Creative Foods Europe Ltd

Environmental Permit Variation

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Odour Management Plan

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ODOUR MANAGEMENT PLAN

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2020

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1.0 INTRODUCTION

A statutory odour nuisance is defined as an odour that is so offensive and/or prolonged that it significantly interferes with the enjoyment and use of the affected property.

Many things can affect whether an odour would be considered a statutory nuisance: time of day the odour occurs; how long it is a problem for; the type of smell and its effects; the character of the area.

For example, in rural areas it is reasonable to expect odour from farming activities. Due to the complex nature of odour perception by the human olfactory system, levels of sensitivity to odour within a population will vary. Consequently, the perceived offensiveness of an odour will vary from person to person. In addition, the context in which the odour occurs will affect the nuisance value of an odour.

As odour accounts for a significant proportion of the complaints that local councils and the Environment Agency receive regarding environmental pollution, it is important that management are cognisant of odour issues in design and management of a facility.

The Odour Management Programme (OMP) is a core document that is intended to detail operational and control measures appropriate to the management and control of odour at the site. The format of the OMP should provide sufficient detail to allow staff to clearly understand the operational procedures for both normal and abnormal conditions.

The Odour Management Plan is a living document and should be reviewed annually, following any significant change to the site, or following any pertinent odour complaints. It should form the basis of a document Environmental and Odour Management system for the operating site.

Requirements for the Odour Management Plan should be implemented throughout the site with a branched management system implemented in order to share responsibility around the site. The environmental manager should ensure all works are performed in accordance with the OMP.

1.1 BACKGROUND

Panther Environmental Solutions Ltd was commissioned by Creative Foods Europe Ltd to prepare an Odour Management Plan for their Burton Plant, in support of an application for an Environmental Permit Variation.

As with many large-scale food processing factories, the Burton Plant processing operation and is faced with the challenge of eliminating, or mitigating where necessary, odours emanating from various point sources of the facility so as to avoid impacting the surrounding environment and the public at large.

The Creative Foods Europe Ltd – Burton Plant is located in Burton-upon-Trent, Staffordshire and covers approximately 2.8 hectares. This site is accessed from Mosley Street and the central National Grid reference for the site is SK 24276 23115.

There is a mix of land uses/sensitive receptors surrounding the site: to the north is a large brewery; to the east are some residential beyond which is another brewery; to the south is primarily commercial; to the west is a railway and station, a depot, a business park, 'works' and some residential further afield. The primary residential areas are to the east and south-east. The site is within an Air Quality Management Zone for Nitrogen dioxide.

Production at the plant, by the previous operator, ceased in September 2019. Previous to this, the site did not receive an odour complaints in six years, which was last received in September 2013.

This Odour Management Plan (OMP) will seek to outline measures to be employed, as required, to prevent any odour problems emanating from the site, predominantly in relation to the storage of biodegradable waste. It will also include identification of potential sources of risk, mitigation measures employed and how management will respond to complaints etc.

This Odour Management Plan has been prepared in accordance with guidance on best practice, and in particular the following specific regulations and guidance (where applicable) contained in:

- Environmental Permitting (England and Wales) Regulations 2016;
- Environmental Permitting: Core Guidance (DEFRA, Revised March 2013);
- Odour Guidance (SEPA, January 2010);
- General Guidance (Environment Agency);
- H4 – Odour Management (Environment Agency, March 2011).

This Odour Management Plan is a live document and as such will be subject to regular review and revision. In all circumstances, revisions will be submitted to the Environment Agency (EA) for review and approval.

1.2 GUIDANCE

The Odour Management Plan (OMP) has been prepared in accordance with the H4 – Horizontal Odour Guidance document.

The 'H4' guidance provides a regulatory framework by which a permitting officer can ensure compliance by the provision of specific conditions. The guidance acknowledges that assessment and control of odour can be difficult due to dispersal and the episodic nature of odour events.

The Environment Agency (E.A.) published this guidance document H4 Odour Management – How to comply with your environmental permit in 2011, which is part of a suite of guidance notes issues by the EA and is designed to help both holders and potential holders of permits understand how to apply for, vary and comply with their permit. This document supersedes the previous draft H4 guidance and the EA's internal guidance on the management of odour at waste facilities.

The current form of odour condition used in environmental permits usually consists of two elements:

- the odour boundary condition, which specifies the outcome which the operator must achieve (i.e. no pollution beyond the site boundary); and
- a condition requiring compliance with an OMP (where activities are considered likely to give rise to odour)

There may also be specific operational conditions relating to odour control, which require certain techniques or specify emission limits.

This document provides a summary of the physical and management controls that will be employed to minimise odour release. It provides a site-specific assessment of the potential sources of odour, the pathways odour can take from the site and the receptors it is likely to impact. The potential release points of odour are identified and the management systems to prevent and control fugitive odour emissions. Monitoring and reporting systems are described in addition to emergency contingency plans.

Control and Monitor Emissions for Your Environmental Permit – Odour

You must prevent or minimise odour if you have a waste, mining waste or installation permit.

To do this you must:

- avoid using raw materials that are likely to cause odour, like biodegradable materials,
- minimise quantities and storage times for biodegradable materials that you can't avoid using altogether,
- don't expose biodegradable materials to high temperatures or air,
- avoid operations that cause odours,
- enclose odorous materials and activities in buildings or containers.

You must respond to any complaints or concerns by stopping activities that cause odour until you've developed procedures to control the odour.

1.3 SITE PROCESSES/ACTIVITIES

Factory has the capacity to produce approximately 121 tonnes of finished product per day. Finish product included chilled & ambient cooked sauces, sous vide products and sandwich fillings

Table 1.1: Site Activities

Primary Activities	Other Activities
• Raw material storage	• Water Softening
• Packaging storage	• Compressed Air generation
• Waste storage	• Recycling segregation
• Process effluents	• Administrative
• Steam raising for use in the on-site cooking and cleaning processes	• Maintenance
• Refrigeration	• Char-Grilling
• Medium Combustion Plant for the production of electricity for use on-site	• Intake/Dispatch

1.4 SENSITIVE RECEPTORS

The closest odour sensitive receptors detailed below and are mapped in Appendix A.

Table 1.2: Location of Odour Sensitive Locations

Ref.	Grid Ref.	Location
OSL1	SK 24397 23094	Cluster of residential properties located 15m east of the site boundary, at its closets point.
OSL2	SK 24349 22914	Cluster of residential properties located 30m south-east of the site boundary, at its closets point.
OSL3	SK 24133 22942	Row of approx. eighteen residential properties located 110m south of the site boundary, at its closets point.
OSL4	SK 24538 23172	Row of approx. four residential properties located 140m north-east of the site boundary, at its closets point.

The closest residential properties to the west, south-west or north-west of the site boundary are over 250m in distance and predominantly upwind of the prevailing wind direction. Therefore, these locations were not considered odour sensitive receptors with regards to the Burton Plant.

1.5 ODOUR ASSESSMENT 2017

Weather conditions during the odour survey were cool and dry, overcast with intermittent light breezes. Wind direction was predominantly from the south during the monitoring period. Unidirectional light winds resulted in good conditions for the transmission of odours from the site. The southerly winds present during the assessment are therefore considered to be representative of normal operating conditions, as per Section 1.6.

Odour monitoring was conducted, as per the 'sniff testing' methodology outlined within Section 4.0.

Potential sources of odours within the site were identified and included the rooftop chimneys from kitchens, the waste compound area and the refrigeration plant room.

The majority of odour plumes were confined within the site boundary during the odour assessment.

Soup/spicy type odours from the rooftop chimneys were detected on the public Borough Road Bridge and the Station Street carpark, north of the site. On the Borough Road Bridge, the odour was moderate but only intermittently detected in calm periods following a breeze from the site. The dominant odour was traffic fumes from passing vehicles.

In the Station Street carpark area, odours were also moderate and only intermittently detected in calm periods following a breeze from the site. Closer to the lee of the bridge, the shelter from the bridge provided for a persistent but faint soup/spicy type odours to collect.

Permanent duration and/or moderate intensity odours would meet the threshold for an odour "which may cause a nuisance", as defined by guidance method.

It should be noted that all monitoring locations were within the high sensitivity observation point category i.e. a location with housing, commercial/industrial premises or public area

within area of observation point. Properties downwind of the site, to the north, are comprised of mixed industrial, business and residential developments.

Odours from chimneys on the rooftops which extract air from the kitchen areas were also investigated (OS4 to OS6). An activated carbon filter is installed on the Kitchen PS4 Cooking Chimney (OS5) in order to mitigate the release of odours from this source.

As a result of this odour assessment, it is concluded that the odour emissions from the Burton facility were found to meet the threshold for odours which may cause a nuisance at odour sensitive locations.

1.6 METEOROLOGICAL CONDITIONS

The dispersion of odour may be affected by the local weather conditions, with particular reference to wind direction and speed. The closest meteorological station is the Midland Airport, located c.20km east-north-east of the site. Data from RenSMART Wind data archive has been utilised to characterise the meteorological conditions which are likely to be experienced on site.

As can be seen from the wind distribution table and diagram for the Burton area below, the prevailing wind direction is from the South-South-West, which occurs for 10.84% of the yearly hours. It can also be seen that the majority of wind ranges from the south to west directions (S, SSW, SW, WSW & W), which when combined occurs for 49.77% of the yearly hours.

Table 1.3: Burton-On-Trent Average Yearly Wind Distribution

Km/hr	0	>1	>5	>12	>19	>28	>38	>50	>61	Total
N	1	33	83	90	62	30	12	3	2	316
NNE	1	27	81	109	84	38	14	5	1	360
NE	0	24	94	134	111	52	16	5	0	436
ENE	2	36	114	133	92	46	19	6	1	449
E	0	23	95	93	63	25	12	6	1	318
ESE	1	27	94	90	59	23	9	2	0	305
SE	0	21	90	86	61	25	8	2	0	293
SSE	0	20	98	129	120	57	17	4	1	446
S	4	30	133	204	229	130	41	12	4	787
SSW	0	24	134	239	279	184	68	17	5	950
SW	2	33	139	225	269	182	65	21	6	942
WSW	0	29	133	188	214	135	61	21	9	790
W	2	46	189	226	230	124	50	19	7	893
WNW	0	32	166	223	221	92	29	9	2	774
NW	1	33	116	132	91	39	13	5	1	431
NNW	0	23	78	75	62	24	9	3	1	275
Total	14	461	1837	2376	2247	1206	443	140	41	8765

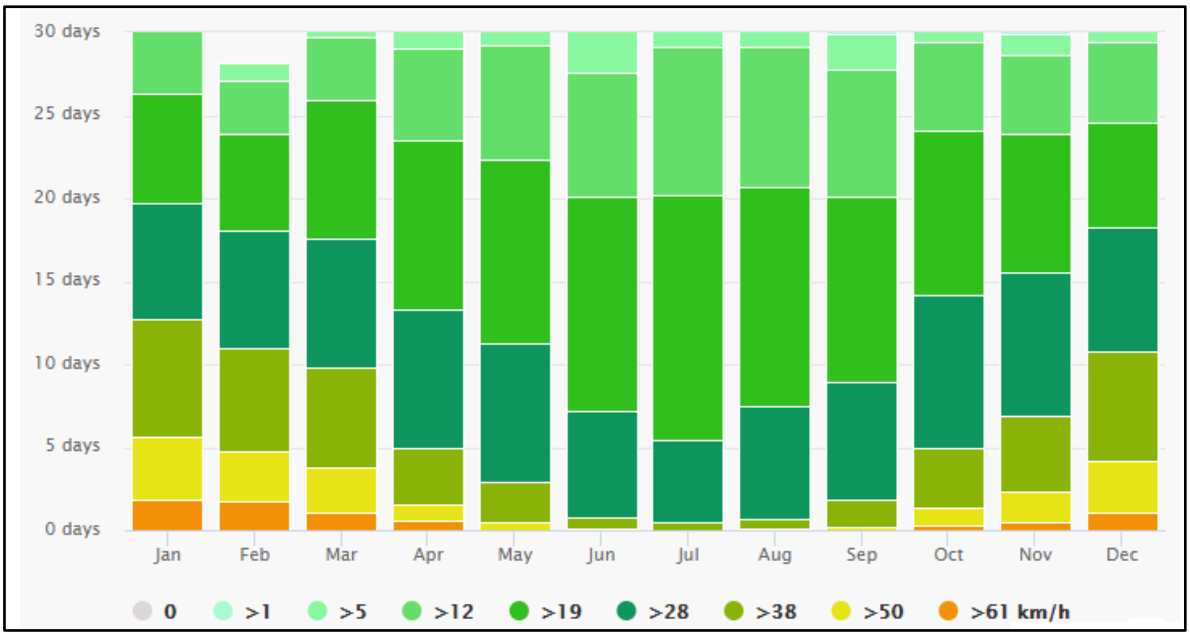


Figure 1.1: Burton-On-Trent Wind Speed Diagram

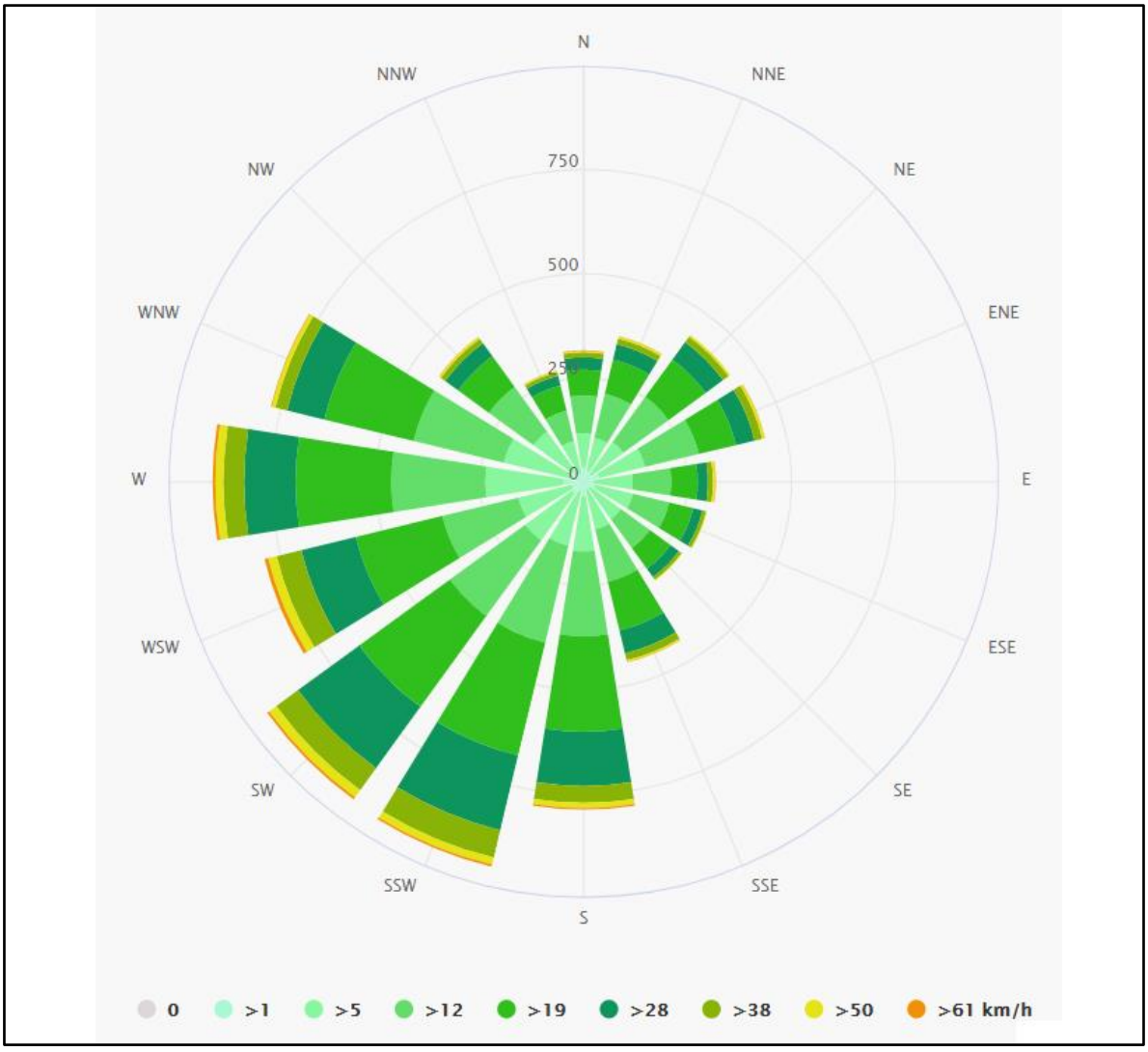


Figure 1.2: Burton-On-Trent Wind Distribution Diagram

2.0 ODOUR SOURCE INVENTORY

2.1 ODOUR SOURCES

The main sources of potential odour associated with the site is wastes, which are organic in nature and have the potential to biodegrade over a relatively short timeframe, and effluent treatment.

Other waste stored on site include plastic (recycles), cardboard (recycles), metals (recycles), wood (recycles), batteries, fluorescent tubes, waste solvent containers and waste engineering oil. These wastes are considered negligible in terms of odour generating potential.

As per the site's Register of Environmental Aspects and the site-wide audit in 2017, potential on-site sources of nuisance odours include:

OS1	Interceptor No.1 & No.2	**OS7**	Compressor House
OS2	Intake Yard	**OS8**	Intake Yard Area
OS3	Interceptor No.3	**OS9**	Dispatch Yard
OS4	Kitchen Area Extraction Chimneys	**OS10**	Waste Compound
OS5	Kitchen PS4 Cooking Chimney	**OS11**	Waste Compactor
OS6	Rice Cooking Chimney	**OS12**	Food Waste Dolav Area

This locations are mapped in Appendix B.

In certain facilities, drainage and bad housekeeping can be a significant source of odours. The build-up of waste material on rough concrete surfaces can lead to significant emissions especially during warmer summer months. Great care should be taken to ensure the elimination of unscheduled emissions such as these through good housekeeping and management.

Fugitive odour emissions are generally associated with:

- Yard areas used to store general waste containers
- Blocked waste water pipes, gullies and drains
- Cooling material (Refrigerant and Ammonia)
- Natural Gas

2.2 ACTIVITIES INVOLVING ODOUR SOURCES

The normal activities involving the sources of odour include;

- Waste Storage
- Production/Cooking

All production is carried out internally.

Waste storage and consequent ageing of the waste material is considered the activity most likely to represent the largest risk in terms of odour generation.

Waste of all types would not be stored on site for durations exceeding 1 week.

2.3 ACCIDENTS/INCIDENTS INVOLVING ODOUR SOURCES

Accidents and their consequences should be considered for a range of potential risks from the overall operation.

With regards to accidents/incident/events involving sources of odour, these could be related by the follow methods:

- Spillages
- Loss of Containment.
- Leakage

All vehicles removing waste from the site will be fully enclosed and visual inspections will be carried out.

2.4 LOCATION OF POTENTIALLY ODOROUS ACTIVITIES

As alluded to throughout this document, it can be considered that the storage of waste and production/cooking has the highest potential to be the cause of unacceptable fugitive odorous emissions.

All potential fugitive air emission point sources are mapped in Appendix B. These points are based on pervious operation at the site and are subject to change.

2.5 RECEPTORS

Receptors	Describe the type of receptor and give an approximation of its extent/size/population, as appropriate. On a large installation, different receptors may be affected by different sources. Describe the location or indicate on a plan of the locality (show too the installation boundary where possible).	See Appendix A for Odour Sensitive Receptor Map.
Have any assessments of environmental impact been undertaken?	i.e. any assessments which look at the IMPACT on the receptors – i.e. not at source, although they may use source-based data as input. Such assessment could include dispersion modelling, population panels, attitude surveys, field observers, simplified olfactometry (sniff testing) or any ambient air monitoring. When were these undertaken and for what reason? What were the findings in terms of impact	See Section 1.6 above for summary of Odour Assessment carried out in 2017, during an active production period.
Is any routine monitoring undertaken?	Is additional monitoring undertaken (i.e. not relating to the previous row) which relates to impact. This might include regular 'sniff testing' at the boundary or some form of ambient air monitoring. What form, how often, and what are typical results?	Yard and boundary odour are included in the facilities EHS Checksheets.
Overview of complaints received	Have complaints ever been received? How many, when, and how many separate incidents or sources/receptors do these relate to? What is/was the cause and has it been rectified? If not already covered elsewhere in the Application, the Operator should confirm that he has a procedure in place for dealing with complaints.	No official odour complaints have been received by the facility since 2013.
Have any limits or other condition(s) been applied?	Have any conditions or limits been imposed by any regulatory Authority which relate to sensitive receptors or to other locations which represent the effect on receptors, e.g. boundary fence?	No limits or other conditions have been applied with regard to odour at the facility.

2.6 POTENTIAL ODOUR SOURCES

Table 2.1: Potential Odour Sources

I.D	Area	Risk	Impacted Receptor
Site Areas			
A1	Intake Areas	Potential for spillage, which may cause odour.	Human Beings
A2	Dispatch Area	Potential for spillage, which may cause odour.	Human Beings
A3	Carpark Area	None	None
A4	Storage Area	None	None
A5	Recycling Storage Area	None	None
A6	General Waste Storage Areas	Potential for build-up of organic material as a result of overfilling, which may cause an odour.	Human Beings
A7	Services Building	Potential for spillage, which may cause odour.	Human Beings
A8	Chills, freezers and Cold Store	Potential for leak, which may cause odour.	Human Beings
Equipment			
E1	Low NOx burner – steam raising boiler No.1	Emissions of CO, NOx or SOx	Human Beings
E2	Low NOx burner – steam raising boiler No.2	Emissions of CO, NOx or SOx.	Human Beings
E3	Emergency relief valve – Boiler No.1	Emissions of Steam	None
E4	Emergency relief valve – Boiler No.2	Emissions of Steam	None
E5	Char-grill oven	Emissions of Odour and VOCs	Human Beings
E6	Echo Oven No.1	Emissions of CO, NOx or particulate matter.	Human Beings
E7	Echo Oven No.2	Emissions of CO, NOx or particulate matter.	Human Beings
E8	Rack Oven No.1	Emissions of CO, NOx or particulate matter.	Human Beings
E9	Rack Oven No.2	Emissions of CO, NOx or particulate matter.	Human Beings
E10	Echo/Rack Oven product extract flue	Emissions of cooking odour	Human Beings
E11	Refrigeration Compressors	None	None
E12	Compressed Air Units	None	None
E13	Chiller Unit	Emissions of Steam	None
E14	Forklift Operations	Emissions of CO, NOx or particulate matter.	Human Beings
E15	Natural gas spark ignition engine (MCP and SG)	Emissions of CO, NOx or SOx.	Human Beings

I.D	Area	Risk	Impacted Receptor
Waste			
W1	General Waste	Potential for build-up if not removed regularly, which may cause an odour.	Human Beings
W2	Recyclable Cardboard	None	None
W3	Recyclable Plastic	None	None
W4	Recyclable Wood	None	None
W5	Recyclable Metal	None	None
W6	Waste Product	Potential for organic decay if not collected regularly, which may cause an odour.	Human Beings
W7	Waste Engineering Oil	Potential for spillage, which may cause an odour.	Human Beings
W8	Fluorescent Bulb	None	None
W9	Waste Solvent Containers	None	None
W10	Waste Batteries	None	None
Drainage			
D1	Stormwater Drains	Potential for blockage, which could cause a build-up of material which could cause an odour.	Human Beings
D2	Process & foul line	Potential for blockage, which could cause a build-up of material which could cause an odour.	Human Beings

3.0 ASSESSMENT OF RISKS

3.1 METHODOLOGY

The risks identified in Table 2.1 were assessed against the risk classification tables (RCT) in Tables 3.1 and 3.2. The risk classification tables were designed to reflect the levels of risk appropriate to the Burton Plant.

Ratings taken from a risk classification table were applied to the consequence and likelihood of occurrence of each risk. A risk score was calculated for each risk using the ratings. The risks were then ranked and compared based on the risk scores.

The risks were placed in a risk matrix to illustrate the ranking of each risk, and to allow the risks to be quantified and visually prioritised. The risk matrix is a particularly useful tool for tracking changes in risk levels over time.

3.2 RISK CLASSIFICATION

The Risk Classification Tables (RCT) has been designed to reflect the critical levels of risk appropriate to the Burton Plant site. The RCT provides likelihood of occurrence and environmental consequence for the ranking of risks.

Table 3.1: Risk Classification Table (Likelihood)

Rating	Likelihood	
	Category	**Description**
1	Very Low	Very low chance (0-5%) of hazard occurring in 30 yr period
2	Low	Low chance (5-10%) of hazard occurring in 30 yr period
3	Medium	Medium chance (10-20%) of hazard occurring in 30 yr period
4	High	High chance (20-50%) of hazard occurring in 30 yr period
5	Very High	Very high chance (>50%) of hazard occurring in 30 yr period

Table 3.2: Risk Classification Table (Consequence)

Rating	Likelihood	
	Category	**Description**
1	Very Low	No impact or negligible change to the environment
2	Low	Minor / localised impact or nuisance
3	Medium	Moderate impact to the environment
4	High	Severe impact to the environment
5	Very High	Massive impact to a large area, irreversible in the medium term

Table 3.3: Risk Register – Classified by Risk Score

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
Area							
A1	Intake Areas	Rear & Front of Facility	1	Spillage procedure in place. Deliveries are carried out by registered haulier. Deliveries are supervised by site personnel trained in spillage response. Materials are transported using forklifts operated by trained personal.	2	Liquid materials at this location are in small volume containers, which can be easily managed if a spillage occurs. Spillage may occur as a result of operator error.	2
A2	Dispatch Area	Rear of Facility	1	Spillage procedure in place. Trailer loading is supervised by site personnel trained in spillage response. Materials are transported using forklifts operated by trained personal.	2	All materials being handled are in sealed containers within wrapped pallets. Spillage may occur as a result of operator error.	2
A3	Carpark Area	Rear of Facility	1	There are no chemicals or waste within this area.	1	None	1

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
A4	Storage Area	Rear of Facility	1	Spillage procedure in place. Materials are transported using forklifts operated by trained personal.	2	Spillage may occur as a result of operator error. No organic material or chemicals stored in this area.	2
A5	Recycling Storage Area	Rear of Facility	1	This type of waste is odourless.	1	None	1
A6	General Waste Storage Areas	Rear of Facility	1	Waste management procedure in place. Site inspection procedure in place. Waste is first placed into sealed black bags reducing the likelihood of spillage or material build-up. General waste is collected weekly.	4	If organic material (waste product) did build-up it would decay creating an odour, especially in warm conditions.	4
A7	Services Building	Rear of Facility	1	Spillage procedure in place. Materials are transported using forklifts operated by trained personal.	2	No organic material stored in this area. Depending on the scale of the spillage this could result in a shock load on the ETP.	2

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
A8	Chills, freezers and Cold Store	Site wide	1	There is a high chance of this occurring in a 30-year period. Leaks are usually due to manifold breaks in the chill or refrigeration rooms. Preventative maintenance and leak test plan in place. OP09-Refrigerant Management Procedure is in place. Equipment is maintained regularly.	1	Refrigerant used is odourless under all conditions.	1
Equipment							
E1	Low NOx burner steam raising boiler No.1	Services Building	1	Monitoring of emission values on an annual basis during maintenance. Boiler stack emissions are visually assessed daily for black smoke. NOx, SOx and particulate matter levels are low due	3	Due to the height of the stacks, odour may travel beyond the site boundary.	3

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
				to boilers fuelled by natural gas. Boiler is small with a 5.7MW thermal input.			
E2	Low NOx burner steam raising boiler No.2	Services Building	1	Monitoring of emission values on an annual basis during maintenance. Boiler stack emissions are visually assessed daily for black smoke. NOx, SOx and particulate matter levels are low due to boilers fuelled by natural gas. Boiler is small with a 5.7MW thermal input.	3	Due to the height of the stacks, odour may travel beyond the site boundary.	3
E3	Emergency relief valve – Boiler No.1	Services Building	1	Steam pressure is regulated	1	Steam vapour is odourless.	1
E4	Emergency relief valve – Boiler No.2	Services Building	1	Steam pressure is regulated	1	Steam vapour is odourless.	1
E5	Char-grill oven	Production Building	1	Monitoring of emission values on an annual basis during maintenance.	3	Due to the height of the stacks, odour may travel beyond the site boundary.	3

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
				Oven stack emissions are visually assessed daily for black smoke. NOx, SOx and particulate matter levels are low due to boilers fuelled by natural gas. Oven is small with a 0.9MW thermal input.			
E6	Echo Oven No.1	Production Building	1	Monitoring of emission values on an annual basis during maintenance. Oven stack emissions are visually assessed daily for black smoke. NOx, SOx and particulate matter levels are low due to boilers fuelled by natural gas. Oven is small with a 5.8MW thermal input.	3	Due to the height of the stacks, odour may travel beyond the site boundary.	3

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
E7	Echo Oven No.2	Production Building	1	Monitoring of emission values on an annual basis during maintenance. Oven stack emissions are visually assessed daily for black smoke. NOx, SOx and particulate matter levels are low due to boilers fuelled by natural gas. Oven is small with a 5.8MW thermal input.	3	Due to the height of the stacks, odour may travel beyond the site boundary.	3
E8	Echo Oven No.1	Production Building	1	Monitoring of emission values on an annual basis during maintenance. Oven stack emissions are visually assessed daily for black smoke. NOx, SOx and particulate matter levels are low due to boilers fuelled by natural gas.	3	Due to the height of the stacks, odour may travel beyond the site boundary.	3

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
				Oven is small with a 4.1MW thermal input.			
E9	Echo Oven No.2	Production Building	1	Monitoring of emission values on an annual basis during maintenance. Oven stack emissions are visually assessed daily for black smoke. NOx, SOx and particulate matter levels are low due to boilers fuelled by natural gas. Oven is small with a 4.1MW thermal input.	3	Due to the height of the stacks, odour may travel beyond the site boundary.	3
E10	Echo/Rack Oven product extract flue	Production Building	2	Monitoring of odour emission on an weekly basis as part of environmental checksheet.	2	Due to the height of the stacks, odour may travel beyond the site boundary.	3
E11	Refrigeration Compressors	Services Building	1	This equipment does not create an emission containing odour.	1	None	1
E12	Compressed Air Units	Services Building	1	This equipment does not create an emission containing odour.	1	None	1

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
E13	Chiller Unit	Services Building	1	Very low likelihood as emission is vent steam. Equipment is maintained regularly by GEA. Refrigerant is odourless under all conditions. System regularly inspected for leaks.	1	None	1
E14	Forklift Operations	Site wide	1	Forklifts are maintained on a regular basis. Operators inspect the forklifts of black smoke continuously during use.	2	Slight increase in fume type odour within the site.	2
E15	Natural gas spark ignition engine (MCP and SG)	Production Building	1	Monitoring of emission values on an annual basis during maintenance. Stack emissions are visually assessed daily for black smoke. NOx, SOx and particulate matter levels are low due	3	Due to the height of the stacks, odour may travel beyond the site boundary.	3

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
				to boilers fuelled by natural gas. Oven is small with a 1.88MW thermal input.			
Waste							
W1	General Waste	General Waste Storage Area	2	OP01-Waste Management Procedure in place. Waste is stored in sealed black bags, within sealed 200 litre bins. Waste is collected on a weekly basis.	3	If the waste is not collected or the bins are over filler odour may be generated.	6
W2	Recyclable Cardboard	Recycling Storage Area	1	Very low likelihood as this waste is odourless under all conditions. OP01-Waste Management Procedure in place.	1	None	1
W3	Recyclable Plastic	Recycling Storage Area	1	Very low likelihood as this waste is odourless under all conditions. OP01-Waste Management Procedure in place.	1	None	1

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
W4	Recyclable Wood	Recycling Storage Area	1	Very low likelihood as this waste is odourless under all conditions. OP01-Waste Management Procedure in place.	1	None	1
W5	Recyclable Metal	Recycling Storage Area	1	Very low likelihood as this waste is odourless under all conditions. OP01-Waste Management Procedure in place.	1	None	1
W6	Waste Product	Pallet Store (Internal)	2	Low likelihood as all potentially odorous wastes is stored internally. Low Potential for over-flowing as filling is manual and waste is solid. Containers are plastic lined to prevent any spillages occurring. Storage area is temperature controlled.	2	If not removed from site regularly or stored incorrectly decay creating an odour, especially in warm conditions. However, waste product is stored internally.	4

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
				Licenced waste contractors are used for the transport of waste. No incidents have occurred to date. OP01-Waste Management Procedure in place.			
W7	Waste Engineering Oil	Services Building	1	Potential for tank leakage over 30 year life span. Waste oil contained in 1,300 litre bunded tank. OP06-Pipework, Bunds and Tank Inspection Procedure in place. OP03-Spillage Procedure in place. Spill kits are located within the Quarry area. Quarry area drainage is directed to the ETP. OP01-Waste Management Procedure in place.	2	Yes, if stored incorrectly	2

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
				Licenced waste contractors are used for the transport of waste. No incidents have occurred to date.			
W8	Fluorescent Bulb	Coffin in Storage Area	1	This type of waste is odourless under all conditions Bulbs are stored in a sealed metal coffin. OP01-Waste Management Procedure in place.	1	No, this type of waste is odourless.	1
W9	Waste Solvent Containers	Drum in Storage Area	1	This type of waste is odourless under all conditions Solvent Containers are stored in sealed metal drums. OP01-Waste Management Procedure in place.	1	No, this type of was is odourless.	1

Risk ID	Source/Process	Location	Odour Likelihood Rating	Basis Of Likelihood	Consequence Rating	Basis Of Consequence	Risk Score
W11	Waste Batteries	Drum in Storage Area	1	This type of waste is odourless under all conditions Batteries are stored in a sealed plastic drum. OP01-Waste Management Procedure in place.	1	Yes, if stored incorrectly	1
Drainage Network							
D1	Stormwater Drains	Site Wide	1	Not tested as part of Environmental management. Concrete underground pipes, likelihood of leaking over 30 year period is minimal.	2	Stormwater drains contain no material which can create odour.	2
D2	Process & foul line	Site Wide	2	Drainage pipes are cleaned quarterly by external contractor. OP06-Pipework, Bunds and Tank Inspection Procedure in place. Manholes on site are visually inspected.	2	All line are either sealed or internal.	4

3.4 RISK MATRIX

The Risk Matrix has been developed to allow the risks to be easily displayed and prioritised. The consequence and likelihood ratings are used in the matrix; with the level of consequence forming the x-axis and the likelihood forming the y-axis. This matrix provides a visual tool for regular risk reviews and the success of mitigation can be easily identified. The risk matrix is displayed in Table 3.4. The risks have been colour coded in the matrix to provide a broad indication of the critical nature of each risk. The colour code is as follows:

- Red – These are considered to be high-level risks requiring priority attention. These risks have the potential to be catastrophic and as such should be addressed as a priority.

- Amber – Yellow – These are medium to high-level risks requiring action, but are not as critical as a red coded risk.

- Green – These are lowest-level risks and indicate a need for continuing awareness and monitoring on a regular basis. Whilst they are currently low or minor risks, some have the potential to increase to medium or even high-level risks and must therefore be regularly monitored. If cost effective mitigation can be carried out to reduce/mitigate the risk even further this should be pursued.

Table 3.4: Risk Matrix

Likelihood	V. High	5					
	High	4					
	Medium	3					
	Low	2		**E10, W6**	**W1**		
	V. Low	1	**A3, A5, A8, E3, E4, E11, E12, E13, W2, W3, W4, W5, W8, W9, W10**	**A1, A2, A4, A7, E14, W7, D1**	**E1, E2, E5, E6, E7, E8, E9, E15, D2**	**A6**	
			Trivial	Minor	Moderate	Major	Massive
			1	2	3	4	5
			Consequence				

The risk matrix indicates that there are no existing risks in the red or yellow zones requiring priority attention.

All risks are located in the green zone, indicating a need for continuing awareness and monitoring on a regular basis. Assessment of the green zone risks during the preparation of the workshop has indicated that many of these risks can be reduced through the implementation of mitigation or management measures. These measures should be adopted where considered cost-effective to further reduce the risks.

3.5 APPROPRIATE ODOUR MITIGATION CONTROLS

A variety of wastes are stored on-site which include:

- Plastic (recycles)
- Cardboard (recycles)
- Metals (recycles)
- Wood (recycles)
- Batteries
- Waste Solvent Containers
- General waste
- Waste Product
- Waste Engineering Oil
- Fluorescent Tubes

Wastes with the potential to generate odour are limited to production waste and general waste.

Production waste is stored internally, within sealed containers.

General Waste, consisting of mainly plastic personal protective equipment, hairnets, floor waste and soiled packaging are put into designated waste bags and stored in 1,100 litre covered bins for collection by registered waste contractors.

Wastes are transported from the site by road. Records are weight based, which is attained by weighbridge. Once checked in at the site office, waste delivery vehicles are directed to the appropriate part of the site and loaded.

The control of potential fugitive emissions is achieved largely through implementation of good management practices and housekeeping.

The control of odour as a result of accidents/incident/events:

Spillages: Spill kits and absorbent materials are kept on site in various locations and will used in the event of a spillage.

Loss of Containment: All hazardous and potentially odours materials are stored in designated areas and kept within bunds or bunded structures.

Leakage: All pipework is regularly inspected and a leak detection system is in place.

The following procedures help to reduce the risk of odour:

- OP01 Waste Management Procedure
- OP02 Bulk Storage and Filling Procedure
- OP03 Spillage Procedure
- OP04 Site Inspection Procedure
- OP06 Pipework, Bunds and Tank Inspection Procedure
- OP09 Refrigerant Management Procedure
- OP11 Effluent Management Procedure

4.0 MONITORING AND TRIGGER LEVELS

4.1 ODOUR MONITORING

On-site ambient odour inspections should be undertaken in accordance with the guidance set out in EA Horizontal Guidance document '*H4 Odour Management – How to Comply with your Environmental Permit'*.

This monitoring should be is primarily undertaken at the boundary of the site, with monitoring beyond the site boundary in response to the identification of potential significant odours within the site (i.e. breach of trigger levels). Off-site monitoring will also take place in receipt of a complaint. lastly, all on-site sources identified in Section 2.1 and mapped in Appendix B should also be inspected.

All monitoring is carried out in cognisance of the prevailing weather conditions.

Monitoring comprises of weekly olfactory monitoring (i.e. 'sniff tests') with monitoring record sheets completed and filed accordingly. Any odour emissions noted results in the implementation of the Odour Management Plan protocols detailed herein.

Any complaints received by the facility in relation to odour will be fully investigated in accordance with site's Quality Management System (QMS) and is detailed in the following sections. The resultant actions will be recorded in the Site Diary/Daily Log and with the Environmental Agency.

Further details of odour monitoring undertaken are provided within the following paragraphs.

Meteorological Conditions

Meteorological forecasts and weather conditions (including cloud cover, wind speed and wind direction) are monitored and recorded daily to enable potential odour problems to be predicted and necessary remedial actions to be implemented.

Regular Inspection/Olfactory Monitoring

Odour monitoring is undertaken in order to assess how successful the operational management and mitigating control measures are at the facility and to identify if necessary whether odour is causing a potential nuisance to ensure that appropriate remediation measures are adopted early.

Odours that may be attributable to the facility are those that are monitored for.

All facility personnel are responsible for reporting any odour problems as soon as reasonably possible to the Site Manager, Environmental Manager or the next level of management if not available.

Management ensures that weekly inspections are made of the facility and its perimeter in order to identify any sources of odour and to establish whether any odours that are attributed to site operations are discernible at the perimeter of the facility.

Monitoring is carried out by staff whom have had limited exposure to operational areas of the site to minimise the risk of inspection being carried out by staff that may be suffering from odour fatigue (i.e. accustomed/desensitised to the odour of concern).

If significant odours are identified around the periphery of the site and trigger level are deemed to be exceeded, olfactory monitoring will be extended beyond the boundary to determine the extent of any impact and in consideration of the presence of a sensitive receptor and wind direction. The location of monitoring will also depend on the location of any complaints received by the facility with the monitoring results recorded in the site diary/daily log and with the Environmental Agency.

Olfactory monitoring or sniff testing is carried out in accordance with the recommendations detailed in the E.A. H4 guidance, including avoiding strong foods or drinks and strongly scented deodorisers or toiletries etc. for at least a half-hour prior to the monitoring. In addition, individuals suffering from a cold, sore throat or sinus problems that may impair their ability to detect odours. Likewise, the olfactory monitoring will be undertaken by employees that have not been desensitized by frequent and extensive exposure to on-site odours.

The designated personnel exit their vehicle and remain in that locality for a minimum of 5-minutes whilst breathing normally. Any external activities that may contribute to odour generation in the surrounding area are also noted together with weather conditions (including wind direction and speed) and then an assessment of the intensity of the odour is made using the guide below.

4.2 MONITORING TRIGGER LEVELS

In the event that odour, that can be directly attributable to site activity, is detected above intensity ranking 3 (moderate odour) at the site boundary during the weekly olfactory monitoring, the management is informed immediately and the approximate location and extent of the odour plume assessed and site operations reviewed and potentially suspended.

Odour Intensity Scale

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

However, it is not simply the intensity that is assessed, as consideration are given to the FIDOR (Frequency of detection, Intensity, Duration, Offensiveness and Receptor sensitivity) principle such that for example a long duration lower intensity odour or a very offensive short duration event be assessed and investigated

Template ‘Odour Investigation Field Sheets’ are presented in Appendix C.

The following key describes the numerical values used to describe observation point sensitivity, wind strength, odour persistence, and odour intensity:

Note 1: Observation point Sensitivity (assuming detectable, if not then 0)		
1	Remote (no housing, commercial/industrial premises or public area within 500m of observation point)	
2	Low sensitivity (no housing, commercial/industrial premises or public area within 100m of observation point)	
3	Moderate sensitivity (housing, commercial/industrial premises or public area within 100m of observation point)	
4	High sensitivity (housing, commercial/industrial premises or public area within area of observation point)	
5	Extra sensitive (complaints arising from residents, businesses and users of public areas within area of observation point)	
Note 2: Wind Strength		
0	Calm	Smoke rises vertically
1	Light air	Direction of wind is 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 against the wind.
7	Near Gale	Whole trees in motion; inconvenience felt when walking against wind.
8	Gale	Twigs break off trees; progress generally impeded.
9	Strong Gale	Slight structural damage occurs (chimney pots and slates removed).
Note 4: Odour Persistence		
0	No Odour	
1	Intermittent (detected intermittently during the period of assessment)	
2	Persistent (detected throughout the period of assessment)	
Note 5: Odour Intensity		
0	No detectable odour	
1	Faint Odour (barely detectable, need to stand still and inhale facing 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)	

Wind direction is given as '*the direction from which wind blows*' as per Agency Odour Investigation Field Record Sheets.

4.3 EFFLUENT TREATMENT PLANT

There is no dedicated effluent treatment plant or pre-treatment of process effluents on site. All process and cleaning effluents went via site fat traps and an interceptor directly into the foul sewer to Clay Mills Sewage Treatment Works, under a trade effluent discharge consent from Severn Trent Water.

This licence sets limits for effluent parameters before it can be discharge to sewer, while also helping to assess the quality of the effluent.

Date of consent issued: 30th August 2004
Registration Number: 005954

Table 4.1: Severn Trent Water Discharge Licence Limits

Determinand	Limit	Unit
Daily Volume Limit	1,100	m^3/day
Max Flow Rate	13	Lit/sec
COD	3,300	Kg/day
COD (O)	4,000	mg/lit
Phosphorus (P)	25	mg/lit
Suspended Solids	1,000	mg/lit
Max Temp °C	43	°C
pH High	12	pH units
pH Low	7	pH units

5.0 COMPLAINTS PROCEDURE

The Burton Plant site have not received any odour complaints since taking ownership of the site. Production at the plant, by the previous operator, ceased in September 2019. Previous to this, the site did not receive an odour complaints in six years, which was last received in September 2013.

In the event of the site receiving an official odour complaint, the following protocol will be followed.

5.1 COMPLAINTS PROCESS

Any complaints received by the facility from members of the public or via the regulatory bodies, including Environment Agency and Local Authority, will be recorded and investigated.

In order to assist in the investigation and determining the source of the odour as much information and detail about the complaint will be recorded, as per EMS-OP05: Environmental Complaints Procedure.

5.2 MEANS OF CONTACT

The facility will be readily contactable to outside organisations and to members of the public. The site signage board (placed in a readily visible location) and security hut contain the necessary contact details for both the site operations and Environment Agency.

Any complaints received directly to the site will be notified to the Environment Agency as soon as is practicably possible.

Should an off-site issue arise, the complainant will have a readily available means of getting in touch with the relevant management personal.

All communication will be recorded as per EMS-EL05: Communication Log.

5.3 COMPLAINT RECORDING

Should a complaint be received, the following information will be recorded;

- Complaint details (including address of complainant wherever possible) and the location where odour is perceived;
- The time of occurrence, duration, persistence, offensiveness and a description of the odour.
- Weather conditions including atmospheric pressure, wind speed and wind direction;
- Results of latest olfactory monitoring carried out by facility personnel;
- Operational status of the facility (noting any abnormal conditions that may have caused the complaint);
- Details of the proposed corrective action, if required.

Appendix D contains a template ‘Odour Complaint Report Form’.

Records of complaints received will be kept in the appropriate file in the site office for inspection and review by both internal and external personnel.

All complaints will be recorded as per EMS-EL10: Complaints Log (Records).

5.4 COMPLAINT SCREENING

As part of each odour complaint received, these will be objectively assessed against the wider environment to ensure that the source of the emission is traced back to the correct source. As discussed earlier in this OMP, it is essential that the source is correctly identified in order that mitigating measures can be applied effectively and correctly. If necessary, the complaint will also be assessed against previous records to place the nature of the complaint into context.

5.5 COMPLAINT INVESTIGATION

In the event that odour from the facility is found to be causing a problem, as determined and confirmed by investigation into off site complaints or during routine monitoring; measures will be taken to determine the source, and the following courses of action as detailed below shall be taken;

- Additional olfactory monitoring as detailed above to identify the extent of the plume and potential cause for the odour i.e. material and/or process activity;
- Examination of the operational activities at the facility at the time of the odour complaint or odour identification;
- Examination of the meteorological conditions at the time of the complaint or odour identification;
- Carry out a review of the operational procedure and process controls and instigate any control measures immediately following identification of the problem;
- Further olfactory monitoring will be carried out to ensure the issue has been addressed and to monitor the effectiveness of any control measures undertaken.

5.6 CONTINGENCY MEASURES

The following table contains a list of contingency measures, which should be followed in the even of an issue arising for the potential odour sources identified in Table 2.1.

Table 5.1: Contingency Measures

Source	Issue	Contingency Plan
Area		
Intake Area	Odour due to Spillage	Implement Spillage Procedure.
Dispatch Area	Odour due to Spillage	Implement Spillage Procedure.
General Waste Storage Areas	Odour due to Spillage	Implement Spillage Procedure.
	Build-up of organic waste	Implement housekeeping procedure.
Services Building	Odour due to Spillage	• Implement Spillage Procedure.
Chills, freezers and Cold Store	Odour due to Spillage	• Shut down effect equipment. • Contact GEA for immediate maintenance.
Equipment		
Boiler No.1	Black Smoke creating odour	• Turn off boiler and operate with boiler no.2 only • Contact maintenance investigate the issue.
Boiler No.2	Black Smoke creating odour	• Turn off boiler and operate with boiler no.1 only • Contact maintenance investigate the issue.
Char-grill oven	Black Smoke creating odour	• Turn off oven • Contact maintenance investigate the issue.
Echo Oven No.1	Black Smoke creating odour	• Turn off oven and operate with oven no.2 only • Contact maintenance investigate the issue.
Echo Oven No.2	Black Smoke creating odour	• Turn off oven and operate with oven no.1 only • Contact maintenance investigate the issue.
Rack Oven No.1	Black Smoke creating odour	• Turn off oven and operate with oven no.2 only • Contact maintenance investigate the issue.
Rack Oven No.2	Black Smoke creating odour	• Turn off oven and operate with oven no.1 only • Contact maintenance investigate the issue.
Forklift Operations	Black Smoke	• Stop operation of equipment. • Have mechanically repaired by maintenance or supplier.
Natural gas spark ignition engine (MCP and SG)	Black Smoke creating odour	• Turn off oven • Contact maintenance investigate the issue.
Waste		
General Waste	Waste not collected	If this issues is not addressed in the Waste Management Procedure the following should be carried out: • Contact the General Waste contractor and request immediate collection.

Source	Issue	Contingency Plan
		• If collection can not be made within a reasonable timeframe, another registered waste carrier should be contacted.
	Build-up of organic waste	• Implement House Keeping Procedure. • Review Waste Management Procedure
Waste Engineering Oil	Odour due to spillage	• Implement spillage procedure • Flush remaining material into foul drainage
Drainage		
Stormwater Drains	Build-up of material	Contact external company to clear pipework.
Process & foul line	Build-up of material	Contact external company to clear pipework.

6.0 ACTIONS, CONTINGENCIES AND RESPONSIBILITIES

6.1 DEFAULT PROCEDURE

In the event that an emission of odour is identified during the normal course of operations, either through weekly routine monitoring, or in response to off-site complaints, the default procedure will be to investigate the emission in line with Section 5.5 above which is an appropriate response to both off site complaints as well as on site investigations following on from routine inspections.

It is the responsibility of the site management team (site manager and associated supervisors) to ensure procedures as set out are put into action.

6.2 EMERGENCY PROCEDURE

In the event of an emergency the site Business Continuity Plan (BCP) would be adhered to. The objective of the site's BCP is to plan, as part of its duty of care to employees and customers the need to cater, as far as is reasonably practicable, for all eventualities that may adversely affect the operation of the business.

As part of that duty, the BCP is in place to assist in the speedy and efficient return to normal business activities should a major incident occur which directly impinges on our business activities.

The approach in this document is to assist management and the BCP team members in returning the business to its position in the marketplace before the disaster.

There are a number of emergency scenarios considered in the site BCP, including:

General	Site Specific
• Electricity Failure	• Flood
• Contaminated Water Supply	• Major Accident
• Product Recall	• Major Spillage
• Malicious Tampering/Extortion	• Illness – Normal Workforce Not Available
• Bomb Alert	• Transport Issue – Normal Workforce Not Available
• Key Supplier Failure	• Loss of Computer Systems

Each Scenario contains a section addressing the following: an overview/description; impact; duration; actions required, key contacts; risk assessment (severity and likelihood rating).

Monitoring for odorous emissions will be undertaken during these scenarios, where appropriate, in which extreme release of odour is expected (i.e. major spillage). Odour masking agents can be utilised if necessary, and operations that may lead to increased odour release will be temporarily stopped.

Consideration will also be made as to the suspension of receipt of potentially odorous substances and/or the removal of from the site, if odour, that can be directly attributable to the

substance, is detected above intensity ranking 3 (moderate odour) at the site boundary, in accordance with the monitoring trigger levels outlined in Section 4.2 above.
This document also contains all essential contact details, including: Key Site Personnel; Emergency Services; Key General Contacts (Gas, water etc); Insurers; Key Customer; Key Suppliers, Cleaning, Construction and Equipment Suppliers.

The BCP is a site-specific plan. It is also a confidential document, as knowledge of how the site will react to an emergency scenario may influence or give an advantage to individuals intending on purposely harming the site.

6.3 EVENT REPORTING

In the event of any significant environmental emergency/incident, a representative of the Burton Plant will notify the EA by telephone immediately, but first having due regard for the incident at hand and any remediation actions required to ensure the safety of site personnel and the immediate environment.

Details of any environmental incident will be confirmed to the EA in writing by first class post or fax, on the next working day after identification of the incident. This confirmation will include: the time and duration of the incident; the receiving environmental medium or media where there has been any emission as a result of the incident; an initial estimate of the quantity and composition of any emission; the measures taken to prevent or minimise any further emission and a preliminary assessment of the cause of the incident.

Any incident notified to the EA will be investigated, and a report of the investigation sent to the EA. The report will detail, as a minimum, the circumstances of the incident, an assessment of any harm to the environment and the steps taken to bring the incident to a halt. The report will also set out proposals for remediation (if appropriate) and for preventing a repetition of the incident.

6.4 PROBLEM RESOLUTION

Once the identified problem has been rectified, a report will be prepared assessing the nature of the incident, the actions taken to resolve, and what changes could be made to the operational practises that would ensure, wherever possible, that the issue had less of a chance of arising in future.

This information will be provided to the Environment Agency in accordance with the Event Report procedures discussed in Section 6.3 above. Any improvements or amendments to operational practices will be discussed with the Environment Agency prior to their implementation.

Appendix A: Odour Sensitive Receptors Map

Notes

– Boundary of Premises

Project Title:

Odour Sensitive Reciptor Locations

Client Name:

CREATIVE FOODS EUROPE
INNOVATIVE FOOD SOLUTIONS FROM AROUND THE WORLD
AN OSI GROUP COMPANY

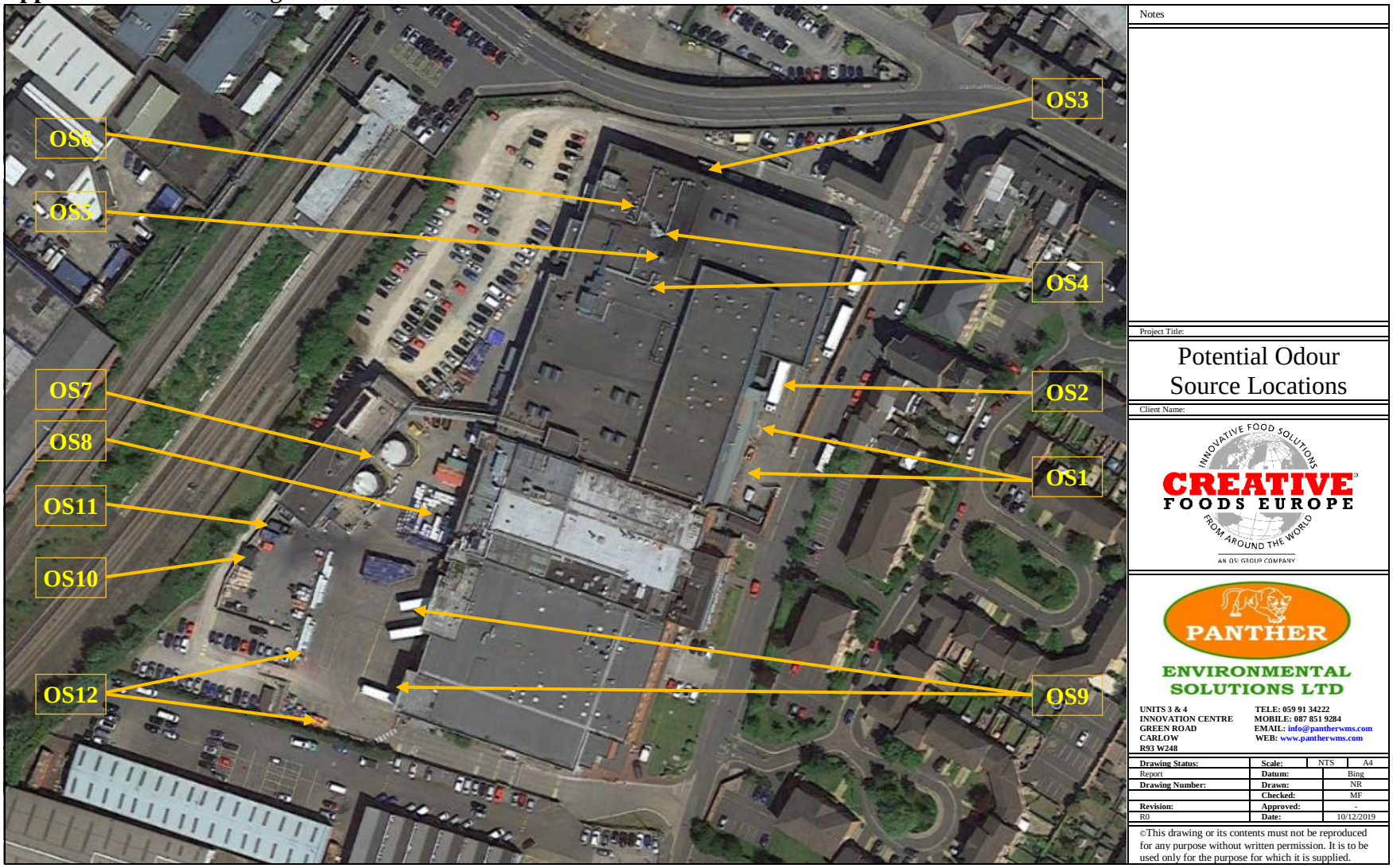
PANTHER ENVIRONMENTAL SOLUTIONS LTD

UNITS 3 & 4
INNOVATION CENTRE
GREEN ROAD
CARLOW
R93 W248

TELE: 059 91 34222
MOBILE: 087 851 9284
EMAIL: info@pantherwms.com
WEB: www.pantherwms.com

Drawing Status:	Scale:	NTS	A4
Report	Datum:	Bing	
Drawing Number:	Drawn:	NR	
	Checked:	MF	
Revision:	Approved:	–	
R0	Date:	10/12/2019	

Appendix B: Potential Fugitive Air Emission Points Sources



Appendix C: Odour Investigation Field Sheet

<table>
<tr><td rowspan="2">General</td><td colspan="2">Licensee / Facility</td><td>EPA Reg. No.</td><td colspan="2">Assessment by</td><td colspan="2">Date of Inspection</td><td colspan="2">Type of Visit</td></tr>
<tr><td colspan="2"></td><td></td><td colspan="2"></td><td colspan="2"></td><td></td><td></td></tr>
<tr><td rowspan="3">Pre–Assessment Preparation</td><td colspan="2">Observer is free from medical conditions (cold, sore throat, sinus trouble)?</td><td colspan="2">Observer abstinence (30 min) from smoking, flavoured drinks, scented toiletries and deodorisers?</td><td colspan="2">Reason for odour assessment:</td><td colspan="2">Map – Has a map showing assessment locations been attached?</td><td colspan="2">Possible odour related Incident (spillage, breakdown of abatement system, power failure.)</td></tr>
<tr><td>Yes</td><td>No</td><td>Yes</td><td>No</td><td>Complaint verification
Weather conditions / process events
Routine visit
Other:</td><td></td><td>Yes</td><td>No</td><td>Yes</td><td>No</td></tr>
<tr><td colspan="10"></td></tr>
<tr><td rowspan="4">Notes (the ranking systems in these notes must be used when completing the field observations table overleaf)</td><td colspan="5">Note 1: Observation point Sensitivity
1. Remote (no housing, commercial/industrial premises or public area within 500m of observation point)
2. Low sensitivity (no housing, commercial/industrial premises or public area within 100m of observation point)
3. Moderate sensitivity (housing, commercial/industrial premises or public area within 100m of observation point)
4. High sensitivity (housing, commercial/industrial premises or public area within area of observation point)
5. Extra sensitive (complaints arising from residents, businesses and users of public areas within area of observation point)</td><td colspan="5">Note 3: Weather Conditions
Precipitation
1. Dry
2. Rained recently
3. Drizzle
4. Raining
5. Foggy
Temperature
1. Cold
2. Cool
3. Warm
4. Hot</td></tr>
<tr><td colspan="5">Note 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 against the wind
7. Near Gale — Whole trees in motion; inconvenience felt when walking against wind
8. Gale — Twigs break off trees; progress generally impeded
9. Strong Gale — Slight structural damage occurs (chimney pots and slates removed)</td><td colspan="5">Note 4: Odour Persistence
0. No Odour
1. Intermittent (detected intermittently during the period of assessment)
2. Persistent (detected throughout the period of assessment)
Note 5: Odour Intensity
0. No detectable odour
1. Faint Odour (barely detectable, need to stand still and inhale facing 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)</td></tr>
<tr><td colspan="10"></td></tr>
<tr><td rowspan="3">Odour Source Investigation (Post Odour Survey)</td><td colspan="3">Time: From / To</td><td colspan="3"></td><td colspan="3">Do any of the odours experienced on-site match those recorded during the survey?</td><td>Yes
No</td></tr>
<tr><td colspan="3">List Areas inspected to match odour</td><td colspan="3">What processes were occurring during the off-site odour assessment?</td><td colspan="4">Potential on-site odour sources identified.</td></tr>
<tr><td colspan="3"></td><td colspan="3"></td><td colspan="4"></td></tr>
</table>

	Observer Location			Wind			Weather		Time		Odour Rating		General comments and odour description comments
Parameter	Map Location No.	Name of household / commercial site (easily identified)	Sensitivity (1-5) **Note 1**	**Direction** from which wind blows	**Orientation** (Observer Vs. facility)	Strength (0-9) **Note 2**	**Precipitation** (1-5) **Note 3**	**Temperature** (1-4) **Note 3**	**Start Time** (24hr clock)	**End Time** (24hr clock)n	Odour Persistence (0-2) **Note 4**	Odour Intensity (0-4) **Note 5**	Description of any odours, other source(s) of odours etc.
Thresholds (may indicate nuisance)	…	…	≥3	…	Downwind Approx. DW or ND - not detectable etc.	…	…	…	…	…	1 or 2	≥2	**Guide**- A location where the score meets or exceeds all the threshold values may be deemed subject to nuisance/significant impairment, particularly if the observations are supported by public complaints on impact, frequency and duration of odours.
Field Observations													
Brief details of any meeting with local residents/complaints received during assessment (include names/addresses/telephone numbers etc.):													

Appendix D: Odour Complaint Report Form (template)

Odour Complaint Report Form	
Time and date of complaint:	Name and address of complainant:
Telephone number of complainant:	

Date of odour:	
Time of odour:	
Location of odour, if not at above address:	
Weather conditions (i.e., dry, rain, fog, snow):	
Temperature (very warm, warm, mild, cold or degrees if known):	
Wind strength (none, light, steady, strong, gusting):	
Wind direction (eg from NE):	
Complainant's description of odour:	
• What does it smell like?	
• Intensity (see below):	
• Duration (time):	
• Constant or intermittent in this period:	
• Does the complainant have any other comments about the odour?	
Are there any other complaints relating to the installation, or to that location? (either previously or relating to the same exposure):	
Any other relevant information:	
Do you accept that odour likely to be from your activities?	
What was happening on site at the time the odour occurred?	
Operating conditions at time the odour occurred (eg flow rate, pressure at inlet and pressure at outlet):	
Actions taken:	

Form completed by:	Date	Signed

Appendix E: Odour Management Action Plan

	AREA / SOURCE	ODOUR SOURCE	ACTION PLAN	IMPLEMENTATION / COMPLETION DATE	NOTE
1.a			All relevant staff to be trained on OMP measures.	Immediate	
1.b			Review and update OMP initially on a annual basis or following any relevant changes at the site and should be responsive to the results of internal monitoring of the odour and any complaints of odour. Key Performance Indicators (KPI's): - Number of Complaints, - Number of abnormal odour events (odour patrol checks), - Results/recommendations of any surveys	Annually/ as necessary	
1.c			Carry out weekly odour patrol checks and keep log of all findings, including weather conditions and wind direction. At times where a complaint has been received or issues identified during environmental checks, monitoring or during maintenance, daily monitoring should be carried out at times relevant to the complaint or identified issues until the investigation is complete.	Weekly / as necessary	As per Appendix C
1.d			Keep a log of environmental odour complaints, including description of the odour, details of investigation, any follow-up actions and outcomes.	Immediate	As per EMS-EL05
1.e			Keep a log of odour monitoring carried out, including reason for survey, main findings and remedial actions taken.	On-going	As per Appendix F
1.f			Inform neighbours (i.e. local council) of any abnormal planned operations/projects which may lead to significantly increased odours. Provide detail of timing and likely duration to minimise odour impact. Provide contact details of relevant members of staff for the receipt of environmental complaints to neighbours.		Include in environmental communications policy.

	AREA / SOURCE	ODOUR SOURCE	ACTION PLAN	IMPLEMENTATION / COMPLETION DATE	NOTE
2.	Main Facility	Open Doors	Maintain a closed door policy in all areas containing potentially odorous materials, particularly during warm weather. Monitoring of compliance is controlled during on-going environmental and quality control checks.	On-going	
3.	Main Facility	Canteen	Assess odours as part of weekly odour patrols.	Weekly	
4.	Equipment	Production Extraction Fans	Assess odours as part of weekly odour patrols.	Weekly	
5.	External Yards	General Waste / Recycling Storage	Ensure all waste skips and bins are sealed and adequately covered to prevent any potential odours. Inspect all skips and bins onsite as part of weekly environmental odour patrol check. Clean containers if necessary (avoid build-up of odorous materials). General waste to be removed offsite weekly. Remove waste offsite more frequently during warm weather conditions if odours begin to develop.	On-going Weekly As necessary Weekly As required	
6.	External Yards	Food Waste Storage	Putrescible wastes to be collected and removed to waste trailer daily, particularly during warm weather conditions. Final onsite putrescible waste containers to be sealed / covered while not being filled. Inform waste collectors of requirement for sealed / covered containers. Inspect all containers onsite as part of weekly environmental odour patrol check. Clean containers if necessary (avoid build-up of odorous materials) General waste to be removed offsite weekly. Remove waste offsite more frequently during warm weather conditions if odours begin to develop.	Daily Immediate Weekly As required Weekly As required	

	AREA / SOURCE	ODOUR SOURCE	ACTION PLAN	IMPLEMENTATION / COMPLETION DATE	NOTE
7.	External Yards	Stores Yard	Ensure all yard areas are kept free of putrescible spills or the build-up of organic materials. Drivers and operators to be informed of requirement to report spillages. Clean yard area of spillages as they occur.	On-going Immediate As necessary	
8.	External Yards	Dispatch Yard	Ensure all intake/dispatch areas are kept free of putrescible spills or the build-up of organic materials. Drivers and operators to be informed of requirement to report spillages. Clean yard area of spillages as they occur.	On-going Orientation As necessary	Include in orientation training material
9.	Vehicles	Waste Trailers / Tankers	Ensure all vehicles or containers used to transport materials off-site are sealed and adequately covered to prevent any potential odours in transit. Clean vehicles to remove potentially odorous materials from wheels and exterior as necessary to prevent odours during transport.	On-going As necessary	

Appendix F: Odour Complaints/Non-Conformance / Odour-Monitoring-Report Log - Template

Date	Type (Complaint / Non–Conformance / Assessment)	Complaint type / Area / Process / Report Type	Description	Corrective Action Taken	Outcome
	i.e. Complaint	i.e. Odour	i.e. Cooking in local area.	i.e. Inspect carbon filter. Carry out an odour survey.	i.e. No further odours detected in area.
	i.e. Non-Conformance	i.e. Cleaning chemical spill	i.e. spill of cleaning chemical on hardstanding during delivery	i.e. Clean spill.	i.e. No further odours detected in area.
	i.e. Assessment	i.e. complaint investigation survey	i.e. Report Recommendations; No1: … No2: …	i.e. recommendations implemented	i.e. No remaining actions