%	83.3%	86.0%	88.8%	89.8%	86.9%
>50m from stack	55.0%	51.3%	49.2%	56.7%	62.3%	54.9%
>100m from stack	21.1%	20.9%	20.7%	25.0%	25.8%	22.7%
>200m from stack	3.7%	2.7%	3.0%	4.3%	5.1%	3.8%

Yours sincerely

FICHTNER Consulting Engineers Limited

Rosalind Flavell
Senior Environmental Consultant

James Sturman
Lead Environmental Consultant