



Odour Management Plan

H Weston & Son Ltd



Helping clients prosper through compliance

SITE DETAILS

The Bounds
How Caple Road
Much Marcle
Ledbury
HR8 2NQ

OPERATOR DETAILS

H Weston and Sons Ltd
How Caple Road
Much Marcle
Ledbury
HR8 2NQ

PERMIT REFERENCE

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1. INTRODUCTION

This document is the Odour Management Plan (OMP) that accompanies the application for a new Part A(1), 6.8 (d) (ii) Installation permit for cider manufacturing site at The Bounds, Much Marcle, Ledbury, Herefordshire, HR8 2NQ. The site is located at SO 6433 8714.

The application has been prepared by Wiser Environment Limited on behalf of the applicant H Weston & Sons Ltd.

This application is for an EPR Installation Permit and has been prepared in line with Schedule 1 of the Environmental Permitting (England and Wales) Regulations 2016 (as amended) for the Cider Manufacturing facility ('The Bounds') operated by H Weston and Sons Ltd.

This application seeks to permit:

1. **EPR Food and Drink Installation, 6.8 Part A(1), D,(ii)** for the pressing of apples and associated fermentation and maturation of base cider (plus associated DAAs), including:

- Filtration, blending and pasteurisation
- Steam generation from oil-fired boilers.
- Raw materials handling and storage
- Waste storage
- Clean in place
- Refrigerant usage

2. **EPR Waste Treatment activity, 5.4, Part A1 (a) (i), Wastewater Treatment Plant.**

This process includes:

- Primary screening
- Buffer storage
- Dissolved air flotation
- Submerged membrane bioreactor (MBR) using submerged microfiltration.
- Reed bed
- MCERTS flow monitor and v-notch weir.

This OMP identifies potential odour issues and proposes mitigating measures that can reduce adverse impacts. The OMP should be read by the relevant site operations managers, site staff, contractors working on site, and the Environment Agency (EA).

1.1. Site Description



Figure 1 Aerial image of the site (ESRI July 2025).

The site is situated off How Caple Road, approximately 0.85km from the A449, which runs from Ross-on-Wye to Ledbury. It is in a very rural area. It is bounded to the north by Orchards (used for cider apples in the process itself) and arable land. To the west and south, the site is also surrounded by arable farmland, with occasional properties in the area. The village of Much Marcle is located 0.9km to the east of the site, with approximately 660 persons living within the village. The site is approximately 5.5ha with the following infrastructure:

- Press House (used from September to November) and associated apple reception area.
- Fermentation and Storage tanks
- Blending and Filtration buildings (DAA)
- Bottling Plant (DAA) Bottling, Kegging, Canning, Bag-in-box
- Warehouses

- Liquid Fuel fired Boilers & associated bulk storage (DAA)
- Wastewater treatment plant (WWTP).
- Vehicle parking
- Waste Storage
- Offices, shop and restaurant

All operations take place within fully sealed tanks, buildings or within the dedicated WWTP.

1.2. Maintenance & Review of the OMP

The Director and Site Operations Manager is responsible for the OMP and ensuring people are trained. The plan is located on site and forms part of the Integrated management system (IMS). The OMP will be reviewed annually or following a substantiated odour complaint.

All personnel shall be trained in the procedures for which they are responsible, including any reporting and contingency procedures. Records of all training shall be maintained and reviewed in accordance with H Weston & Sons Ltd ('Westons Cider') written IMS (Integrated Management System).

All staff or contractors working on site must not undertake any work for which they are not competent -except under the careful instruction and supervision of a competent person.

Site specific inductions must include relevant aspects of the health and safety, environmental and quality policies, documentation, risk assessments, and emergency procedures. Further training will be provided if skills decline when not used regularly, and refresher training will be provided as necessary to ensure continued competence. Information from personal performance, Incident monitoring investigation as well as near-miss incidents are used to identify any gaps in skills and competence.

1.3. Relevant Sector Guidance

This OMP has been produced in accordance with the following guidance:

- H4 Odour Management¹; and
- Control and monitor emissions for your Environmental Permit²
- Best Available Techniques for the Food, Drink and Milk Sector.

¹ [Environmental permitting: H4 odour management - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/environmental-permitting-h4-odour-management), published 4 April 2011

² [Control and monitor emissions for your environmental permit - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit), updated 24 November 2022

2. RECEPTORS

2.1. Receptor List

A receptor is the object (e.g., person, organism, resource, or property) impacted by a hazard. For example, odour may cause offence to a human (the receptor). When identifying receptors which may be at risk from the site, the following have been considered:

- Ancient woods
- Locations used to grow food or to farm animals or fish
- Drain and sewer systems
- Factories and other businesses
- Fields and allotments used to grow food
- Footpaths
- Roads and railways
- Groundwater beneath the site
- Homes, or groups of homes
- Playing fields and playgrounds
- Private drinking water supplies
- Regionally important geological sites
- Schools, hospitals, and other public buildings
- Water
- Conservation areas, habitats, and protected areas and areas of scientific interest

Sensitive receptors within 1km of the permit boundary are shown on the Site Setting Plan K499.1~20~002 (The IDs on the Site Setting Plan correspond to the Receptor List (Table 1) below.

Table 1 Sensitive Receptor List (1km)

RECEPTOR TYPE	ID	DESCRIPTION	DISTANCE	DIRECTION
HUMANS AND PROPERTY	-	Site Workers	On site	-
	-	Site Visitors	On site	-
	INHABITANTS OF RESIDENTIAL PROPERTIES			
	1	Mill Cottage	20 m	SW
	2	Area near How Caple	65 m	SSE
	3	Upper Venning	125 m	SE
	4	Residential Area near How Caple	170 m	SE
	5	Watery Lane	175 m	SE
	6	Residential Area near How Caple	230 m	ESE

RECEPTOR TYPE	ID	DESCRIPTION	DISTANCE	DIRECTION
	7	The Row - Holiday Cottage	400 m	SW
	8	Much Marcle	760 m	ESE
	9	Caerswall Farm	775 m	NW
	10	Hill Farm Dr	790 m	NE
	11	Hill Farm	880 m	ENE
	SENSITIVE PUBLIC USE			
	1	Education Facility	585 m	ESE
	COMMERCIAL USE			
	1	H Weston & Sons	20 m	ESE
	2	The Scrumpy House	20 m	SE
	3	Post Office next to A449	390 m	E
	4	Adrian Hope Tree Services	960 m	NE
	5	Shepherds Rest	990 m	WSW
	AGRICULTURAL			
	1	Westons Cider Orchard	175 m	WSW
	2	Watery Ln	240 m	ESE
	3	South Bank	335 m	NNE
	4	Orchard Farm	395 m	NNW
	5	Ryemeadows Cottage	710 m	NE
	6	Caerswall Farm	805 m	NW
	7	Hill Barn Farm Cottage	970 m	SSW
	8	Marcle Hill	980 m	WSW
	9	Asterleigh	995 m	NNW
	CRITICAL INFRASTRUCTURE			
	ROADS AND RAILWAYS			
	-	Watery Lane	2m	NNW
	-	How Caple	15 m	S
	-	Lyne Down	265 m	WSW
	-	Lower Waltons	285 m	WSW
	-	B4042	550 m	ESE
	-	A449	410 m	ESE
	PUBLIC RIGHTS OF WAY			
	-	Path from How Caple to Bodenham Farm	100 m	SE
	-	Path towards A449	215 m	SE
	-	Path from Much Marcle to Upper Nuttal Cottage	495 m	S
	-	Path from Orchard Farm to Upper Nuttal Cottage	730 m	WNW
	-	Path from Watery Lane to Ryemeadows Cottage	730 m	NNE
	-	Farm Track from Hill Farm Dr to Hellens	780 m	E
WATER	SURFACE WATER			

RECEPTOR TYPE	ID	DESCRIPTION	DISTANCE	DIRECTION
	-	Wetland near Watery Lane	Onsite	Onsite
	-	Pond beside Traditional Orchard	Onsite	Onsite
	-	Pond near the A449	380 m	ESE
	-	Pond near Caerswall Farm	640 m	WNW
	-	Pond near Bodenham Bank Cottage	830 m	SSE
	NON-STATUTORY DESIGNATED SITES			
	1	Traditional Orchard near Mill Cottage	60 m	ESE
	2	Traditional Orchard near Watery Lane	120 m	N
	3	Traditional Orchard near Hill House	130 m	WSW
	4	Traditional Orchard near Orchard Farm	325 m	NW
	5	Traditional Orchard near Caerswall Farm	740 m	WNW
	6	Traditional Orchard near the A449	905 m	ENE
	7	Traditional Orchard near Upper Nuttall Cottage	1.0 km	WSW
HERITAGE SITES	LISTED BUILDINGS, PARKS & SCHEDULED MONUMNETS			
	1	2 Grade II Listed Buildings	40 m	SSE
	2	4 Grade II Listed Buildings	550 m	ESE
	3	1 Grade II Listed Building	675 m	SE
	4	1 Grade II Listed Building	775 m	NW
	5	1 Grade I* Listed building & 19 Grade II Listed Buildings & 1 Grade I Listed Buildings	810 m	ESE
	6	3 Grade II Listed Buildings	825 m	NW
	7	2 Grade II Listed Buildings	865 m	NE
	8	5 Grade II Buildings & 2 Grade II* Listed Buildings	940 m	E
	9	1 Grade II Listed Building	945 m	NNE

2.2. Wind Rose & Weather Data

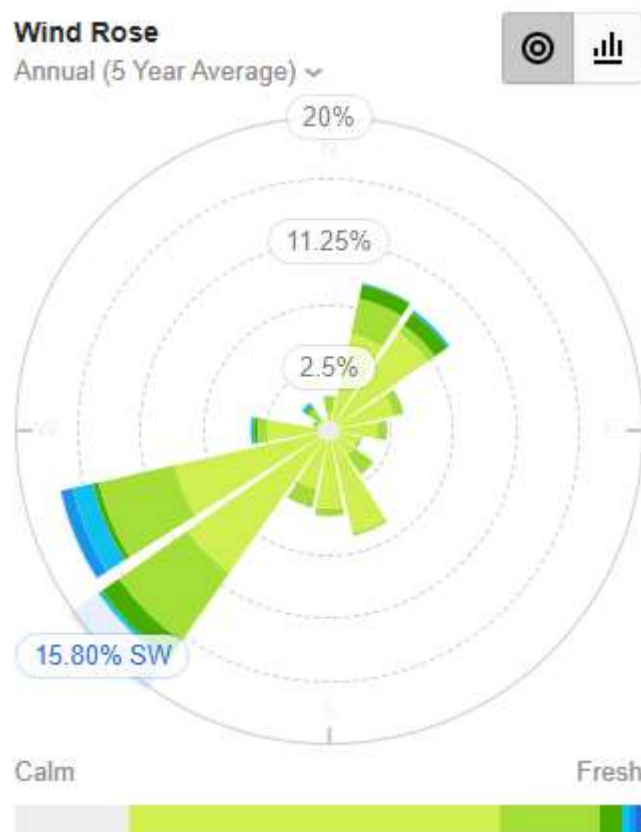


Figure 2 White Cross wind rose. Annual 5-year average, [2020 - 2025] (willyweather.co.uk).

The closest observing station where wind statistic data is available is at White Cross, Hereford, approximately 22km north-west of the permit boundary. Figure 2 presents the wind statistics on a wind rose as an annual average using data from the previous 5 years (2020-2025). The wind rose indicates that the sensitive receptors located towards the **north-east and east-northeast of the site** are potentially at greatest risk from hazards transmitted through the air.

3. SOURCE OF ODOUR & SITE PROCESSES

The Environmental Risk Assessment (K499.2~09~002) (Section 04) of the Permit application pack), identifies the following hazards of greatest significance:

- Fugitive odour emissions from the apple pressing process and associated waste management process
- Fermentation
- Wastewater Treatment Process
- Associated waste storage

3.1. Odorous Materials

Table 2 outlines the potentially odorous materials and an analysis of their risk due to variables, such as maximum quantity and maximum time held on site.

Table 2 Odorous Materials

Odorous and potentially odorous material	Odour potential	Maximum quantity on site at any given day	Maximum time held on site	Location of odorous materials on site	Additional comments
Pomace 02 03 04	High	Trailer (28 tonnes)	4-6 hours	Press House building	In trailer which is backed into the press house building. Building door is closed during pressing to limit fugitive odour escape. Seasonal generation (September-November).
Organic Matter (soils, leaves, twigs, soft apples)	Low	Trailer capacity 10 tonnes	Cleared daily - 24 hours	Pressing area, near water tanks.	Seasonal generation (September-November) during pressing season only.
Spent Yeasts 02 07 05	High	600-800,000 max. stored on site 60,000 litters per week removed	Cleared weekly	Near to the Lees Filter, Main Tank Farm.	Seasonally generated during pressing/ fermentation season (September-December approx.)
Uncontaminated card/ paper/ plastic	Low	14 bales of polyethylene and 14 bales of cardboard	Cleared weekly	Lower keg yard	Internal transportation

Odorous and potentially odorous material	Odour potential	Maximum quantity on site at any given day	Maximum time held on site	Location of odorous materials on site	Additional comments
Contaminated card/paper/plastic	Moderate	14 bales of polyethylene and 14 bales of cardboard	Cleared weekly	Lower keg yard	Internal transportation
Contaminated glass	Moderate	Glass via skips	Max. retained for 1 month - Monthly collection	Lower keg yard	Internal transportation
WWTP Sludges (pressed) 02 07 04	High	Off season - 10-15 tonnes per week	Off season - Weekly	WWTP	Generated daily, stored in covered trailer following dewatering.
		Pressing season - 30-40 tonnes per week	Pressing season - 2-3 days		

3.2. Overview of Odorous Processes & Emissions

Please refer to the site layout plan and the process flow diagrams to assist with the understanding of the various processes on site that may contribute to odour

Apple Intake

Apples are transported to site and processed seasonally between early September to end November annually, following their harvest and subsequent storage. Apples are tipped into the intake pit, where they are washed and transported in water into the press house. Tractor and trailers typically bring in the apples from the orchard(s) on site or from temporary storage.

The intake pit is uncovered, and apples are transported quickly into the Press House equipment. There are **no point source odour emissions** in this area.

Table 3 - Apple Intake Odour Sources

Possible Odour Source	Description/ Nature	Odour Controls	Residual Odour Risk
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Cider Apples	Transient-if any odour at all. Not offensive. Unlikely to cause nuisance off site.	Apples transported by water flume into press house continuously on a rate of 45 tonnes per hour from 6am to 4 am. Fresh, suitable for human consumption stock. Apples in storage have been stored under controlled conditions to prevent spoilage or have come in direct from the orchards.	Very Low
Localised 'wet soil'-like odours arising from sediments/soils being dewatered from the water stream during water recycling.	Transient Not offensive Unlikely to cause nuisance off site	Soil and other organic matter removed from the filter press is contained within a trailer/skip inside the building Dewatering prior to temporary storage is lowers the risk of anaerobic bacteria breaking down any organic matter. Frequent collections Silt is collected every day at 5 am.	Low

Press House

Within the Press House, apples are cleaned with water where any further sediments, leaves are removed. This organic matter is removed via the rollers and contained in a skip below. Apples are then mashed, then pressed under high pressure. If the ambient temperature is low, mashed apples will be put through a mash heater (heat exchanger) for slight warming. Following pressing, pomace is produced (skins, pips etc). This is directed towards a trailer within the building. There are **no point source odour emissions** in this area.

Table 4- Apple Intake Odour Sources

Possible Odour Source	Description/ Nature	Odour Controls	Residual Odour Risk
Organic matter (soils, twigs, leaves, soft apples)	Not offensive Localised Musky wet soil-like odour	Collected in trailer skip which is then emptied in a trailer located within a building. Stored at all times within an enclosed building. Windows and doors kept closed within the building during processing times, with the exception of skip/ trailer change over. Material collected daily. Regular hygiene cleans of building and good housekeeping.	Low
Apple Mashing and Pressing	Localised apple like odours Not offensive	Completed in enclosed machines (requirement for food safety). Machines and equipment cleaned regularly as dictated by hygiene clean schedules.	Very low

		Equipment enclosed within a building. Building windows and doors closed at all times during production periods.	
Pomace Storage	Sweet, fruit like odours local to the press house Not offensive	Collected in trailer. Trailer stored at all times within an enclosed building. Windows and doors kept closed within the building during processing times. Material collected every 4-6 hours and is taken offsite when full to an AD plant. Regular hygiene cleans of building and good housekeeping.	Low

Fermentation and Racking

Once the juice is pressed from the apples, it is directed towards the Juice tanks where juice is held temporarily whilst sampling is undertaken to direct the correct recipe for fermentation. Once the fermentation recipe is ready (dependant on sample results and product ABV required), the juice is transferred into one of the 205,000-litre tanks and fermentation yeasts and other additives added. Fermentation can last anywhere between 1-3 weeks. It is regularly sampled throughout this process to ensure fermentation remains controlled. Fermentation is not required to be temperature controlled as optimum yeast activity occurs between 16-22°C. This is controlled via ambient temperatures. Tanks are fitted with Pressure and Vacuum Relief (PVRV) valves to allow for safe filling, emptying and fermentation. Carbon dioxide (and possibly some Volatile Organic Compounds (VOCs) from the base cider fermentation) are vented through the PVRV. **Each tank's PVRV is considered a potential point source emission point.**

Following the completion of fermentation, yeasts are removed from the base cider via a process called racking. Cider is passed through racking arms to slowly drain the cider from the tank, and it is passed through the Lees filter to remove "the lees" (yeasts, sediments etc).

Spent yeasts and other solids from these filters are temporarily stored in temperature-controlled tanks (TC) prior to removal from the site.

Table 5- Fermentation

Possible Odour Source	Description/ Nature	Odour Controls	Residual Odour Risk
Fermentation	Concentrated Cider-like odour. Localised to the site. Not considered an offensive odour.	Fermentation monitored via daily sampling during fermentation to ensure the sugars are converting to alcohols as desired and yeast activity monitored. This is to prevent potentially more offensive odours arising from failed fermentation. PVRV is located at a height of 16 meters, therefore dispersion of any potential odours arising through fermentation is high level and be mixed with air, subject to buoyancy of the discharged air. PVRV will only operate if the pressure created by CO₂ generation is greater than the design of the tank, therefore not known to be a continuous odour source. Other than the PVRV, the tanks are fully sealed. Tanks are Cleaned in Place following use. If outdoor temperatures are over 30 degrees or below 10 degrees, fermentation can be delayed to	Low

		prevent failed or poor fermentation that could give rise to odours. Heating capability is available but is not used as standard practice. There is insufficient volume of CO₂ produced to recover CO₂ from fermentation.	
Racking	Concentrated cider-like or yeast like odour. Not considered an offensive odour. Localised to the site.	Sealed tank, racking arms and filter. 24-hour process following each batch of fermented base cider. Once cider is removed from the tank (slowly), it is cleaned in place to remove any remaining yeasts or sediments (where not recovered through the Lees filter). This is collected in a closed tank for further processing and then the remaining residue is sent off site to an AD plant. Spent yeasts and sediments are stored temporarily in closed tanks for 10-14 days depending on quantity and then is sent off to the AD plant.	Low

Maturation/Storage

Maturation and storage are generally completed in the main steel tanks. Cider is left to mature for up to 18 months. No processing occurs during this stage; however, flavours are enhanced by maturation. The same tanks are used for maturation and storage as fermentation; therefore, each tank has a PVRV associated with it. As there is no CO₂ produced at this stage that could increase pressure inside the tank, the PVRV is only likely to operate (if required)

during filling and emptying. **Therefore, the PVRVs are considered a potential point source emission.**

Maturation is also completed in the oak vats within the Vat House] building. These are large oak barrels in which cider can sit for a specified period to enhance flavour. These are contained within a building. There are **no point source emissions from these tanks** direct to atmosphere.

Table 6- Maturation /Storage Odour Sources

Possible Odour Source	Description/ Nature	Odour Controls	Residual Odour Risk
Base Cider from PVRV on filling (steel tanks only)	Localised cider-like odour. Not considered offensive. Transient odour.	Condition of base cider monitored on a regular basis to ensure it remains in consumable condition. PVRV located at high level (16m), so odours may disperse and dilute with air (subject to buoyancy).	Very Low
Oak maturation vats	Localised cider-like odour. Not considered offensive.	Tanks checked and monitored before and during filling for any signs of leak or spill (oak vats carry a higher risk of minor loss as wood can expand/ contract). Tanks located in a building. Fully sealed tanks. Doors/windows in building remain closed during operation.	Low
Decant Area	Localised cider-like odour. Not considered offensive.	Tanks located in a building. Fully sealed tanks. Doors/windows in building remain closed during operation.	Low

Downstream Processes- filtering, blending, pasteurisation and bottling.

Filtering of any remaining solids from base cider is completed within the blending and filter house building. Up to 4 filters can remove solids and this process is fully enclosed to comply with food hygiene requirements and is completed within a building. All filters are self-cleaning.

Blending is completed in tanks, where additional flavourings or additives are added according to the final product range/ recipe needed. Tanks are fully sealed.

Once blending is complete, product can be temporarily stored in further tanks for a short time whilst it awaits packaging. During packaging in kegs, bottles, cans or bag in box, pasteurisation is completed on some lines (product dependant). Pasteurisation is controlled via line speed and will automatically stop if the lines stop. This is completed within a building, and all cider is within sealed production lines and machines. Air filtration units within the production area in the area are serviced annually.

There are no point sources of emissions in these areas, other than PVRVs on the temporary storage tanks containing final product awaiting bottling. Bottle line 2 is served by the flash pasteuriser, bag-in-box line is via the hot fill pasteuriser and canning line uses the tunnel pasteuriser. No odour arises from this activity, and all machinery is fully enclosed at this stage of the process.

Table 7- Apple Intake Odour Sources

Possible Odour Source	Description/ Nature	Odour Controls	Residual Odour Risk
Filtering	Localised cider like odour Not considered offensive	Sealed pipework and filter units. Filters also enclosed in a building Filters are cleaned regularly in line with site hygiene requirements.	Very low
Blending	Localised cider like odour Not considered offensive Transient odour	Sealed pipework and tanks. Building doors closed during processing. Tanks cleaned regularly. Tanks sully sealed.	Very low

Possible Odour Source	Description/ Nature	Odour Controls	Residual Odour Risk
		Flavourings and additives added within the blending building, directly into a smaller tank and mixed in with blend tanks. Tanks cleaned in place according to hygiene schedule.	
Bottling/ Pasteurizing	Very localised cider odour Not considered offensive	Sealed pipework and bottling machines. Contained within a building. Building doors always remain closed during processing. Fast acting roller doors present where forklifts are used to move packaged product to warehouse. Pasteuriser is completed via heat exchanger, there is no point source emission point associated with this. Bottling lines and pasteuriser cleaned as per site hygiene schedule.	Very low

Wastewater Treatment

Effluents are generated from clean-in-place and other manual cleaning operations daily and general operations. In addition, during pressing season additional effluents are generated from apple cleaning and additional equipment cleans (mashers and presses). Whilst there are water saving methodologies are applied, effluent is generated due to site hygiene requirements. Water treatment processes are shown in the Process Flow Diagram K499.02~09~0606.

Odours may arise from the water treatment process as wastewater can be inherently odorous. The table below identifies the sources and controls.

Table 8- Wastewater Treatment Odour Sources

Possible Odour Source	Description/ Nature	Odour Controls	Residual Odour Risk
Balance Tanks	Faint wastewater/ sewage like odours Localised odours	Tanks are aerated and served by one duty one aerator. This ensures that dissolved oxygen levels are controlled and remain sufficient to prevent odours and anaerobic decomposition. Typically, levels of effluent received in the balance tanks are sent forward to treatment within a 24-hr period to ensure wastewater does not become too odorous.	Low
Dissolved Flotation	Air Moderate wastewater/ sewage like odours Localised to the building housing the DAF	DAF located in a dedicated building which acts to contain odours. DAF solids are removed to an enclosed filter press for dewatering. Extracted water is recirculated into the WWTP process. Dissolved oxygen levels monitored. Flocculants added, pH adjustments made to ensure suitable removal of solids and pH suitable for onward treatment process (so bacteria are not impacted by shock).	Low

Aerated Tank /MBR Biology	Moderate wastewater/ sewage like odours Localised around the tank	Tank is fully aerated with Duty and standby aerators to ensure aerobic decomposition. Associated anoxic tank is sealed to contain odours. Tanks cleaned periodically to ensure optimal performance of aeration. Dissolved Oxygen monitored and alarmed. Dissolved Oxygen maintained at 1-4%. Membranes undergo a weekly and a quarterly clean to ensure they remain fully functional.	Low
Expanded Granular Sludge Bed (EGSB) Anaerobic Digestion Plant	Wastewater/ effluent-like odours possible Biogas odours possible.	Tank is fully sealed to remove the presence of oxygen to ensure anaerobic bacteria thrive. Biogas extracted from the AD Plant and combusted in the associated CHP engine. Emergency release valves will operate during an emergency situation only to release over-pressure and will automatically re-seat. Flare available at all times in the event of a CHP breakdown, maintenance or service. Flare operational temperature will meet the requirements of 1000°C for 0.3 seconds.	Very Low

		Process is fully monitored using instrumentation and sensors linked to a HMI Screen (i.e. flow, pressure, liquid level). Sized appropriately for the operation. Process monitoring (i.e sludge monitoring and quality) performed by WWTP operators.	
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The site is operated in accordance with written procedures incorporated within the IMS (Integrated Management System). All procedures: identify the potential hazards; include written instruction on how to undertake tasks; and specify the required control measures (including PPE and safety equipment). Each procedure is accompanied by an area risk assessment.

3.3. External Odour Emitting Operations

Additional odour emissions may occur during the summer months from surrounding farmland outside H Westons & Sons Ltd if land spreading activities take place.

4. CONTROL MEASURES & PROCESS MONITORING

4.1. Appropriate Measures

Table 3 outlines (overleaf) the monitoring procedures and appropriate measures to mitigate the risk of odour emissions from site. Only credible odour sources from the tables above are considered further here, where residual risks have been identified as low or higher.

Table 3 Monitoring Procedures for Appropriate Measures

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
Apple Mashing/ Pressing Organic Matter (leaves, twigs, soils)	Collected in trailer within an enclosed building. Trailer removed every 4-6 hours. Stored at all times within an enclosed building. Doors kept closed within the building during processing times. Regular hygiene cleans of building and good housekeeping.	Once a shift	• Shift Leader will monitor for odour arising outside of the Press House. There is no odour, this is disposed off before decomposition. • Trailers are removed every 4-6 hours • Trailer remains in the building until it is required to be collected.	Odour outside of the building that is attributed to the organic matter. Note: There Is no odour from this.	• Westons Cider transports the waste via their own transport. Westons Cider have an agreement in place with two authorised waste facilities to deal with the waste. • Check next scheduled drop off.
Pomace storage	Collected in trailer. Trailer stored at all times within an enclosed building.	Once a shift	• Shift Leader will monitor for odour arising outside of the Press House. • Trailers are removed daily. • Trailer remains in the building until it is required to be collected.	• Odour outside the building that is attributed to pomace storage.	• If pomace is not collected as planned, it will be removed from the building and covered to contain any potential emissions. • Collected within 48 hours, using alternative facilities if required. • Temporary storage shall be out of direct sunlight where

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
	Windows and doors kept closed within the building during processing times. Material collected every 4-6 hours. Regular hygiene cleans of building and good housekeeping.				possible, and located away from potential receptors
Fermentation	Fermentation monitored via daily sampling (not the same tank, each fermentation is tested every 3 days) during fermentation to ensure the sugars are converting to alcohols as desired and yeast activity monitored.	Once a shift	Shift leader and site representatives to monitor odours arising at the site boundary. Fermentation remains under control as per regular plant operations, as derived by sample results. We do not monitor this due to the height of the PVRVs.	Odour detected at the site boundary or beyond the site boundary.	Review fermentation process in place for all tanks- check of sample results and active fermentation.

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
	This is to prevent potentially more offensive odours arising from failed fermentation. PVRV will is located at a height of 16 metres approx. therefore, dispersion of any potential odours arising through fermentation is high level and would be mixed with air, subject to buoyancy of the discharged air. PVRV will only operate if the pressure created by CO₂ generation is greater				

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
	than the design of the tank, therefore not known to be a continuous odour source. Other than the PVRV, the tanks are fully sealed. Tanks are Cleaned in Place following use. If it's too hot-fermentation will be delayed, and temperatures can be controlled by adding cold water or cold cider. CO2 recovery considered but there is currently not				

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
	enough capacity to recover CO2 within the process.				
Racking	Sealed tank, racking arms and filter. 24-hour process following each batch of fermented base cider. Once cider is removed from the tank (slowly), it is cleaned in place to remove any remaining yeasts or sediments (where not recovered through the Lees filter). Spent yeasts and sediments are stored temporarily in fully	Once a shift	Shift leader and site representatives to monitor odours arising at the site boundary. Spent yeasts and sediments removed from the site typically within 24-48 hours or once the tank is full. Covered/sealed containment of spent yeasts.	Odour detected at the site boundary or beyond the site boundary. Neighbours' complaint.	Check and verify control measures, rectify if controls are not being adhered to within 2 hours. Where removal of spent yeasts is delayed for unforeseen circumstances, arrange additional collections with another waste contractor.

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
	sealed tanks. The tanks are emptied three times a week currently.				
Oak maturation vats	Tanks checked and monitored before and during filling for any signs of leak or spill (oak vats carry a higher risk of minor loss as wood can expand/ contract). Tanks located in a building. Fully sealed tanks. Doors in building remain closed during operation.	Once a shift	Shift leader to complete odour checks outside the building and at the site boundary.	Odour beyond the site boundary. Neighbours' complaint.	Check control measures are in place and rectify if they are not considered to be in place. Check for minor leaks or spills. If persists, investigate maturation conditions and interrogate sample results.

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
WWTP- Balance tanks	Tanks are aerated to ensure that dissolved oxygen levels are controlled and remain sufficient to prevent odours and anaerobic decomposition. Typically, levels of effluent received in the balance tanks are sent forward to treatment within a 24-hr period to ensure wastewater does not become too odorous.	Once a shift	WWTP operative to check for odour locally and at the site boundary. This is not formally recorded, however if there is something unusual spotted it will be communicated internally. Process conditions are optimised by continual outflow of effluents into the WWTP process and aeration of the buffer tanks to prevent anaerobic conditions arising.	Staff & neighbours' complaints.	Check control measures are operating as intended, rectify if not. Escalate issues to Production Manager to discuss a reduction in effluent generation for temporary period until any issue rectified. If wastewater plant is experiencing treatment issues, wastewater is tankered off.
WWTP- Dissolved Air Flotation (DAF)	DAF located in a dedicated building which acts to contain odours.	One per shift	WWTP operative to check for odour locally and at the site boundary.	Odour outside of the WWTP area and at the site boundary.	Check control measures are operating as intended, rectify if not.

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
	DAF solids are removed to an enclosed filter press for dewatering. Extracted water is recirculated into the WWTP process. Dissolved oxygen levels monitored. Flocculants added, pH adjustments made to ensure suitable removal of solids and pH suitable for onward treatment process (so bacteria are not impacted by shock). Inflow/outflow monitoring.		Process conditions are optimised by continual outflow of effluents into the WWTP process and aeration of the buffer tanks to prevent anaerobic conditions arising later in the process (i.e DAF). Flow monitored going into the DAF and out of the DAF- optimum treatment flows known.		Escalate issues to Production Manager to discuss a reduction in effluent generation for temporary period until any issue rectified. If wastewater plant is experiencing treatment issues, wastewater is tankered off.

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
	Regular sampling to verify performance.				
Aerated Biology Tank/MBR	Tank is fully aerated with aerators to ensure aerobic decomposition. MBR and Activated Sludge tank are open topped to ensure the process remains aerobic. Tanks cleaned periodically to ensure optimal performance of aeration. Dissolved Oxygen monitored and alarmed. Membranes undergo a weekly and a quarterly	Once a shift	WWTP operative to check for odour locally and at the site boundary. Process conditions are optimised by continual outflow of effluents into the WWTP process and aeration of the balance tanks to prevent anaerobic conditions arising later in the process (i.e MBR). Flow monitored going into the DAF and out of the MBR process.	Outside of the WWTP. Neighbour complaint.	Check control measures are operating as intended, rectify if not. Escalate issues to Production Manager to discuss a reduction in effluent generation for temporary period until any issue rectified. If wastewater plant is experiencing treatment issues, wastewater is tankered off.

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
	clean to ensure they remain fully functional.		Dissolved Oxygen content remains between 1 & 4% and is monitored continuously.		

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
Pressed DAF sludge storage	Collected in a covered trailer which is stored away from sensitive receptors. Trailer removed weekly during off season. Trailer removed every 2-3 days during pressing season as more sludge generated. DAF process generating the sludge is managed.	Once a shift	Flow monitored going into the DAF and out of the MBR process. Predictable effluent generation (i.e know more during pressing season, so trailer swap frequency is increased). Well managed DAF process. Levels of sludge in trailer and odours generated monitored daily.	Outside of the WWTP. Neighbour complaint	Check control measures are operating as intended, rectify if not. Use of further temporary cover over trailer. Remove trailer from site within 12 hours.
AD plant	Tank is fully sealed to remove the presence of oxygen to ensure	Once a shift	Visual and instrument checks via HMI screen.	Odour detected at or beyond site boundary.	Check control measures are operating as intended, rectify if not.

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
	anaerobic bacteria thrive. Biogas extracted from the AD Plant and combusted in the associated CHP engine. Emergency release valves will operate during an emergency situation only to release over-pressure and will automatically re-seat. Flare available at all times in the event of a CHP breakdown, maintenance or service. Flare operational temperature will meet		Confirm pressure, flow, and liquid levels within design parameters. Verify flare operational readiness. Sludge quality monitoring through visual checks and sampling.	Neighbour complaint. Instrument readings outside set limits.	Escalate issues to Production Manager to discuss a reduction in effluent generation for temporary period until any issue rectified. If WWTP is experiencing treatment issues, arrange wastewater tankering off-site.

Odorous and potentially odorous process / material	Control measures (Appropriate Measures)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
	the requirements of 1000°C for 0.3 seconds. Process is fully monitored using instrumentation and sensors linked to a HMI Screen (i.e flow, pressure, liquid level). Sized appropriately for the operation. Process monitoring (i.e sludge monitoring and quality) performed by WWTP operators.				

5. REPORTING & COMPLAINTS RESPONSE

The site management team, or the nominated delegate, is responsible for responding to complaints and implementing the complaints procedure. All complaints will be investigated within 24 hours upon receipt.

The complaints reporting procedure is detailed in the **OP 5- Environmental Complaint Procedure**. See the K499.2~09~0301 for further details.

Upon receipt of a complaint, either directly from a neighbouring resident or indirectly via the Regulator. The following information will be requested from the complainant:

- Name;
- Address;
- Contact details;
- Date(s) and time(s) to which the complaint relates; and
- Nature of the complaint and any other details which may assist in the identification of the source, activity or circumstances which prompted the complaint.

The timings and description of the complaint will be analysed in conjunction with the activities and meteorological conditions logged on site without delay to identify the odour source. The complainant may be asked to keep ongoing log for correlation with the site operational log. Once the source or activity is identified suitable mitigation measures will be implemented without delay to prevent odour emissions.

The details of the complaint and any subsequent investigation will be recorded in the environmental complaint record or other relevant format.

5.1. Complaints Reporting

Records relating to management review, complaints, internal audits and inspections are held for a minimum of 5 years.

All complaints will be acknowledged and investigated by the site management team, or nominated person, with resultant actions reported to the complainant and the EA.

5.2. Community Engagement

On receipt of a complaint, the site management team or nominated person, will investigate the complaint to swiftly rectify the source.

Where contact details are made available, the complainant will be contacted the following working day to check that the mitigation measures rectify the issue.

Where additional time is required to undertake repair or replacement of infrastructure which has caused the complaint, the complainant will be contacted with details on the actions being taken and the estimated timescale for completion.

5.3. Pro-active Odour Monitoring

The site staff will monitor odour periodically throughout each shift, reflective of the site operating hours. Any adverse observations, that are directly attributed to the site's activities, will be reported to the Health, Safety & Environment (HS&E) team for logging.

5.4. Reactive Odour Monitoring

On receipt of a complaint, the site management team, or nominated person, will investigate the complaint to swiftly rectify the odour source. Odour checks at both the source and permit boundary will be carried out by the site management team or nominated person, to check if the mitigation measures rectify the issue.

6. ABNORMAL EVENTS

Table 4 Abnormal Events

Abnormal event	Recovery steps
Equipment Breakdown- Wastewater Treatment Plant	If there is a significant breakdown on the wastewater treatment plant, buffer capacity will be utilised to store wastewater. Levels will be monitored closely. If the breakdown cannot be repaired between 2-24 hours (depending on breakdown) tankers will be brought in to remove wastewater to ensure that the manufacturing process can continue without disruption.
Equipment Breakdown- For example- Pumps, pipework, press and mashing equipment, roller doors etc.	Planned preventative maintenance is completed on operational plant to prevent breakdowns, however, should breakdowns of equipment and plant occur, the following steps are taken: - Investigation into the level of breakdown. - If the breakdown is key to production continuing, there will be unplanned downtime to fix the issue. - If the breakdown is not key to production, or production can continue (at reduced rate or full rate, depending on nature of breakdown or malfunction), the risk of odour arising beyond the site boundary will be assessed. Relevant operations may be temporarily paused if risk of odour is high and the repair prioritised within 24 hours. - Roller doors can be closed manually and a contractor is on standby for 24 hour call out. - If there is a low risk of odour arising, operations will continue with close monitoring at and beyond the site boundary for odours. If operations cause odour beyond the site boundary, operations will cease until repair is made.
Tank Failure or Damage	Tank farms are bunded, however should damage be identified, the tank integrity will be reviewed and inspected by a competent and experienced person. If the tank contains base cider or other (such as CIP chemicals), it will be drained down as a precaution and assessed. If it is considered safe to use, it will be put back into service and monitored. Tank failure is unlikely, however a tank fail without warning due to aspects like vacuum or pressure effects, overloading of foundations, pitting or thinning, creep, stress or shock/fatigue or cyclical fatigue it will be immediately emptied into a separate vessel (where technically possible) and a full investigation taken place into the root cause. Any losses into the bund is routed to the red drains.
Tank Overfill	In the unlikely event that tanks are overfilled, the means of escape would be through the Pressure Release Valve. Tanks are bunded, therefore will be captured within the bund area. Any lost base cider will be cleaned away Any loss to the bund is routed to the red drains to the WWTP.

Failed Fermentation	If fermentation fails or becomes stock, it is repitched and more yeast added to prevent failure. Due to the constant sampling and monitoring of the fermentation process, it failed fermentation causing malodour is unlikely.
Prolonged precipitation event	The site operates a positive release system for surface water. There is a valve within the drainage system which can send clean, uncontaminated surface water to the WWTP or to surface water. Typically, this is switched to the WWTP, however during prolonged precipitation, surface waters are diverted to the on-site lagoon and subsequent watercourse via an interceptor.
Flood	The site is engineered on a slope, with low points at the bottom of the site near to the wastewater plant. Where chemical IBCs, such as Flocculants are located in a bunded area at the WWTP or within the buildings in the area, they will be relocated to higher ground. Flood events are extremely unlikely to cause odours to arise on site.



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