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BASELINE AIR QUALITY SURVEY REPORT

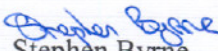
FOR

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1.0 Scope

This report presents the results of a baseline air quality survey at the site of a proposed composting facility which is to be located at Littleton, Co. Tipperary.

2.0 Methodology

Measurements were completed by TMS Environment Ltd personnel during a visit to the proposed site on 20th July and 03rd October 2006. Samples for chemical analysis were collected using various techniques. Draeger tubes provided an in-situ determination of ammonia, hydrogen sulphides and mercaptans. Ammonia and hydrogen sulphide levels were also measured using absorption solutions with uv-visible absorption spectrophotometric analysis for hydrogen sulphide and analysis for ammonia was by ion selective electrode. The sampling and analysis techniques employed during the course of the survey are summarised in Table 1.

A dust deposition survey was also conducted during the period 20th July to the 17th of August 2006. The procedure employed for this survey was Standard Method VDI 2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Institute).

The dust deposition rate was measured by positioning four Bergerhoff Dust Deposit Gauges at strategic locations near the boundaries of the site for a period of 28 days. The selection of sampling point locations was completed after consideration of the requirements of VDI 2119 with respect to the location of the samplers relative to buildings and other obstructions, height above ground and sample collection and analysis procedures. After the exposure period was complete, the Gauges were removed from the site; the dust deposits in each Gauge were determined gravimetrically and expressed as a dust deposition rate in mg/m²-day in accordance with the relevant standard. The locations of the Dust Deposit Gauges are marked as D-1 to D-4 on a map of the site presented separately in Appendix I.

Table 1 Scope of measurement of odorous emissions to atmosphere at proposed composting facility Littleton, Co. Tipperary.

PARAMETER	SAMPLING AND ANALYSIS TECHNIQUE	REFERENCE
Ammonia	<i>In situ</i> ; colorimetric tubes Absorption	Documented In-house procedure Ion selective electrode
Hydrogen Sulphide	<i>In situ</i> ; colorimetric tubes Absorption	Documented In-house procedure Ion Selective Electrode
Mercaptans	<i>In situ</i> ; colorimetric tubes	Documented In-house procedure

3.0 Results

The monitoring results of the baseline air quality survey are presented in Table 2. The measurement results for dust deposition rate are presented in Table 3 with the measurement locations (D1–D4) highlighted in Appendix I.

Table 2 Emission results at proposed composting facility Littleton, Co. Tipperary.

SOURCE	DRAGER TUBE MEASUREMENTS ^[1]			Hydrogen Sulphide mg/m ³	Ammonia mg/m ³	Amines mg/m ³	Organic Sulphur mg/m ³
	H ₂ S, ppm	Ammonia, ppm	Mercaptans ppm				
AA1	< 0.2	< 2.0	< 0.5	< 0.01	< 5.0 x 10 ⁻³	< 0.5	< 0.5
AA2	< 0.2	< 2.0	< 0.5	0.52	< 5.0 x 10 ⁻³	< 0.5	< 0.5

NOTE

[1] Drager tube measurements were made *in situ*.

Table 3 Dust deposition rate at Littleton, Co. Tipperary from 20th July to 17th August 2006.

Sampling Location	Dust Deposition Rate mg/m ² -day
D-1 East boundary of site	43
D-2 South boundary of site	335
D-3 West boundary of site	3839
D-4 North boundary of site	363

4.0 Evaluation of results

4.1 Survey results

Dust measurements were completed at four locations (D-1 to D-4). The results are expressed as dust deposition rate in mass per unit area per day over a period of one month (28 days).

The Standard BATNEEC limit for Bergerhoff dust gauges is 350 mg/m²-day. From the results presented in Table 1 above, D-1 and D-2 do not exceed this level. D-3 and D-4 exceed the Standard BATNEEC limit of 350 mg/m²-day. It is likely that the dust deposition rates of D-3 and D-4 are due to agricultural activity in the vicinity of the site. Further baseline studies in advance of commencement of the proposed development are recommended in order to define the existing baseline situation before the activity commences.

There were no odorous compounds detected during the survey which is entirely consistent with expectations for this type of location. The results confirm that the existing air quality is good with respect to the various named substances which were included in the scope of the survey.

4.2 Scope of survey

The scope of the survey was determined with reference to the substances which might be expected to be released as a result of the proposed activity at this site. The activity is a composting activity and hence some odorous emissions might be expected and some dust emissions might also be expected. Consequently measurements of these parameters were included in the scope of this report.

The levels of odorous substances which might be present in ambient air at locations removed from industrial sources of these substances are either very low or below the limit of detection which is consistent with the levels found in this survey. The dust deposition rates are relatively high for a location of this type but it is believed from observations made during the survey that the source of dust in the area is agricultural. This may be confirmed by a repeat survey prior to commencement of the proposed activity.

Microorganisms might also be expected in the emissions from a composting facility – these could be carried as spores with dust released from the facility. *Aspergillus fumigatus* is one such species which has been associated with composting facilities. In the absence of a direct industrial source, this species can be found in ambient air as a result of significant earthmoving and/or construction activities. This was not included in the scope of the survey because there are no significant source in the area and hence it was appropriate to exclude the measurement from the scope of the survey.

4.3 Recommendations for future monitoring

In the event that Planning Permission is allowed for this development, we recommend that a monitoring programme for the site activity should include some measurements at regular intervals to verify that the activity is not having an adverse impact on the local air quality. Specifically, we recommend that dust deposition should be measured over 28-days at least 3 times per year and twice during the period May to September. In addition, measurements of hydrogen sulphide, amines, organic sulphur should be completed annually using the methodologies outlined in this report.

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APPENDIX I

MAP OF BASELINE AIR MONITORING LOCATIONS FOR AMBIENT AIR SURVEY

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