

## Appendix 5.2

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### Ambient Air

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Ambient Air Survey

October 2013

**O Toole Composting Ltd**  
Ballintrane, Co Carlow

Permit No: WFP-CW-10-0003-01

Report Date: 27<sup>th</sup> November 2013

Report Number:  
3190-13-02  
Version 0

**AXIS environmental services**  
40 Coolraine Heights, Old Cratloe Road, Limerick  
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**Report for the Periodic Monitoring of Ambient Air**

Part 1: Executive Summary

Operator: O Toole Composting Limited

Installation: Ballinrane,  
Co Carlow

Contact Name: Paddy o Toole

Contact No: 086 2647990

Contract Manager: Mark Mc Garry

Monitoring Dates: 24<sup>th</sup> October 2103

Monitoring Organisation: AXIS environmental services

Address: 40 Coolraine Heights,  
Old Cratloe Road,  
Limerick

Laboratory: Irish Equine Centre  
Johnstown  
Naas  
Co. Kildare

Date of Report: 27<sup>th</sup> November 2013

Report Approved By: Mark Mc Garry

Function: Environmental Manager

Signed: 

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**1 Monitoring Results**

**1.1 Monitoring Objectives**

Monitoring was carried out at O Toole Composting Limited to determine the concentrations of a range of parameters the surrounding atmosphere is exposed to as result of composting activities on site.

Monitoring was carried out to permit requirements, fulfilling the requirements of Schedule 2, Part 4.3 Ambient Air Monitoring.

There were three locations studied as part of this contract, one approximately 150m upwind of the facility, one immediately downwind of the facility and one sample point at the facility site office. The following parameters were complete for each site:

**Table 1:**

Parameter	Method
PM <sub>10</sub>	EN 12341
Aspergillus fumigatus	UK Composting Association Protocol
Total Bacteria	UK Composting Association Protocol
Odour	EN 13725
Odour	EPA Guidance Document AG5

Table 2: Summary of Results

Monitoring Area	Substance	Method	Limits	Ambient Concentration	Units
Site 1 Up Wind of the Installation	PM <sub>10</sub>	EN 12341	None	103	ug/m <sup>3</sup>
	Aspergillus fumigatus	Impactor	Applied in the permit	0	CFU/m <sup>3</sup>
	Total Bacteria	Impactor		62	CFU/m <sup>3</sup>
	Odour Threshold Conc	Olfactometry		<45 (No Distinct Odour)	OuE/m <sup>3</sup>
Site 2 Down Wind of the Installation	PM <sub>10</sub>	EN 12341	None	79	ug/m <sup>3</sup>
	Aspergillus fumigatus	Impactor	Applied in the Permit	0	CFU/m <sup>3</sup>
	Total Bacteria	Impactor		496	CFU/m <sup>3</sup>
	Odour Threshold Conc	Olfactometry		49 (Slight Sweet Odour)	OuE/m <sup>3</sup>
Site 3 Facility Offices	PM <sub>10</sub>	EN 12341	None	98	ug/m <sup>3</sup>
	Aspergillus fumigatus	Impactor	Applied in the Permit	0	CFU/m <sup>3</sup>
	Total Bacteria	Impactor		310	CFU/m <sup>3</sup>
	Odour Threshold Conc	Olfactometry		<45 (No Distinct Odour)	OuE/m <sup>3</sup>

1.2 Special Monitoring Requirements

There were no special requirements for sampling and analysis for this project. Bacteria and Aspergillus testing was carried out by the Irish Equine Centre. Odour Analysis was carried out by OMI.

1.3 Summary of Equipment

Table 3: Equipment Summary

Item	ID Number	Calibration Status
Pump No 1	AX06	Calibrated On site Before and After Sampling
Defender 510 Calibrator	AX28	Calibration Certificate 105163
Camera	-	-
PM <sub>10</sub> Sample Heads	AX09	-
PM <sub>10</sub> Sample Heads	AX10	-
PM <sub>10</sub> Sample Heads	AX11	-
Bio Stage Sampler	AX39	-
Flyte Sample Pump	AX41	Calibrated On site Before and After Sampling
Sterilizing Agent	-	Ethanol

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Table 5: Odour Assessment		Reference	Site Permit No	Assessment by	Date of Assessment														
		O Toole Composting	WFP-CW-10-003-01	Mark Mc Garry	24 <sup>th</sup> October 2013														
Pre- Assessment Preparation	Observer is free from medical conditions (cold, sore throat, sinus trouble)	Yes	Observer abstinence (30 min) from smoking, flavored drinks, scented toiletries, deodorisers	Reason for Assessment – Complaint, Verification, Routine, Other	Weather Conditions														
	Yes	Yes	Yes	Permit Requirement on Bi-Annual Basis	Overcast Breezy														
Odour Source Investigation	Start time:	11:00	Do any of the odours experienced on site match in character those recorded during the off site survey?	List Areas Inspected:	What relevant activities were occurring onsite during the off site odour assessment?														
	Finish Time:	13:30	No	All Areas	Activities continued as normal on site – there was no alterations or unusual activities on-going														
Parameter	Observer location		Potential On-site odours identified:																
	Location	Facility Office	Composting activities Waste holding areas Traffic Movements																
Field Observations	Sensitivity	Direction from which wind blows	Orientation vs (Observer vs facility)	Strength	Start Time	Period of Observation	Odour Persistence	Odour Intensity	Description of Odours etc										
										2	SE	Down Wind	2	11:00	45mins	1	1	Compost intermittent	Building
										2	SE	Up Wind	2	12:30	45mins	0	0	None	
										3	SE	Down Wind	2	11:45	45mins	0	0	None	
Detail of any meeting with local residents/ complaints received during the assessment																			
None																			

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**Notes:**

**1: Observation Point Sensitivity**

- 1: Remote (no housing, commercial/ industrial premises, or public area within 500 metres of the observation point);
- 2: Low Sensitivity (no housing, commercial/ industrial premises or public area within 100m of the observation point);
- 3: Moderate sensitivity(housing, commercial/ industrial premises or public area within 100m of the observation point);
- 4: High Sensitivity (housing, commercial/ industrial premises or public area within area of the observation point);
- 5: Extra Sensitive: (complaints arising from residents, business and users of public areas within area of observation point)

**2: Wind Strength**

- 0: Calm    Smoke rises vertically;
- 1: Light Air                                    Direction of wind shown by smoke drift, but not wind vanes;
- 2: Light Breeze                              Wind felt on face; leaves rustle; ordinary vane moved by wind;
- 3: Gentle Breeze                              Leaves and small twigs in constant motion;
- 4: Moderate Breeze                           Raises dust and loose paper; small branches are moved;
- 5: Fresh Breeze                               Small trees in leaf begin to sway;
- 6: Strong Breeze                              Large branches in motion; umbrellas used with difficulty;
- 7: Near Gale                                    Whole trees in motion;
- 8: Gale    Twigs break off trees;
- 9: Strong Gale                                  Slight structural damage occurs

**3: Weather Conditions**

- 1: Precipitation                              Dry, rained recently, drizzle, raining, foggy;
- 2: Temperature                               Cold, Cool, Warm, hot;

**4: Odour Persistence**

- 0: No Odour;
- 1: Intermittent (detected intermittently during the period of assessment);
- 2: Persistent (detected throughout the period of the assessment);

**5: Odour Intensity**

- 0: No detectable odour;
- 1: Faint Odour (barely detectable, need to stand still and inhale facing into the wind);
- 2: Moderate odour (easily detectable while walking and breathing normally, possibly offensive);
- 3: Strong Odour (bearable but offensive – might make clothes/ hair smell);
- 4: Very Strong Odour (unbearable, difficult to remain in area affected by odour).



**Appendix I          Calculations**

**Title:** Determination of Total Bacteria & Aspergillus Fumigatus  
**Method:** UK Composting Association Protocol  
**Client:** O Toole Composting  
**Log Sheet Complete by:** Mark McGarry  
**Test Date:** 24th October 2013  
**Laboratory Used:** Irish Equine Centre  
**Site Name** O Toole Composting

**Location**

**Upwind** Site 1  
**Downwind** Site 2  
**Site Offices** Site 3

<b>Total Bacteria</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 3</b>
	<b>Run 1</b>	<b>Run 1</b>	<b>Run 1</b>
<b>Total cfu</b>	9	72	45
<b>Volume of Air Sampled</b>	0.145	0.145	0.145
<b>cfu/ m<sup>3</sup></b>	62.1	496.6	310.3

**Aspergillus**

<b>Aspergillus fumigatus</b>	0	0	0
<b>Volume of Air Sampled</b>	0.145	0.145	0.145
<b>cfu/ m<sup>3</sup></b>	0	0	0

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**O Toole Composting Ltd**  
Ballinrane, Co Carlow

Ambient Air Survey

May 2013

Permit No: WFP-CW-10-0003-01

Report Date: 18<sup>th</sup> June 2013

Report Number:  
3190-13-01  
Version 0

**AXIS environmental services**  
40 Coolraine Heights, Old Cratloe Road, Limerick  
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[info@axisenv.ie](mailto:info@axisenv.ie) [www.axisenv.ie](http://www.axisenv.ie)

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**Report for the Periodic Monitoring of Ambient Air**

Part 1: Executive Summary

Operator: O Toole Composting Limited

Installation: Ballintrane,  
Co. Carlow

Contact Name: Paddy O Toole

Contact No.: 086 2647990

Contract Manager: Mark Mc Garry

Monitoring Dates: 09<sup>th</sup> May 2103

Monitoring Organisation: AXIS environmental services

Address: 40 Coolraine Heights,  
Old Cratloe Road,  
Limerick.

Laboratory: Irish Equine Centre  
Johnstown  
Naas  
Co. Wick

Date of Report: 16<sup>th</sup> June 2013

Report Approved By: Mark Mc Garry

Function: Environmental Manager

Signed: 

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**1 Monitoring Results**

**1.1 Monitoring Objectives**

Monitoring was carried out at O Toole Composting Limited to determine the concentrations of a range of parameters the surrounding atmosphere is exposed to as result of composting activities on site.

Monitoring was carried out to permit requirements, fulfilling the requirements of Schedule 2, Part 4.3 Ambient Air Monitoring

There were three locations studied as part of this contract, one approximately 150m upwind of the facility, one immediately downwind of the facility and one sample point at the facility site office. The following parameters were complete for each site:

**Table 1:**

Parameter	Method
PM <sub>10</sub>	BS EN 12341
Aspergillus fumigatus	UK Composting Association Protocol
Total Bacteria	UK Composting Association Protocol
Odour	EN 13725
Odour	EPA Guidance Document AG5

**Table 2: Summary of Results**

Monitoring Area	Substance	Method	Limits	Ambient Concentration	Units
Site 1 Up Wind of the Installation	PM <sub>10</sub>	EN 12341	None applied	13.4	ug/m <sup>3</sup>
	Aspergillus fumigatus	Impactor	in the permit	0	CFU/m <sup>3</sup>
	Total Bacteria	Impactor		255	CFU/m <sup>3</sup>
	Odour Threshold Conc	Olfactometry		53 (No Distinct Odour)	Ou <sub>E</sub> /m <sup>3</sup>
Site 2 Down Wind of the Installation	PM <sub>10</sub>	EN 12341	None applied	17.5	ug/m <sup>3</sup>
	Aspergillus fumigatus	Impactor	in the permit	0	CFU/m <sup>3</sup>
	Total Bacteria	Impactor		117	CFU/m <sup>3</sup>
	Odour Threshold Conc	Olfactometry		72 (No Distinct Odour)	Ou <sub>E</sub> /m <sup>3</sup>
Site 3 Facility Offices	PM <sub>10</sub>	EN 12341	None applied	53.7	ug/m <sup>3</sup>
	Aspergillus fumigatus	Impactor	in the permit	0	CFU/m <sup>3</sup>
	Total Bacteria	Impactor		95.7	CFU/m <sup>3</sup>
	Odour Threshold Conc	Olfactometry		78 (No Distinct Odour)	Ou <sub>E</sub> /m <sup>3</sup>

**1.2 Special Monitoring Requirements**

There were no special requirements for sampling and analysis for this project. Bacteria and Aspergillus testing was carried out by the Irish Equine Centre. Odour Analysis was carried out by OMI.

**1.3 Summary of Equipment**

**Table 3: Equipment Summary**

Item	ID Number	Calibration Status
Pump No 1	AX06	Calibrated On site Before and After Sampling
Defender 510 Calibrator	AX28	Calibration Certificate: 105163
Camera	-	-
PM <sub>10</sub> Sample Heads	AX09	-
PM <sub>10</sub> Sample Heads	AX10	-
PM <sub>10</sub> Sample Heads	AX11	-
Bio Stage Sampler	AX39	-
Flyte Sample Pump	AX41	Calibrated On site Before and After Sampling
Sterilizing Agent	-	Ethanol

Table 5: Odour Assessment		Reference	Site Permit No	Assessment by	Date of Assessment						
		O Toole Composting	WFP-CW-10-003-01	Mark Mc Garry	09 <sup>th</sup> May 2013						
Pre- Assessment	Observer is free from medical conditions (cold, sore throat, sinus trouble)	Yes	Observer abstinance (30 min) from smoking, flavored drinks, scented toiletries, deodorisers	Reason for Odour Assessment – Complaint, Verification, Routine, Other	Weather Conditions						
	Yes	Yes	Yes	Permit Requirement on Bi-Annual Basis	Dry Day Light Air – Direction of wind shown by smoke drift, but not wind vanes						
Source	Start time:	10:00	Do any of the odours experienced on site match in character those recorded during the off site survey?	List Areas Inspected:	What relevant activities were occurring onsite during the off site odour assessment?						
	Finish Time:	12:30	No	All Areas	Activities continued as normal on site – there was no alterations or unusual activities on-going						
Odour Investigation	Potential On-site odours identified:	Composting activities Waste holding areas Traffic Movements									
Parameter	Location	Observer location			Description of Odours etc						
		Sensitivity	Direction from which wind blows	Orientation (Observer vs facility)		Strength	Time	Period of Observation	Odour Persistence	Odour Intensity	
Field Observations	Facility Office	2	On site		2	10:15	45 mins	1	1	Compost intermittent	Building
	Up wind	4	NW	Up Wind	2	11:00	45 mins	0	0	None	
	Down Wind	3	SE	Down Wind	2	11:45	45 mins	0	0	None	
Detail of any meeting with local residents/ complaints received during the assessment											
None											

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**Notes:**

**1: Observation Point Sensitivity**

1. Remote (no housing, commercial/ industrial premises, or public area within 500 metres of the observation point);
2. Low Sensitivity (no housing, commercial/ industrial premises or public area within 100m of the observation point);
3. Moderate sensitivity (housing, commercial/ industrial premises or public area within 100m of the observation point);
4. High Sensitivity: (housing, commercial/ industrial premises or public area within area of the observation point);
5. Extra Sensitive (complaints arising from residents, business and users of public areas within area of observation point).

**2: Wind Strength**

- |    |                 |  |
|----|-----------------|--|
| 0: | Calm            | Smoke rises vertically.  |
| 1: | Light Air       | Direction of wind shown by smoke drift, but not wind vanes.    |
| 2: | Light Breeze    | Wind felt on face; leaves rustle, ordinary vane moved by wind. |
| 3: | Gentle Breeze   | Leaves and small twigs in constant motion.                     |
| 4: | Moderate Breeze | Raises dust and loose paper, small branches are moved;         |
| 5: | Fresh Breeze    | Small trees in leaf begin to sway.                             |
| 6: | Strong Breeze   | Large branches in motion, umbrellas used with difficulty.      |
| 7: | Near Gale       | Whole trees in motion.   |
| 8: | Gale            | Twigs break off trees;   |
| 9: | Strong Gale     | Slight structural damage occurs.                               |

**3: Weather Conditions**

- |    |               |  |
|----|---------------|--|
| 1: | Precipitation | Dry, rained recently, drizzle, raining, foggy. |
| 2: | Temperature   | Cold, Cool, Warm, hot.                         |

**4: Odour Persistence**

- |    |   |
|----|---|
| 0: | No Odour;   |
| 1: | Intermittent (detected intermittently during the period of assessment); |
| 2: | Persistent (detected throughout the period of the assessment);          |

**5: Odour Intensity**

- |    |  |
|----|--|
| 0: | No detectable odour;   |
| 1: | Faint Odour (barely detectable, need to stand still and inhale facing into the wind);        |
| 2: | Moderate odour (easily detectable while walking and breathing normally, possibly offensive); |
| 3: | Strong Odour (bearable but offensive – might make clothes/ hair smell);                      |
| 4: | Very Strong Odour (unbearable, difficult to remain in area affected by odour).               |

**Appendix I                  Calculations**

**Title:** Determination of Total Bacteria & Aspergillus Fumigatus  
**Method:** UK Composting Association Protocol  
**Client:** O Toole Composting  
**Log Sheet Complete by:** Mark McGarry  
**Test Date:** 09th May 2013  
**Laboratory Used:** Irish Equine Centre  
**Site Name** O Toole Composting

**Location**  
**Downwind** Site 1  
**Upwind** Site 2  
**Site Offices** Site 3

<b>Total Bacteria</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 3</b>
	<b>Run 1</b>	<b>Run 1</b>	<b>Run 1</b>
<b>Total cfu</b>	<b>48</b>	<b>22</b>	<b>18</b>
<b>Volume of Air Sampled</b>	<b>0.188</b>	<b>0.188</b>	<b>0.188</b>
<b>cfu/ m<sup>3</sup></b>	<b>255.3</b>	<b>117.0</b>	<b>95.7</b>

**Aspergillus**

<b>Aspergillus fumigatus</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Volume of Air Sampled</b>	<b>0.188</b>	<b>0.188</b>	<b>0.188</b>
<b>cfu/ m<sup>3</sup></b>	<b>0</b>	<b>0</b>	<b>0</b>

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**O Toole Composting Ltd**  
Ballintrane, Co Carlow

**Ambient Air Survey**

**June 2012**

**Permit No: WFP-CW-10-0003-01**

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**Report Date: 10<sup>th</sup> August 2012**

**In association with IAS Laboratories**

**Report Number:  
3190-12-01  
Version 0**

**AXIS environmental services**  
40 Coolraine Heights, Old Cratloe Road, Limerick  
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**Report for the Periodic Monitoring of Ambient Air**

Part 1: Executive Summary

Operator: O Toole Composting Limited

Installation: Ballinrane,  
Co. Carlow.

Contact Name: Paddy o Toole

Contact No. 086 2647990

Contract Manager: Mark Mc Garry

Monitoring Dates: 27<sup>th</sup> June 2012

Monitoring Organisation: AXIS environmental services

Address: 40 Coolraine Heights,  
Old Cratloe Road,  
Limerick.

Laboratory: Irish Equine Centre  
Johnstown,  
Naas,  
Co Kildare

Date of Report: 16<sup>th</sup> August 2012

Report Approved By: Mark Mc Garry

Function: Environmental Manager

Signed: 

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**1 Monitoring Results**

**1.1 Monitoring Objectives**

Monitoring was carried out at O Toole Composting Limited to determine the concentrations of a range of parameters the surrounding atmosphere is exposed to as result of composting activities on site.

Monitoring was carried out to permit requirements, fulfilling the requirements of Schedule 2, Part 4.3 Ambient Air Monitoring.

There were three locations studied as part of this contract, one approximately 150m upwind of the facility, one immediately downwind of the facility and one sample point at the facility site office. The following parameters were complete for each site:

**Table 1:**

Parameter	Method
PM <sub>10</sub>	prEN12341
Aspergillus fumigatus	UK Composting Association Protocol
Total Bacteria	UK Composting Association Protocol
Odour	EN 13725
Odour	EPA Guidance Document AG5

**Table 2: Summary of Results**

Monitoring Area	Substance	Method	Limits	Ambient Concentration	Units
Site 1 Up Wind of the Installation	PM <sub>10</sub>	EN 12341	None applied in the permit	29	ug/m <sup>3</sup>
	Aspergillus fumigatus	Impactor		None Detected	CFU/m <sup>3</sup>
	Total Bacteria	Impactor		96	CFU/m <sup>3</sup>
	Odour Threshold Conc	Olfactometry		<57	Ou <sub>E</sub> /m <sup>3</sup>
Site 2 Down Wind of the Installation	PM <sub>10</sub>	EN 12341	None applied in the permit	40	ug/m <sup>3</sup>
	Aspergillus fumigatus	Impactor		None Detected	CFU/m <sup>3</sup>
	Total Bacteria	Impactor		176	CFU/m <sup>3</sup>
	Odour Threshold Conc	Olfactometry		<55	Ou <sub>E</sub> /m <sup>3</sup>
Site 3 Facility Offices	PM <sub>10</sub>	EN 12341	None applied in the permit	36	ug/m <sup>3</sup>
	Aspergillus fumigatus	Impactor		None Detected	CFU/m <sup>3</sup>
	Total Bacteria	Impactor		344	CFU/m <sup>3</sup>
	Odour Threshold Conc	Olfactometry		<67	Ou <sub>E</sub> /m <sup>3</sup>

**1.2 Special Monitoring Requirements**

There were no special requirements for sampling and analysis for this project. Bacteria and Aspergillus testing was carried out by the Irish Equine Centre. Odour Analysis was carried out by OMI.

**1.3 Summary of Equipment**

**Table 3: Equipment Summary**

Item	ID Number	Calibration Status
Pump No 1	AX06	Calibrated On site Before and After Sampling
Defender 510 Calibrator	AX28	Calibration Certificate: 105163
Camera	-	-
PM <sub>10</sub> Sample Heads	AX09	-
PM <sub>10</sub> Sample Heads	AX10	-
PM <sub>10</sub> Sample Heads	AX11	-
Bio Stage Sampler	AX39	-
Flyte Sample Pump	AX41	Calibrated On site Before and After Sampling
Sterilizing Agent	-	Ethanol

Table 5: Odour Assessment		Reference	Site Permit No	Assessment by	Date of Assessment					
		O Toole Composting	WFP-CW-10-003-01	Mark Mc Garry	27 <sup>th</sup> June 2012					
Pre- Assessment Preparation	Observer is free from medical conditions (cold, sore throat, sinus trouble)	Yes	Observer abstinance (30 min) from smoking, flavored drinks, scented toiletries, deodorisers	Reason for Odour Assessment – Complaint, Verification, Routine, Other	Weather Conditions					
	Yes	Yes	Yes	Permit Requirement on Bi-Annual Basis	Dry Day Light Air – Direction of wind shown by smoke drift, but not wind vanes					
Source Investigation Odour	Start time:	14:00	Do any of the odours experienced on site match in character those recorded during the off site survey?	List Areas Inspected:	What relevant activities were occurring onsite during the off site odour assessment?					
	Finish Time:	17:00	No	All Areas	Activities continued as normal on site – there was no alterations or unusual activities on-going					
Parameter	Observer location	Sensitivity	Wind		Description					
			Direction from which wind blows	Orientation vs (Observer vs facility)		Strength	Period of Observation	Odour Persistence	Odour Intensity	Description of Odours etc
Field Observations	Facility Office	2	On site	-	1	60 mins	1	1	Compost intermittent	Building
	Up wind	4	NW	Up Wind	1	60 mins	0	0	None	
	Down Wind	4	SE	Down Wind	1	60 mins	0	0	None	
Detail of any meeting with local residents/ complaints received during the assessment										
None										

**Notes:**

**1: Observation Point Sensitivity**

- 1: Remote (no housing, commercial/ industrial premises, or public area within 500 metres of the observation point);
- 2: Low Sensitivity (no housing, commercial/ industrial premises or public area within 100m of the observation point);
- 3: Moderate sensitivity (housing, commercial/ industrial premises or public area within 100m of the observation point);
- 4: High Sensitivity: (housing, commercial/ industrial premises or public area within area of the observation point);
- 5: Extra Sensitive: (complaints arising from residents, business and users of public areas within area of observation point).

**2: Wind Strength**

- 0: Calm  
Smoke rises vertically;
- 1: Light Air  
Direction of wind shown by smoke drift, but not wind vanes;
- 2: Light Breeze  
Wind felt on face; leaves rustle, ordinary vane moved by wind;
- 3: Gentle Breeze  
Leaves and small twigs in constant motion;
- 4: Moderate Breeze  
Raises dust and loose paper, small branches are moved;
- 5: Fresh Breeze  
Small trees in leaf begin to sway;
- 6: Strong Breeze  
Large branches in motion, umbrellas used with difficulty;
- 7: Near Gale  
Whole trees in motion;
- 8: Gale  
Twigs break off trees;
- 9: Strong Gale  
Slight structural damage occurs.

**3: Weather Conditions**

- 1: Precipitation  
Dry, rained recently, drizzle, raining, foggy;
- 2: Temperature  
Cold, Cool, Warm, hot;

**4: Odour Persistence**

- 0: No Odour;
- 1: Intermittent (detected intermittently during the period of assessment);
- 2: Persistent (detected throughout the period of the assessment);

**5: Odour Intensity**

- 0: No detectable odour;
- 1: Faint Odour (barely detectable, need to stand still and inhale facing into the wind);
- 2: Moderate odour (easily detectable while walking and breathing normally, possibly offensive);
- 3: Strong Odour (bearable but offensive – might make clothes/ hair smell);
- 4: Very Strong Odour (unbearable, difficult to remain in area affected by odour).

Appendix I Calculations

<b>Title:</b>	<b><u>Determination of Total Bacteria &amp; Aspergillus Fumigatus</u></b>		
<b>Method:</b>	UK Composting Association Protocol		
<b>Client:</b>	O Toole Composting		
<b>Log Sheet Complete by:</b>	Mark McGarry		
<b>Test Date:</b>	27th June 2012		
<b>Laboratory Used:</b>	Irish Equine Centre		
<b>Site Name</b>	O Toole Composting		
<b>Location</b>			
<b>Downwind</b>	Site 1		
<b>Upwind</b>	Site 2		
<b>Site Offices</b>	Site 3		
<b>Total Bacteria</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 3</b>
	<b>Run 1</b>	<b>Run 1</b>	<b>Run 1</b>
<b>Total cfu</b>	<b>22</b>	<b>13</b>	<b>53</b>
<b>Volume of Air Sampled</b>	0.212	0.212	0.212
<b>cfu/ m<sup>3</sup></b>	176	96	344
<b>Aspergillus</b>			
Aspergillus fumigatus	0	0	0
<b>Volume of Air Sampled</b>	0.212	0.212	0.212
<b>cfu/ m<sup>3</sup></b>	0	0	0

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**O Toole Composting Ltd**  
Ballintrane, Co Carlow

Permit No: WFP-CW-10-0003-01

Report Date: 14<sup>th</sup> July 2011

In association with IAS Laboratories

**Ambient Air Survey**

**June 2011**

Report Number:  
3190-11-02  
Version 0

**AXIS environmental services**

40 Coolraine Heights, Old Cratloe Road, Limerick  
Phone 061 324587 (087)6367436  
info@axisenv.ie www.axisenv.ie

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**Report for the Periodic Monitoring of Ambient Air**

Part 1: Executive Summary

Operator: O Toole Composting Limited

Installation: Ballintrane,  
Co. Carlow.

Contact Name: Paddy o Toole

Contact No. 086 2647990

Contract Manager: Mark Mc Garry

Monitoring Dates: 02<sup>nd</sup> June 2011

Monitoring Organisation: AXIS environmental services

Address: 40 Coolraine Heights,  
Old Cratloe Road,  
Limerick.

Laboratory: Irish Equine Centre  
Johnstown,  
Naas,  
Co Kildare

Date of Report: 14<sup>th</sup> July 2011

Report Approved By: Mark Mc Garry

Function: Environmental Manager

Signed: 

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**1 Monitoring Results**

**1.1 Monitoring Objectives**

Monitoring was carried out at O Toole Composting Limited to determine the concentrations of a range of parameters the surrounding environment is exposed to as result of composting activities on site. Monitoring was carried out to permit requirements, fulfilling the requirements of Schedule 2, Part 4.3 Ambient Air Monitoring. There were three locations studied as part of this contract, one approximately 150m upwind of the facility, one immediately downwind of the facility and one sample point at the facility site office. The following parameters were complete for each site:

Table 1:

Parameter	Method
PM <sub>10</sub>	prEN12341
Aspergillus fumigatus	UK Composting Association Protocol
Total Bacteria	UK Composting Association Protocol
Odour	NIOSH Methods 2542, 6013, 2002-6016
Odour	EPA Guidance Document AG5

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**Table 2: Summary of Results**

Monitoring Area	Substance	Units	Limits	Ambient Concentration	Status
Up Wind of the Installation	PM <sub>10</sub>	ug/m <sup>3</sup>	50	<b>41</b>	Compliant
	Aspergillus fumigatus	CFU/m <sup>3</sup>	500	<b>0</b>	Compliant
	Total Bacteria	CFU/m <sup>3</sup>	1000	<b>85</b>	Compliant
Down Wind of the Installation	PM <sub>10</sub>	ug/m <sup>3</sup>	50	<b>33</b>	Compliant
	Aspergillus fumigatus	CFU/m <sup>3</sup>	500	<b>0</b>	Compliant
	Total Bacteria	CFU/m <sup>3</sup>	1000	<b>100</b>	Compliant
Facility Offices	PM <sub>10</sub>	ug/m <sup>3</sup>	50	<b>42</b>	Compliant
	Aspergillus fumigatus	CFU/m <sup>3</sup>	500	<b>0</b>	Compliant
	Total Bacteria	CFU/m <sup>3</sup>	1000	<b>135</b>	Compliant

**1.2 Special Monitoring Requirements**

There were no special requirements for sampling and analysis for this project. All sample locations were located within the boundary of the site for worst case scenario results.

**1.3 Summary of Equipment**

**Table 3: Equipment Summary**

Item	ID Number	Calibration Status
Pump No 1	AX06	Calibrated On site Before and After Sampling
Pump No 2	AX07	Calibrated On site Before and After Sampling
Pump No 3	AX33	Calibrated On site Before and After Sampling
Defender 510 Calibrator	AX28	Calibration Certificate: 105163
Camera	-	-
PM <sub>10</sub> Sample Heads	AX09	-
PM <sub>10</sub> Sample Heads	AX10	-
PM <sub>10</sub> Sample Heads	AX11	-
Biosampler 1	AX39	Autoclaved and Sterile
Biosampler 2	AX40	Autoclaved and Sterile
Biosampler 3	AX41	Autoclaved and Sterile
Sample Solution	-	Sterile Deionised Water

**Table 4: Ambient Gas Concentration Results**

Parameter	Method	Result			Units
		Office	Upwind	Downwind	
Mercaptans	NIOSH 2542	<0.5	<0.5	<0.5	mg/m <sup>3</sup>
Hydrogen Sulphide	NIOSH 6013	<0.2	<0.2	<0.2	mg/m <sup>3</sup>
Ammonia	NIOSH 2002	<0.25	<0.25	<0.25	mg/m <sup>3</sup>
Amines	NIOSH 6016	<0.01	<0.01	<0.01	mg/m <sup>3</sup>

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Table 5: Odour Assessment		Reference	Site Permit No	Assessment by	Date of Assessment					
		O Toole Composting	WFP-CW-10-003-01	Mark Mc Garry	02 <sup>nd</sup> June 2011					
Pre-Assessment	Observer is free from medical conditions (cold, sore throat, sinus trouble)	Yes	Observer abstinence (30 min) from smoking, flavored drinks, scented toiletries, deodorisers	Reason for Odour Assessment - Complaint, Verification, Routine, Other	Weather Conditions					
	Do any of the odours experienced on site match in character those recorded during the off site survey?	No	Yes	Permit Requirement on Bi-Annual Basis	Dry Day Light Air - Direction of wind shown by smoke drift, but not wind vanes					
Source Investigation	Start time:	09:00	Do any of the odours experienced on site match in character those recorded during the off site survey?	List Areas Inspected:	What relevant activities were occurring onsite during the off site odour assessment?					
	Finish Time:	14:00				All Areas	Activities continued as normal on site - there was no alterations or unusual activities on-going			
Odour Investigation	Potential On-site odours identified									
	Composting activities Waste holding areas Traffic Movements									
Parameter	Observer location		Wind		Time	Odour Rating	Description			
	Location	Sensitivity	Direction from which wind blows	Orientation (Observer vs facility)	Strength	Start Time		Period of Observation	Odour Persistence	Odour Intensity
Field Observations	Facility Office	2	On site	-	2	09:00	70 mins	2	1	Compost Maturation Building
	Up wind	4	NW	Up Wind	2	10:30	70 mins	0	0	None
	Down Wind	4	SE	Down Wind	2	12:00	70 mins	0	0	None
Detail of any meeting with local residents/ complaints received during the assessment										