AB World Foods, Leigh
Odour Management Plan

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1 Introduction and Installation Situation

1.1 Report Context

This Odour Management Plan has been prepared to support an application for an environmental permit for the AB World Foods site in Leigh.

The site has not previously been required to have a permit or an Odour Management Plan and has not had any odour complaints. However, the EA guidance states that all permitted food and drink sites are required to have an Odour Management Plan.

This OMP details the current odour control mechanisms and procedures for the site. This document has been prepared with reference to the following guidance:

Environment Agency England and Wales (2011); H4 Odour Management Guidance Note
Food and Drink Sector Guidance EPR 6.10

1.2 Objectives

The Odour Management Plan (OMP) is designed to ensure that:

- appropriate methods are identified including monitoring and contingencies, to control and minimise odour pollution;
- unacceptable odour pollution is prevented at all times;
- the risk of odour releasing incidents or accidents is reduced by anticipating them and planning accordingly.

In addition to the standard conditions of the Environmental Permit and in line with standard Environmental Permitting Guidelines, the operator is committed to using Best Available Techniques (BAT) to reduce odour emissions from the site.

1.3 Installation Location

The Site comprises an approximate 3.26ha plot of land to the east of Kiribati Way, Leigh, WN7 5RS. It is centred on National Grid Reference 365080, 401050 and is located approximately 6km south-east of Wigan town centre.

1.4 Process Description

The Site comprises a food manufacturing facility located within one building with associated loading, storage and car parking areas.

The Site produces hot filled and pasteurised sauces, pastes, pickles and chutneys that are ambient and stable and pappadums that are fried in oil. Various packaging mediums are used including: - glass jars, plastic jars, pots and thermoformed plastic cartons. Finished goods are transported from site and distributed by a third-party logistics company.

The site obligated to apply for a permit under Schedule reference 6.8 A(1)(d)(ii) Treatment and processing of animal and vegetable raw materials with a capacity over 75 tonnes per day, and Schedule reference 5.4 A(1)(a)(ii) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day by physico-chemical treatment for effluent treatment.

1.5 Sensitive Receptors

The identification of potentially sensitive receptors has been conducted on the basis that the level of exposure to odours that is likely to generate annoyance in residential premises (i.e. people's homes) tends to be considerably lower than the levels which may generate annoyance at commercial premises where higher tolerance to odour exposure can generally be expected. There have been no recent odour complaints but sensitive locations such as residential areas, schools, hospitals, parks and other public spaces have been considered.

The Site is in an area of mixed commercial / light industrial, residential use with some undeveloped land to the north and west of the Site. The Site is bound to the north by fields and a playing field; the Site is bound to the East by commercial/light industrial land uses (Asda) and undeveloped brownfield (owned by the operator) with the residential area of Leigh beyond; the Site is bound to the South by undeveloped land with commercial land uses and a petrol station beyond; the Site is bound immediately to the West by Westleigh Brook with woodland and fields beyond, with the residential area of Westleigh beyond. There are therefore sensitive residential areas, including schools, hospitals and recreational facilities within 1 km of the site.

The prevailing wind direction is from the west and south west. Figure 1 below shows the average wind direction (Source: Meteoblue).

Figure 1: Leigh Wind Rose

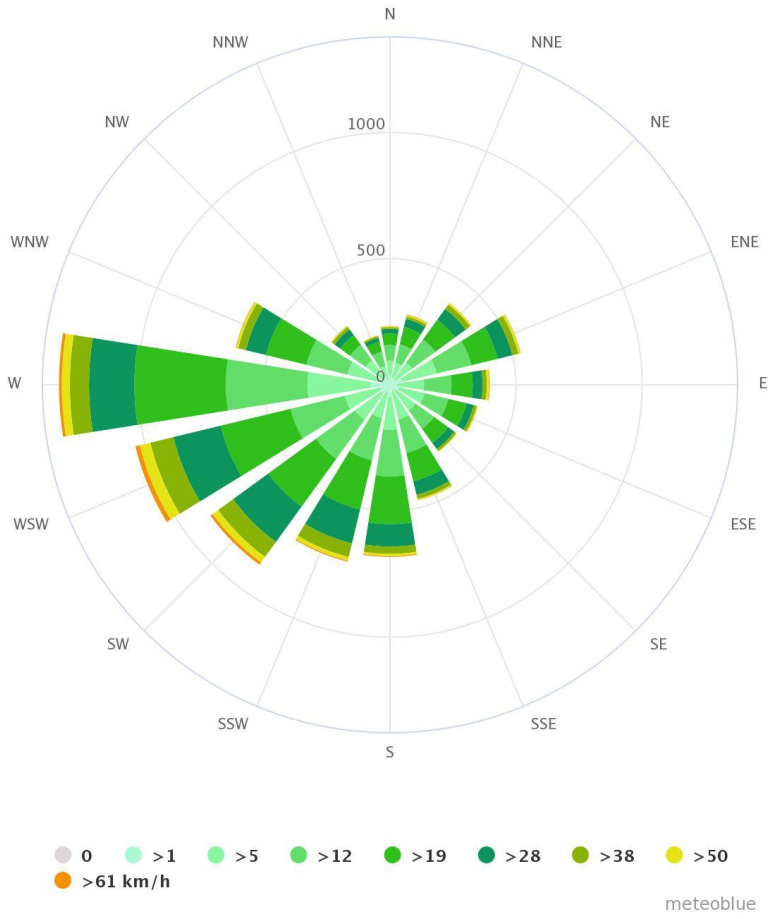

Table 1: Potential sensitive receptors to the installation

Name	Location (Distance from Boundary)	Receptor Type	Risk of Odour Impact (H, M, L)
Asda Supermarket	100m E	Commercial	M
St John's CofE Primary School	500m E	School	M
Residential area of Leigh	From 200m E	Residential	M
Residential area of Westleigh	From 230m W	Residential	M/L
Residential area of Firs lane	From 430m SW	Residential	L
Leigh Infirmary	830m E	Hospital	L
Care Home	400m NE	Care Home	L
Westleigh Lodge Care Home	620m N	Care Home	L
Care Home	790m W	Care Home	L
Atherleigh Park Hospital	370m SE	Hospital	L
Westleigh Methodist Primary	730m N	School	L
Twelve Apostles RC Primary	660m NNW	School	L
Westleigh St Pauls CofE Primary School	600 NNE	School	L
The Westleigh School	890m N	School	L
Newton West Park Primary	630m NW	School	L
The Holden School	850m SW	School	L
Leigh Scared Heart and Leigh Central Primary School	640m SE	School	L
Leigh St Marys CofEPrimary	740m SE	School	L
Leigh CofE Primary School	880m SE	School	L
The Avenue Private Day Nursery	760m SE	School	L

1.6 Odour History

No odour complaints have been received in the past three years.

2 Odour Sources and Pathways

The definition of odour sources within the OMP includes materials used at the installation which may release odours, and process plant items where odours may be generated as a result of processing activity.

2.1 Process Elements with Negligible Odour Risk

The sauce and paste processing operations are all located internally within enclosed buildings and as such there is routinely a negligible risk of odour from these operations. All raw materials arrive in enclosed containers and are unloaded directly into internal bays.

The pappadum process is also located internally but fryer exhaust gases are collected and ducted to the on-site odour abatement plant.

2.2 Odour Source Inventory

Table 2: Odour Source Inventory

Odour Source (emissions point reference or description), External/internal location	Odorous Material	Maximum Quantities on site	Containment/ Release Point	Odour Description	Intensity at Source (0-6)[1]	Pattern of Release	Abatement Plant	Responsible Person
Emissions from fryers and cooking vessels via odour abatement plant. External Emissions point A5	VOCs generated as break-down products associated with edible oils	N/A	A5	Frying and Cooking Smell	3	Hours of Operation	Activated carbon odour abatement plant	General Manager
Venting of enclosed buildings covering processing: • Frying and processing operations	VOCs generated as break-down products associated with edible oils; food cooking	N/A	Building vents	Frying and Cooking smell	2	Hours of Operation	None	General Manager
Fugitive Releases								
Raw materials receipt. External	Ingredients	Dependent on production	Within delivery vehicles; offloaded directly in to internal bays.	Ingredients – not inherently odorous	1	Hours of Operation	None	General Manager
Food Waste Storage - External	Food Waste		Waste Storage Yard	Food Waste smell	2	Hours of Operation	None	General Manager
Effluent oil and sludge storage - external	Skimmed oil and sludge		IBC Storage in effluent plant area	Effluent smell	3	Hours of Operation	None	General Manager
Effluent Plant - external	Process effluent; screenings; sludge	N/A	Effluent pits	Process effluent	3	Hours of Operation	None	General Manager

[1] **- see Section 8.3, intensities determined using FIDOR scale and operator knowledge of likely odour intensity in the event of release.*

Odour Source (emissions point reference or description), External/internal location	Odorous Material	Maximum Quantities on site	Containment/ Release Point	Odour Description	Intensity at Source (0-6)[1]	Pattern of Release	Abatement Plant	Responsible Person
Sludge Tank Emptying	Effluent sludge		Effluent pits	Process effluent	3	Weekly	None	General Manager
Site Drains (External)	Process effluent	N/A	Enclosed drain system; release points to sewer S1	Process effluent	1	Hours of Operation	None	General Manager
Air exiting building entrances and exits	Cooking smell	N/A	Building entrances and exits	Cooking smell	1	Hours of Operation	None	General Manager

2.2.1 Potentially Odorous Point Source Releases

There is the potential for releases to air from the fryers to be odorous (A5). Processing buildings also operate air handling systems which vent from the building which have the potential to be odorous.

2.2.2 Potentially Odorous Fugitive Releases

The following are potential sources of fugitive release of odour:

- Raw materials receipt and unloading
- Effluent Plant
- Effluent Sludge Tank Emptying
- Waste Storage
- Site Drains
- Building entrances and exits

2.3 Odour Release Pathways

The prevailing wind direction at the site is from the west and southwest. As such there are potential sensitive receptors down wind of the installation, the most vulnerable being the commercial property directly to the east of the installation boundary (Asda). Further to the east are residential areas of Leigh (from 200m), and St John's CofE Primary School (500mE). The majority of sensitive receptors are to the north and south west of the site and are less likely to be impacted, given the prevailing wind direction.

3 Odour Risk Assessment

The emphasis in the management of odour from the site is on prevention, and as such preventative maintenance, management, monitoring and inspection of all potential sources of odour are the main control measures, alongside efficient operation of the odour abatement plant.

The operator receives Certificates of Analysis for the fryer oil which covers FFA checks; oil is monitored in the fryers during production and any sign of deterioration, such as 'soapy appearance' which would indicate the presence of FFAs would prompt an oil change.

Table 3 Odour Source Risk Assessment – Normal Operations

Odour Source	Material	Pathway	Main Receptor(s)	Likelihood	Control Measures in Place	Residual Likelihood	Odour Emissions Action Plan	Responsible Person
Emissions from fryers. Emissions point A5	VOCs generated as break-down products associated with edible oils.	Prevailing wind direction from south west.	See Table 1 – Asda Supermarket, ST John's CofE Primary School; residents in Leigh	Medium	Process controls to minimise FFA's; mesh filters; effective dispersion; planned maintenance of fryers/filter changes.	Low	Investigate cause, instigate corrective action, communicate with receptors.	General Manager
Venting of enclosed processing buildings	VOCs generated as break-down products associated with edible oils; food cooking	Prevailing wind direction from south west.	As above	Low	To achieve overall odour containment and prevent fugitive odorous emissions, the enclosed areas do not have external doors or windows. Ventilation systems within each area provide extraction and air make-up to ensure the atmospheric pressure is balanced to reduce the risk of airborne contamination entering and fugitive odorous emissions escaping from the building. The building ventilation systems are maintained in	Low	Investigate cause, instigate corrective action, communicate with receptors.	General Manager

Odour Source	Material	Pathway	Main Receptor(s)	Likelihood	Control Measures in Place	Residual Likelihood	Odour Emissions Action Plan	Responsible Person
					accordance with the site planned preventative maintenance schedule			
Raw materials receipt	Ingredients	Prevailing wind direction from south west.	As above	Low	All ingredients received in enclosed containers and unloaded directly in to loading bays.	Low	Investigate cause, instigate corrective action, communicate with receptors.	General Manager
Compactor skip (External enclosed skip)	General and food contaminated waste	Prevailing wind direction from south west.	As above	Low	Enclosed container; regular emptying. Inspection and maintenance. Trained competent operatives in yard. Materials are removed as soon as practicable upon request.	Low	Investigate cause, instigate corrective action e.g. arrange uplift, communicate with receptors.	General Manager
External storage of food waste in IBC's	Food waste	Prevailing wind direction from south west.	As above	Low	Covered containers; regular emptying. Inspection and maintenance. Trained competent operatives in yard. Materials are removed as soon as practicable upon request.	Low	Investigate cause, instigate corrective action e.g. arrange uplift, communicate with receptors.	General Manager

Odour Source	Material	Pathway	Main Receptor(s)	Likelihood	Control Measures in Place	Residual Likelihood	Odour Emissions Action Plan	Responsible Person
External storage of effluent skimmings in IBC's	Oil	Prevailing wind direction from south west.	As above	Low	Covered containers; regular emptying. Inspection and maintenance. Trained competent operatives in yard. Materials are removed as soon as practicable upon request.	Low	Investigate cause, instigate corrective action e.g. arrange uplift, communicate with receptors.	General Manager
Effluent Plant	Process effluent; screenings; sludge	Prevailing wind direction from south west.	As above	Medium	DAF plant located internally. Inspection and maintenance. Trained competent operatives.	Low	Investigate cause, instigate corrective action, communicate with receptors.	General Manager
Effluent sludge tank emptying	Effluent sludge	Prevailing wind direction from south west.	As above	Low	Regular weekly emptying. Trained competent operatives.	Low	Investigate cause, instigate corrective action, communicate with receptors.	General Manager
Site Drains (External)	Process Effluent	Prevailing wind direction from south west.	As above	Low	Enclosed drainage system. Periodic inspection and cleaning/maintenance.	Low	Investigate cause, instigate corrective action, communicate	General Manager

Odour Source	Material	Pathway	Main Receptor(s)	Likelihood	Control Measures in Place	Residual Likelihood	Odour Emissions Action Plan	Responsible Person
							with receptors.	

4 Management Responsibilities

The General Manager will have ultimate responsibility for ensuring odour compliance and minimising nuisance to local residents.

This responsibility is delegated to the HSE Manager.

This delegated responsibility involves liaison with operational staff and waste sub-contractors to ensure any issues are identified and resolved quickly to minimise odour release.

The HSE Manager is responsible for recording and investigating odour complaints.

Odour control, prevention and complaints will be part of the site's developing Safety, Health and Environmental Management System. It is the HSE Managers responsibility to ensure that these procedures are up to date and reviewed on a regular basis. All incidents will be recorded on the site's incident reporting system, Alcumus.

5 Routine Odour Control Measures

5.1 Limiting Odorous Materials

Sources of odour such as wastes and process effluent are minimised through ongoing efficiency projects to minimise waste as part of the HSE Management System, and also through regular uplifts of waste containers.

5.2 Restricting and Managing Potentially Odorous Activities

Odour from fryers is managed via oil quality monitoring.

AB World Foods constantly review the production process from a quality perspective with a view to improving processing techniques. Ensuring optimum oil quality and temperature in the process, alongside the use of mesh filters, ensures the potential for odour is minimised.

Odour from fugitive sources is minimised through good housekeeping of the yard, planned preventative maintenance of the drainage system and skip management (regular uplift, use of enclosed skips where practical).

5.3 Maintenance Procedures

The odour abatement plant (emission point A5) is routinely inspected and maintained as part of the sites PPM system. General planned preventative and reactive maintenance of site equipment and drainage systems will be audited as part of the HSE Management System.

5.4 Operating Parameters and Odour Abatement Techniques

See Section 5.2 above for information on how the process is operated in order to minimise odorous emissions.

Exhaust air from the cooking vessels and fryers is directed to the odour abatement plant. Fumes from the fryer are extracted by a sealed stack which flows to an electrostatic filter and then to the odour abatement and carbon wash system, after which they are vented to atmosphere via the stack. The extraction pipework is cleaned at regular intervals to maintain effectiveness. The cooking tanks have extraction and ventilation to atmosphere via the carbon wash odour abatement system. The carbon is changed at regular intervals and is controlled by the engineering team.

6 Abnormal Operating Conditions and Associated Odour Control Measures

Table 4: Odour Source Risk Assessment – Abnormal/Emergency Operations

Odour Source	Material	Pathway	Main Receptor(s)	Potential Abnormal/Emergency Situation	Odour Emissions Action Plan	Shutdown process and/or Responsible Person
Excess raw materials arriving on site	Ingredients	Release to air	See Table 1 – Asda Supermarket, ST John's CofE Primary School; residents in Leigh	Problems in factory or access to site, meaning raw materials cannot be immediately received/processed	Return raw materials to supplier/depot if possible.	General Manager
Effluent Treatment Plant Failure	Process effluent	Release to air	As above	Loss of ability to treat effluent leading to inability to discharge to sewer	Balance tanks will then be used to contain effluent until alternative arrangements are made, for example halting production, pumping off effluent into tankers or pumping back through the treatment plant to achieve compliance.	General Manager
Failed pipework	Process effluent	Release to air	As above	Failure of pipework/blockage of drainage system	If required, effluent could be removed from the affected area by tanker by a licensed waste carrier as soon as possible. Site spill procedure/spill kits in place. Repair pipework ASAP. Liaison with local receptors if there was a potential to cause odour.	General Manager
Abnormal processing conditions in fryers	VOCs generated as break-down products associated with edible oils	Release to air	As above	Abnormal processing conditions	Cease production until process can be brought back into specified parameters e.g. filter changes; oil drain down/top up.	General Manager

Odour Source	Material	Pathway	Main Receptor(s)	Potential Abnormal/Emergency Situation	Odour Emissions Action Plan	Shutdown process and/or Responsible Person
Excess waste production/ failure to remove waste in timely fashion	Food waste, effluent	Release to air	As above	Excess waste production/failure to remove waste from site	Waste contractor to be called to site for immediate uplifts.	General Manager
Failure of effluent sludge tank	Effluent sludge	Release to air	As above	Spillage of sludge from tank or during loading to tanker	Spillage Procedure; ensure spill cleared quickly and waste disposed of via appropriately licensed contractor.	General Manager

7 Emergency Conditions

7.1 Potential Emergency Situations and Related Odour Action Plans

Potential Emergency Scenarios include the following:

Major Spill
In the event of a major spill that could potentially cause an odour issue, firstly the spill would be dealt with as quickly as possible to avoid release of odour to air.

For example, the material would be cleared, sucked up or washed to a holding area e.g. effluent pit. These materials could then be directed at a controlled release into the effluent stream if possible under consent conditions, or quickly removed as waste as appropriate. Service Level Agreements are in place with all waste contractors to ensure potential odorous materials can be removed as soon as practicable upon request (typically the same day).

The site has a contracted support service for drain cleaning, who can also attend in emergency scenarios, if necessary this contractor would be employed to help clean up.

Fire
In the event of a fire, the Emergency Services would be contacted in the first instance.

Depending on the extend and location of the fire, there is a potential for odour emissions. In this case, it is likely that the business would be interrupted, and the sites Business Continuity Plan/Crisis Manual would be instigated.

Flood
The Environment Agency Flood risk maps indicate that parts of the site are in an area at high risk of flooding, although the site itself has never flooded. Emergency Plans in place to cover the flooding scenario (see Crisis Manual) and, as above, the Business Continuity Plan for the site would be instigated. This would enable transfer of production to other sites if required.

Security Alert
In the event of a security alert the Senior Management Team would take ownership of coordinating the situation. This could mean a shutdown of the site until the alert is resolved.

In this event, the management team would ensure liaison with all parties, including the local receptors should it be deemed that odour may become a problem.

7.2 Contingency Measures

In the event that odour is proven to be from the site and found to be causing a persistent problem, as determined by the investigation of off-site complaints or during routine on-site monitoring, action will be taken to determine the source, and appropriate courses of action to be taken.

All efforts to implement corrective actions to stop or limit the source of the odour will be implemented as soon as is practicable and preventative actions identified will be closed out by the responsible manager in agreement with the site leadership team.

The HSE Manager will take appropriate action with respect to contacting the Environment Agency in accordance with the notification requirements specified within the EPR Permit. Any actions required by the EA including ceasing of operations if required will be implemented within the timescales agreed with the regulator.

8 Monitoring and Improvement

8.1 Operational Parameters Monitoring

Currently monitoring is limited to general oversight of operational processes and site walk rounds carried out by HSE team and operational staff.

8.2 Identified Improvements

None considered necessary at present.

8.3 Olfactory Monitoring

The HSE Manager is responsible for ensuring that daily inspections are made of the site and its perimeter in order to identify any sources of odour and to establish whether any odours are discernible at the boundary. However, the site does not solely rely on formal odour checks and odour is continually assessed by all staff present on site to ensure that any odours identified at any time are reported to the HSE Manager for investigation.

Olfactory monitoring would not be formally recorded under normal operations. If an odour is detected or a complaint received, formal monitoring and recording would be put in place until the issue is resolved, using the monitoring forms attached in Appendix B.

Due to the potential for desensitisation to odours, whenever possible odour monitoring will be carried out by site personnel who do not work in manufacturing areas i.e. security/office based staff. These personnel will be the most suitable to detect any fugitive odour outside the facility and receive training to ensure they are competent in completing olfactory assessment survey forms.

Sniff testing is carried out by security using the FIDOR system and level of intensity as set out in H4 Guidance.

Odour Intensity Key:

1) No detectable odour
2) Faint Odour (barely detectable, need to stand still and inhale facing in to the wind)
3) Moderate Odour (odour easily detected while walking and breathing normally)
4) Strong Odour (bearable, but relatively strong odour)
5) Very Strong Odour (strong odour that will make clothes/hair smell)
6) Extremely Strong Odour (very strong level of odour, possibly causing nausea)

Meteorological conditions such as the wind speed and direction at time of monitoring and the need to adapt the monitoring to include external potentially off-site monitoring locations will be considered on a daily basis. The assessments will be undertaken during normal operational hours and when all

parts of the process are in operation. The timing of the monitoring will be periodically varied to ensure a fair representation of the variability for odour potential experienced at the receptors.

Should a distinct malodour be identified during a routine odour assessment then an incident would be raised on Alcumus for further investigation. Upon identification of an incident or failure of a control measure then the monitoring frequency will be increased and formally recorded, along with the contingency measures detailed in Section 7.2.

8.4 Olfactometry and Dispersion Modelling

Dispersion modelling of air emissions has been carried out as part of the permit application. The assessment concludes that emissions are within guideline levels are will not have a significant impact on human or ecological receptors.

9 Communication

9.1 Odour Complaints Response

All incidents occurring on site are recorded using the site's incident reporting system, Alcumus. This allows all details of the incident or complaint to be recorded and all elements of the investigation and corrective action to be recorded and tracked.

9.2 General Public Liaison

There is currently no proactive liaison with the local community as there have bene no recent odour complaints. Should this occur in future the operator will endeavour to keep local residents informed.

10 Odour Management Auditing and Review

10.1 Internal and External Compliance Assessment

The site has an HSE Management System consistent with the requirements of ISO14001:2015. There are regular internal and external audits scheduled to review compliance with the HSE Management System requirements.

In addition, there are regular reviews in terms of site operation (daily with all senior management).

10.2 Review of Odour Management Plan

The Odour Management Plan will be reviewed annually or in the event of an incident, complaint or change in key personnel.

11 Appendices

Appendix A - BAT for Odour Control

Indicative BAT - The Food and Drink Sector (EPR 6.10)

Indicative BAT	
Ensure that effluent treatment plant is adequately sized and maintained, and check that site waste water drains do not become blocked. Where present, aeration tanks should be kept aerated and mixed at all times except where maintenance necessitates shut-down of the aeration system. Alternative operational arrangements should be implemented during shut-down to avoid odour nuisance.	Routine maintenance and inspection of plant and yard areas. DAF plant kept on during hours of operation and housed internally.
Design and operate abatement plant to cope with maximum loadings and volumes.	Odour Abatement Plant operated as commissioned by supplier.
Design extraction from odorous activities to minimise air flows to the abatement plant.	Odour Abatement Plant operated as commissioned by supplier.

Appendix B – Odour Monitoring Record Form

Date:					
Assessment Carried out by:					
Time of Assessment					
Location Test Point	**1**	**2**	**3**	**4**	**5**
Weather conditions (dry, rain, fog, snow etc):					
Temperature (very warm, warm, mild, cold, or degrees if known)					
Wind strength (none, light, steady, strong, gusting) Use Beaufort scale if known					
Wind direction (e.g. from SW)					
Odour					
Odour Intensity (see overleaf)					
Duration (of test)					
Constant or intermittent in this period or persistence					
What does it smell like?					
Is the source of odour evident?					

Odour Intensity Score:
0 - No odour 1 - Very faint odour 2 - Faint odour - *present but cannot be easily described* 3 - Distinct odour – *odour barely recognisable* 4 - Strong odour - *character is easily recognisable* 5 - Very strong odour – *odour is offensive*. 6 - Extremely strong odour