

25 March 2026

Geminor UK Limited

Environmental Permit reference: EPR/GP3303PN

SLR Project No.: 416.065261.00001

Revision: v1.0

## **RE: H1 Screening Assessment of Odour Control System Emissions at the Geminor Waste Processing Facility on St. Marks Street, Hull**

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### **1.0 Introduction**

This technical memorandum presents the results of a H1 screening assessment of potential emissions from the Odour Control System (OCS) stack at the Geminor Waste Processing Facility on St. Marks Street, Hull, HU8 7ED (the 'Site').

### **2.0 Background**

This H1 screening assessment has been prepared in response to comments<sup>1</sup> set out in Schedule 5 correspondence received from the Environment Agency (EA) in relation to the application to vary Environmental Permit reference EPR/GP3303PN/V005.

#### *"Emissions to air*

*Progress is being made towards submitting a H1 assessment for the emission to air. We will take a stepped approach, the outstanding questions in the Schedule 5 notice will be answered and if modelling is required based on the outcome of the H1 then a deadline for the submission of this can be agreed and a subsequent Schedule 5 notice issued."*

### **3.0 Emission Parameters**

The emission parameters for the OCS have been defined in reference to the following sources:

- Airflow rate: technical specification document for the OCS<sup>2</sup>;
- Effective stack height: technical drawings for the OCS<sup>3</sup>; and
- Assumed emissions concentrations: Best Available Techniques Associated Emission Levels (BAT-AELs), as outlined within the BAT Reference (BREF) Document for Waste Treatment<sup>4</sup>.

The emission parameters for the OCS, as applied within this assessment, are presented in Table 1 below. In reference to the BAT-AELs outlined within the BAT reference document,

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<sup>1</sup> Email correspondence from Matthew Allen Senior Permitting Officer (Installations) within the Environment Agency. Dated 25/02/2026.

<sup>2</sup> Exeon document reference: 146858-EXE-X-TS-C-400.

<sup>3</sup> Exeon drawing reference: 146858-EXE-G-DR-0014.

<sup>4</sup> Best Available Techniques (BAT) Reference Document for Waste Treatment, Joint Research Centre, 2018.

emission rates have been calculated for 'dust' and Total Volatile Organic Compounds (TVOC).

**Table 1: OCS Emission Parameters**

Pollutant	BAT-AEL (mg/m <sup>3</sup> )	Normalised Airflow Rate (Nm <sup>3</sup> /s)	Calculated Emission Rate (g/s)
Total dust	10 <sup>(A)</sup>	27.4 <sup>(C)</sup>	0.27
TVOC	30 <sup>(B)</sup>		0.82

Table notes:  
(A) BAT-AEL where a fabric filter is not applicable.  
(B) Upper limit of the BAT-AEL.  
(C) Calculated in consideration of the design specification of 104,000m<sup>3</sup>/hr and an emission temperature of 15°C.

## 4.0 Environmental Assessment Levels

The Environmental Assessment Levels (EALs) have been defined in reference to the latest Air Quality Strategy (AQS) for England<sup>5</sup> and the EA's 'Air Emissions Risk Assessment for your Environmental Permit' (AERA) guidance<sup>6</sup>.

In lieu of specific data for the chemical composition of the airstream, TVOCs have been assessed as benzene (C<sub>6</sub>H<sub>6</sub>) (i.e. the TVOC with the lowest EAL), as per the approach outlined within the AERA guidance.

Furthermore, the BAT-AEL presented within the waste treatment BREF, relates to 'total dust'. However, as a precautionary approach this assessment has assumed that all total dust emission consists of both and only PM<sub>10</sub> and PM<sub>2.5</sub>, allowing the maximum ground level impacts with respect to the AQALs to be considered.

The EALs applied within this assessment are presented in Table 2 below.

**Table 2: Environmental Assessment Levels**

Pollutant	Assessment Level (µg/m <sup>3</sup> )	Averaging Period	AQAL / EAL
PM <sub>10</sub>	50	24-hour mean ( <b>long-term</b> )	AQAL
	40	Annual mean	AQAL
PM <sub>2.5</sub>	20	Annual mean	AQAL
Benzene (C <sub>6</sub> H <sub>6</sub> )	30	24-hour mean ( <b>short-term</b> )	EAL
	5	Annual mean	AQAL

## 5.0 Screening Assessment

The key inputs to the H1 screening assessment are summarised in Table 3 below.

The background concentrations have been defined in reference to the Department for Environment, Food and Rural Affairs (Defra) background mapping<sup>7</sup> for C<sub>6</sub>H<sub>6</sub>, and the nearby

<sup>5</sup> Air Quality Strategy: Framework for Local Authority Delivery, Defra. April 2023.

<sup>6</sup> <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>.

<sup>7</sup> <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2001>.



Hull Freetown Automatic Urban and Rural Network (AURN) continuous monitoring station<sup>8</sup> for PM.

**Table 3: H1 Assessment Inputs**

Pollutant	Averaging Period	Effective Release Height	Dispersion Factor	Emission Rate (g/s)	Background Concentration ( $\mu\text{g}/\text{m}^3$ )
PM <sub>10</sub>	24-hour mean	0m <sup>(A)</sup>	148	0.14	16.1
	Annual mean	0m <sup>(A)</sup>	148	0.14	16.1
PM <sub>2.5</sub>	Annual mean	0m <sup>(A)</sup>	148	0.14	9.1
C <sub>6</sub> H <sub>6</sub>	24-hour mean	0m <sup>(A)</sup>	2,301 <sup>(B)</sup>	1.10	0.964 <sup>(C)</sup>
	Annual mean	0m <sup>(A)</sup>	148	1.10	0.482

Table notes:

(A) The stack discharges at a height below that of nearby buildings, therefore the effective release height has been considered as 0m.

(B) The hourly dispersion factor (3,900) has been multiplied by a conversion factor of 0.59 to account a short-term 24-hour averaging period, as per the method outlined within the AERA guidance.

(C) Calculated in consideration of twice the long-term background concentration, as per the method outlined within the AERA guidance.

The results of the H1 screening assessment are presented in Table 4 below. The Process Contribution (PC) has been calculated through application of the dispersion factors and conversion factors presented within the AERA guidance. The Process Environmental Contribution (PEC) has been calculated from the sum of the PC and background ('BG') concentrations.

**Table 4: H1 Screening Assessment Results**

Pollutant	Averaging Period	PC ( $\mu\text{g}/\text{m}^3$ )	PC as % of EAL	PEC ( $\mu\text{g}/\text{m}^3$ )	PEC as % of EAL	PEC as % of EAL-2xBG
PM <sub>10</sub>	24-hour mean	40.0	79.9	56.1	112.1	N/A
	Annual mean	40.0	99.9	56.1	140.2	N/A
PM <sub>2.5</sub>	Annual mean	40.0	199.8	49.1	245.3	N/A
C <sub>6</sub> H <sub>6</sub>	24-hour mean	1,886.82	6,289.4	1,887.78	N/A	6,725
	Annual mean	1,21.36	2,427.2	121.84	2,436.8	N/A

## 6.0 Summary and Conclusions

The findings of the assessment are as follows:

- Dust:
  - The calculated PC is greater than 1% of the 24-hour (long-term) and annual mean EALs, when assessed as PM<sub>10</sub>;
  - The calculated PEC is greater than 70% of the 24-hour (long-term) and annual mean EALs, when assessed as PM<sub>10</sub>;

<sup>8</sup> [https://uk-air.defra.gov.uk/data/flat\\_files?site\\_id=HUL2](https://uk-air.defra.gov.uk/data/flat_files?site_id=HUL2).



- The calculated PC is greater than 1% of the annual mean EAL, when assessed as  $PM_{2.5}$ ; and
- The calculated PEC is greater than 70% of the annual mean EAL, when assessed as  $PM_{2.5}$ .
- TVOCs:
  - The calculated PC is greater than 1% of the annual mean EAL, when assessed as  $C_6H_6$ ;
  - The calculated PC is greater than 10% of the 24-hour (short-term) EAL, when assessed as  $C_6H_6$ ;
  - The calculated PEC is greater than 70% of the annual mean EAL, when assessed as  $C_6H_6$ ; and
  - The calculated PEC is greater than 20% of the 24-hour (short-term) EAL minus twice the background concentration, when assessed as  $C_6H_6$ .

