

KONINGS JUICES AND DRINKS UK LTD

Odour Management plan

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1. Introduction

1.1 Report Context

This Noise and Odour Management Plan has been prepared to support an application for an IPPC licence.

The site is in the process of installing a 2nd line. When the new line is complete we will be capable of producing in excess of 300 tonnes of finished products a day. This is a listed activity under Part 6.8 (1)(d)(ii) of the Environmental Permitting Regulations (2016).

This document sets out the Konings Juices and Drinks UK Odour Management Plan (OMP) for the site to assist with any permit conditions that may arise as part of our permit application.

1.2 Guidance Documents

This OMP has taken into account the following guidance documents:

- Environment Agency guidance, H4 Odour Management;
- Environment Agency guidance Sector Guidance Note (SGN) EPR 6.10 'Food and Drink Sector'.

1.3 Objectives

This OMP is designed to be a live working document which should be simple and accessible for all staff on site. It is designed to;

- Identify and describe the potential odour sources at site;
- Formalise how potential odour issues will be managed on-site under normal operating conditions and incorporate these into the daily operational management of the site;
- Employ appropriate measures to control odorous releases to air;
- Reduce the risk of unplanned odorous incidents or accidents by anticipating them and planning accordingly.

1.4 OMP Structure

In line with the available guidance, this OMP contains the following:

- an inventory of key odour sources across the site including an assessment of the associated risk;
- odour control measures employed at the site (both physical abatement and management procedures) to
- manage the risks;
- the staff roles and responsibilities with regard to odour management;
- consideration of plans and contingency control measures should any incidents or emergencies arise;
- a summary of the appropriate maintenance and monitoring carried out; and
- the procedures for handling complaints.

2. Site Overview

Konings Juices and Drinks UK Ltd is involved in the washing and pressing of apples and the filtering, pasteurizing, filling, and capping of apple juice, orange juice and juice blends packaged into PET containers.

The site is situated just off of the A134 which runs between Colchester Essex and Sudbury Suffolk. The factory stands on land bordered by apple orchards owned by Boxford Suffolk Farms. There are two residential properties adjacent to the site also owned by Boxford Suffolk farms.

The nearest villages are those of Leavenheath and Boxford and the surrounding land is mainly farm land which is designated Green belt. The nearest river is The Box.

2.1 Site processes

The raw materials (apples) are delivered via bulkers where they are offloaded, cleaned and pressed. Other juices such as orange are tankered. After pressing the juice is stored in tanks where it is then pasteurised and bottled. We are currently able to produce up to 16000 bottles per hour, but this is due to increase by a further 24000 bottles per hour when our 2nd line is installed.

Our main by-product is apple pomace. This is transported to the farm that is situated next door and used as a fuel for their anaerobic digestion plant.

The site also operates a waste water treatment plant where all the process water is treated before it sent to the lagoon.

3. Potential Odour Sources

Due to the nature of operations at the site, including the pressing of apples, storage of waste apple pomace and the operation of a Waste Water Treatment Plant (WWTP), there is the potential for odour to arise in a number of operational areas.

3.1 Odour sources

There is 1 primary source of odour identified at site.

- Waste water treatment plant – Effluent may have a sulphur/rotten egg type odour.

3.2 Primary release point

The primary release point for potentially odorous air from site is the aeration tanks at the waste water treatment plant. The waste water treatment plant uses the aeration tanks as bioreactors. If the aeration system were to fail an odour may be generated.

3.3 Fugitive releases

In addition to the controlled primary release point, there are a number of locations across site which have the potential to result in fugitive odour releases.

The areas we have identified are as follows;

- Storage of waste/rotten apples – Vinegary/Acidic smell.
- Pomace/Surplus food storage – Vinegary/Acidic smell.
- Klargestor - Strong effluent smell during waste removal.
- Drains outside filling hall – Acidic smell during CIP.
- Skips/Bins – Most of these contain dry recyclable waste and don't tend to have an odour. However, the canteen waste has the potential to create an odour.
- Lagoon – The lagoon is aerated to prevent odour.
- Sump pit – Potential to release odour if effluent sits for prolonged periods of time.
- WWTP offloading bund – Potential to hold stagnant liquid if it is not regularly cleaned out.

3.4 Pathway

The release of odour from both point and fugitive sources has the potential to impact on nearby receptors. The level of dispersion is dependent upon a number of factors including:

- the type of odour releasing activities taking place;
- the separation distance between the source of the odour and sensitive receptors, the greater the distance the greater the dispersion of the odour;
- the prevailing wind speed (with higher speeds generally leading to greater turbulence and so increasing the dispersion of odour);
- wind direction – if the wind direction is from the source towards the closest receptors odour concentrations are likely to be higher than in other wind directions; and
- the mitigation measures adopted.

The closest residential property to the site is located in Stone Street approximately 300m North West from the site boundary (excluding the drive).

Boxford Suffolk Farms are located next to the site and has 2 residential buildings where its employees live. The farm also uses a number of static caravans for accommodation.

Wind speed and direction data taken from www.meteoblue.com is presented in figure 1 and shows that the predominant wind direction is from a south-westerly direction.

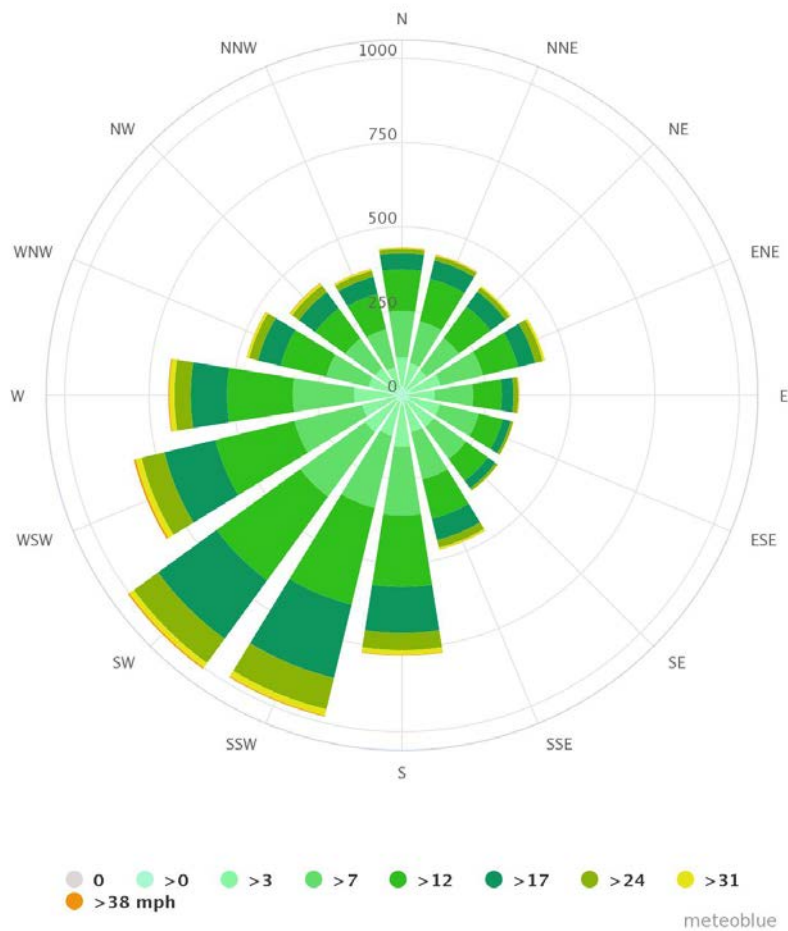


Figure 1 - Wind Rose Boxford - Source Meteoblue

3.5 Site location and sensitive receptors

The Northern part of the site is occupied by the filling hall, the waste water treatment plant is to the north east, with the staff car par on the east, the pressroom and weighbridge to the south and the cold store to the west.

The diagram below highlights the locations of the nearby residential properties (red) and farm accommodation (blue).



Receptor	Description	Distance from site boundary	Direction from the site (excluding drive)
R1	Boxford Suffolk Farms	0m	The farm surrounds us, the main buildings are to the N and NE.
R2	Old farm house	0m	WNW
R3	Langlands	0m	NNE
R4	Farm static caravans	84m	NE
R5	Blackthorn Lodge	300m	SW
R6	Peyton Hall	450m	ENE
R7	Residential properties off Stoke Road	500m	SW

4. Odour Control Measures

4.1 Odour Control Hierarchy

The operations at the site aim to implement BAT where possible. Therefore, the key method for controlling odour emissions is through good process and site design and good housekeeping.

The odour control measures implemented during normal operations shall be based on the following hierarchy:

- good operating conditions for the different activities to prevent odour releases at the source;
- good process design to minimise the release of odour through containment;
- abatement systems or control measures in place; and
- use of dispersion to minimise any residual and fugitive odours.

4.2 General Control Measures

The site Environmental Management System, policies, procedures, operating standards and general good

operating practices help to minimise the risk of odours outside the site boundary, and are summarised below.

- Processes are carefully monitored and controlled by use of clearly defined operating procedures. Procedures are amended or created in light of aspect evaluations, external communications, audits, environmental incidents or any system non-conformity that may arise.
- Staff are trained in cleaning and operational requirements for particular items which may give rise to odours.
- Staff are trained in the requirements of food safety, noise and odour management, on induction and on a periodic refresher basis.
- All the production areas are routinely cleaned to reduce the potential for product contamination by bacteria, mould and pest infestation. Cleaning is predominantly wet which also helps to reduce the risk of odour.
- There are documented measures in place to manage reports of odour from operations at the site.
- Cleaning procedures are in place to deal with any spillages of raw materials, wastes and product.

4.3 Waste Water Treatment Plant

The main risk of Odour from the WWTP is from the liquid standing still for prolonged periods of time. The Aeration tanks are kept aerated and mixed at all times, DO levels are constantly monitored.

The waste water treatment plant and drains are regularly inspected and maintained.

In the event of odours being detected outside of the boundary, an investigation, following the procedure described in Section 7, would be carried out to determine the source of the odour.

4.4 The Food and Drink Sector (EPR 6.10)

Section 3.3 of the Food and Drink Sector Guidance Note (EPR 6.10)₂ states:

Indicative BAT

You should as appropriate:

1.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.

2.Design and operate abatement plant to cope with maximum loadings and volumes.

3.Design extraction from odorous activities to minimise air flows to the abatement plant.

As discussed in Section 4.3, the WWTP has been designed to treat the effluent from the site and is regularly monitored and controlled by use of clearly defined operating procedures. The WWTP operates during all operational hours at the site, so remains fully aerated at all times.

5. Management Roles, Responsibilities and Training

5.1 Roles and Responsibilities

Details of the roles and responsibilities of site staff with regard to odour management shall be formally recorded.

On-site communication between the different site teams and contractors is a vital aspect of any environmental management system. At team meetings any odour issues shall be discussed to a programme to monitor performance and to identify and address any new issues.

The roles that shall be identified are described below.

5.1.1 Site Leader

The Site Leader has the overall responsibility for all of the actions and activities at the site.

5.1.2 Site Quality, Safety and Environment Manager

The Site Quality, Safety and Environment Manager is responsible for implementation of the OMP, including implementation and testing of odour control mitigation measures, responding to incidents, monitoring, reporting and other procedures within the OMP. The Site Quality, Safety and Environment Manager will ensure that the OMP is kept updated and that all staff training records are up to date.

5.1.3 Operations Manager

Responsible for implementation of odour controls within their management regime. This would be achieved by ensuring that all documentation is accurate and up to date, and that all tasks are undertaken by trained and competent persons.

5.1.4 Engineering Manager

Responsible for maintaining and repairing equipment and ensuring any planned maintenance activities take place.

5.1.5 Operational / Contractor Staff

All operational and contractor staff shall comply with site procedures and permit conditions and not deviate from normal procedures without authorisation from a member of the site senior leadership team. They shall co-operate with managers and communicate any potential issues associated with the work.

5.2 Commitments and Training

Methods, topics and intervals for the provision of environmental training and briefings relating to odour control shall be provided to all relevant staff; all training activities, attendees and outcomes shall be recorded in a site training log. Toolbox talks, posters, formal presentations and site inductions all provide opportunities to raise awareness of obligations, restrictions and other issues arising from the OMP. As a minimum, all staff shall receive an environmental briefing (to include issues relating to the minimisation and management of odour) as part of the site induction process. Contractors and all persons performing tasks on behalf of the Company will be made aware of the policy and relevant Management System requirements and will be competent in the roles undertaken.

Staff competency and the need for training is continually assessed by the Site Environmental Manager and Production Manager and will be reviewed (at least) annually and formally recorded within the Management System.

6. Maintenance and Monitoring

6.1 Maintenance

Regular maintenance checks will be carried out around the site particularly in relation to the operations at the WWTP. The planned maintenance will reduce the risk of plant malfunction and breakdown and reduce the potential for accidental odour releases. The maintenance programme and servicing of plant equipment will be in accordance with manufacturer recommendations. Unscheduled maintenance will be reactive to the daily maintenance checks.

All activities at the site (including those carried out by contractors) shall be undertaken following the correct working procedures. Any non-compliance shall be reported and addressed immediately. Any issues arising shall be fed back via site meetings and acted upon as appropriate.

6.2 Monitoring

Odour monitoring is undertaken at the site on receipt of an odour complaint or an incident. We also complete 4 hourly checks at the WWTP where we will investigate any odours if/when they occur.

Odour monitoring at the site consists of trained staff carrying out 'sniff' tests at an appropriate receptor location downwind of the plant. Staff consider the strength (intensity) of any odour detected.

Monitoring is undertaken at 2 distances from the site, approximately 100 and 400 metres away from the site. Sampling locations are not fixed, to ensure that the most appropriate location is used on the day and to allow monitoring of the closest to the plume at all times.

Odour is monitored by sniff testing, scored on a scale of 0 – 5, with 0 being no discernible odour and 5 being the strongest odour. A score of 3, is the action level for the odour to be reported immediately to the site Quality, Safety and Environment manager.

Data collected through monitoring shall be continually assessed and used for the following purposes:

- enhancement of existing mitigation measures;
- review of risk management procedures relating to odour;
- effectiveness of existing mitigation measures; and
- inform amendments / improvements to methods of working as and where necessary.

All original records associated with the environmental management of the site shall be retained in an accessible location by the Site Environmental Manager. Such records shall include any stakeholder correspondence and complaints records relating to odour and odour incident reporting forms.

7. Complaints and Incidents

7.1 - Complaints

The site has a procedure within the site wide management system for receiving, logging and investigating complaints including odour. This can be found in section 7.4.3 of the sites EMS manual.

Complaints from the general public and stakeholders. All complaints are logged and recorded using form "CE161 External Communication". Complaints are also recorded on the sites communications log EMS 7.4.2.

Data may be shared with the Environment Agency as requested.

Complaints are subject to investigation as soon as practicable after their receipt. Investigation of odour complaints will include consideration of current plant operation; weather, including prevailing wind direction; and time of day.

Within 24 hours of the complaint being passed to site staff, and where the complainant is identified, they will be called back to discuss the issue they have identified, the cause (if identified) and any implemented remedial actions will be explained to the complainant.

Where complaints are investigated and an issue identified, remedial actions are implemented as soon as possible.

7.2 – Incidents & Investigations

Investigations will be recorded on our Environmental investigation form (EMS11). Any actions will be tracked on the site Environmental action tracker. The odour complaint form (Appendix b) should also be completed.

Our Non conformity and corrective action process can be found in section 10.2 of the EMS manual.

Any odours found will be recorded on the sites odour diary (appendix c).

7.4 Spillages

In the event of a spillage of any odorous materials, spill kits are available and would be used to clean up the spillage immediately, in line with the site cleaning procedures. Any wastes from the spillages will be disposed of appropriately and in a timely manner, ensuring the waste materials are contained until their removal.

7.5 Fire

In the event of a fire the site emergency plan including procedures for fire-water containment would be implemented. In the event of a significant fire, off-site odours can be difficult to avoid. The prompt and effective response to contain and minimise the fire is the most effective way to minimising the risk and extent of any impact. Followed by effective containment and removal/treatment of fire-water.

Appendix a – Odour monitoring procedure

Procedure

An odour monitoring survey shall be carried out as part of the Odour Management Plan or in response to odour complaints or an incident that could give rise to odour beyond the site boundary.

Odour is graded on a scale of 1 – 5, with 1 being lowest and 5 the highest. All odours detected at or above level 3 are reported to the Site Quality, Safety and Environmental Manager on-site for action. The odour monitoring survey shall include details of the prevailing wind direction and weather; the time the monitoring is undertaken and the status the factory and waste water treatment plant.

Who will carry out this survey?

The odour monitoring survey shall be carried out by appropriately trained members of site staff.

When to undertake this survey?

The monitoring inspection shall be undertaken following the receipt of an odour complaint from either a member of the public, the Environment Agency. We will also perform monitoring if any unusual/strong odours are found during normal operations.

Where to carry out the survey?

This is dependent upon the prevailing wind, to ensure that the potential odour downwind of the site is being monitored. We will monitor at the site boundary and approximately 100m and 400m downwind of the odour.

How to record the results of the survey?

The survey will be recorded in the Environmental investigation form.

Elements of inspection

- Be vigilant and note any potential odour causes.
- Take a note of the prevailing weather conditions at the time of the survey.
- Walk slowly and breathe normally whilst in the general vicinity of the identified monitoring points.
- As far as practicable (attempt to identify the most likely source of any odours and define them on the survey sheet).

What to do in the event of detection of odour above the action limit off-site?

If odours are detected off site above the action limit during the odour monitoring survey, the person carrying out the survey shall report the survey findings direct to the Site Quality, Safety and Environmental Manager.

The Site Quality, Safety and Environmental Manager in conjunction with the Operations Manager shall then review the operations of the site and improve or implement additional control measures.

Appendix b – Odour complaint report form

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:		
o What does it smell like?		
o Intensity (see below):		
o Duration (time):		
o Constant or intermittent in this period:		
o 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

Intensity

- | | | |
|--------------------|------------------|--------------------------|
| 0 No odour | 3 Distinct odour | 5 Very strong odour |
| 1 Very faint odour | 4 Strong odour | 6 Extremely strong odour |
| 2 Faint odour | | |

Appendix c – Odour diary

Odour Diary					Form version 110319	Sheet No
Name:		Address:				
Telephone Number:						
Date of odour:						
Time of odour:						
Location of odour, if not at above address (indoors, outside):						
Weather conditions (dry, rain, fog, snow etc.):						
Temperature (very warm, warm, mild, cold or degrees if known):						
Wind strength (none, light, steady, strong, gusting):						
Wind direction (eg from NE):						
What does it smell like? How unpleasant is it? Do you consider this smell offensive?						
Intensity – How strong was it? (see below 1-5):						
How long did go on for? (time):						
Was it constant or intermittent in this period:						
What do believe the source/cause to be?						
Any actions taken or other comments:						

Intensity

- | | | |
|--------------------|------------------|--------------------------|
| 0 No odour | 3 Distinct odour | 5 Very strong odour |
| 1 Very faint odour | 4 Strong odour | 6 Extremely strong odour |
| 2 Faint odour | | |