APPLICATION FOR AN ENVIRONMENTAL PERMIT

Aspall Cyder Limited - EPR/GP3432QA/A001

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Environmental Permit
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NON-TECHNICAL SUMMARY

Introduction

Aspall Cyder Ltd is a manufacturer of cyder, juice and vinegar. Its Cyder House is located in the hamlet of Aspall, Suffolk, England. It was bought by Molson Coors Brewing Company in 2018.

Following the purchase of the company, Molson Coors are improving and upgrading the site facilities to increase the production. The result of the improvements will be that the site will now fall under the requirements to be permitted as a Part A(1) installation under the Environmental Permitting Regulations.

Process Description

The principal activities are the processing of apples and manufacturing of cyder and vinegar. These activities are undertaken in a pressing building with the old cyder house, a tank farm, an effluent treatment plant, a packaging building, an engineering building, a vinegar production area and an office building.

The manufacturing process comprises of the following distinct processes:

- Press
- Fermentation
- Vinegar
- Kegging
- Bottling

In addition to the main activities there is a 3.16 MWth boiler on site used to provide heat during the fermentation process. There is also an effluent treatment plant which is in the process of being upgraded which treats effluent and run off from process areas prior to discharge. The effluent discharge is the subject of a current discharge consent (PR/E/N/F/1180) issued by Anglian Water Authority in 1989. The consented discharge is currently limited to 70 m^3 /day (or 0.81 l/s). This is insufficient for the upgraded operations and this application seeks to incorporate the discharge consent within the Environmental Permit and increase the discharge volume to 210 m^3/day.

A full description of all operations is provided within the application.

An H1 assessment has been carried out in order to assess the impacts of the increased discharge which concludes that there would be no discernible impact on the water quality of the receiving water course.

An air quality assessment has been carried out I respect of the boiler which concludes that predicted concentrations associated with operations at the site are below the relevant air quality standards and the effects of the impacts are not considered to be significant.

An environmental risk assessment has been carried out to assess the potential impacts of odour, noise and vibration, fugitive emissions, visible plumes, and accidents ranges. These impacts have been assessed and range from 'not significant' to 'low'.

A full description of the condition of the site at the time of this application is provided in the Application Site Condition Report (Appendix D), which provides a coherent record of the site and its baseline conditions at the time of permitting.

An assessment of relevant hazardous substances used, produced and emitted by the facility has been carried out in accordance with the Industrial Emissions Directive and can be found at Appendix L.

An environmental management system is in place and will be updated to include all new and upgraded equipment and processes and will comply with the requirements of the Environmental Permit.

In summary the proposed facility will be designed and operated to ensure that significant impacts to the environment and human health will not arise as a result of its operation. The main plant will operate techniques that are proven and reliable and are concluded to represent Best Available Techniques.

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1 INTRODUCTION

1.1.1 This document and its supporting appendices form the application for an environmental permit for the Aspall Cyder production facility. The Aspall Cyder company was bought by Molson Coors Brewing Company in 2018.

1.1.2 Following the purchase of the company, Molson Coors are improving and upgrading the site facilities to increase the production. The site now produces in excess of 300 tonnes/day thereby requiring an installation environmental permit under the Environmental Permitting (England & Wales) Regulations (as amended) Schedule 1 Part 2 Section 6.8 Part A(1)(d)(ii).

1.2 Background

1.2.1 The site first began making cyder in 1728 after the Chevallier family acquired Aspall Hall and used imported apple trees to plant orchards and begin making cyder.

1.2.2 The business remained family owned for 290 years and the cyder house building on site still houses the original apple press as first installed and in use up until the 1970's.

1.2.3 In the 1970's production expanded into apple juice and vinegar as well as cyder and site has seen significant expansion over the last 10 or so years, particularly as demand for both the Aspall cyder and vinegar products has increased. This has seen an expansion with regards to on-site storage capacities and the install of new press, bottling and kegging facilities.

1.2.4 With the acquisition in 2018 the business is no longer family owned although the production site remains the same. Details of planned investment in site are outlined further below.

1.3 The Site

1.3.1 The Aspall cyder production facility lies in a rural location approximately 1 km north of Debenham village in Suffolk.

1.3.2 The approximate location of the site is highlighted by the red X in the map in Figure 1-1.

1.3.3 The site address is:

Aspall Cyder Limited

The Cyder House

Debenham

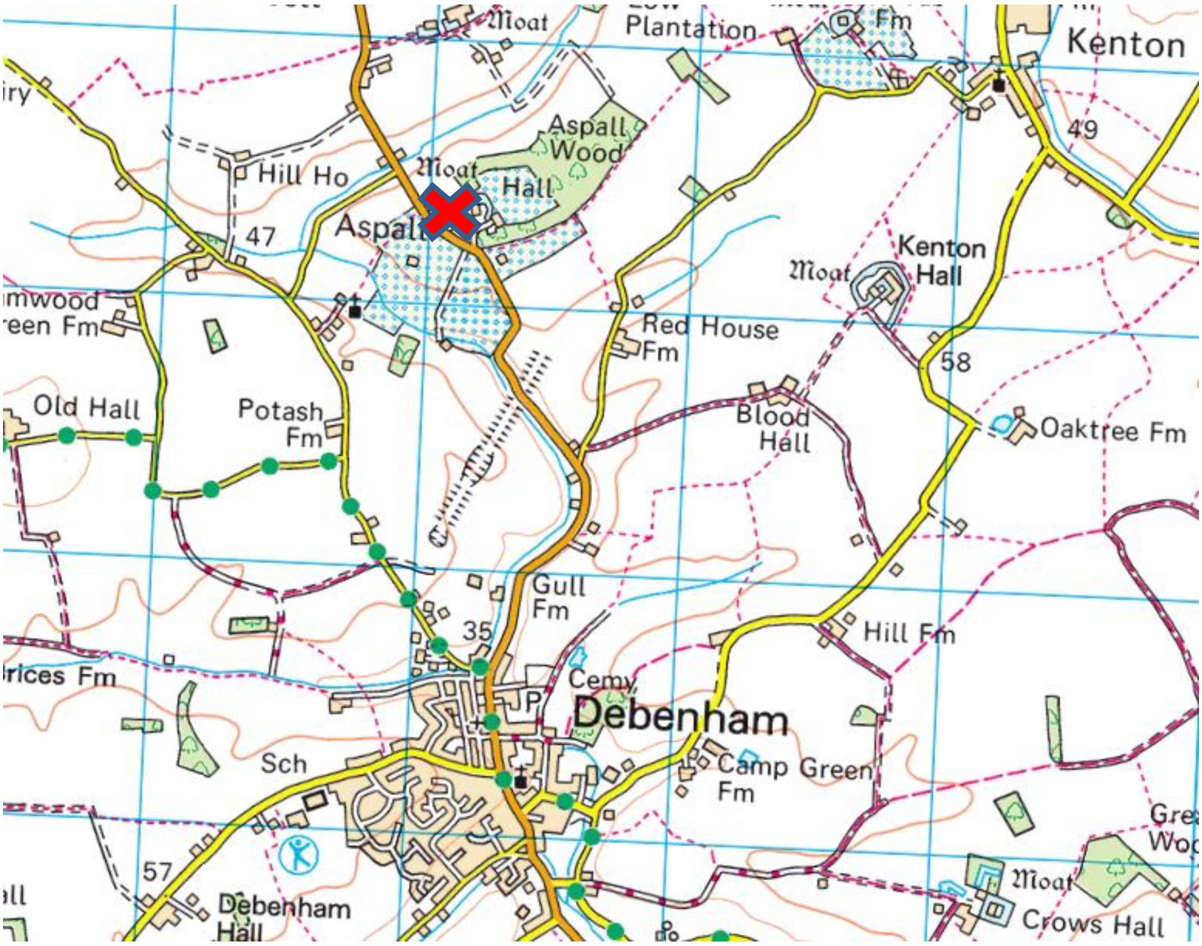
Suffolk

IP14 6PD

1.3.4 The National Grid Reference for the facility is ~ TM 17115 65360.

1.3.5 The site is accessed from the B1077.

Figure 1-1: Site Location



1.3.6 Site layout plans can be found in **Appendix B**.

1.4 Operator Details

1.4.1 Aspall Cyder Limited is listed on Companies House as company number 02032494.

1.4.2 The company directors as listed on Companies House and their dates of birth provided in Appendix M.

1.4.3 Aspall Cyder Limited is part of the Molson Coors group of companies which own and operate a number of similar operations around the UK.

1.5 Structure of the Application Document

1.5.1 Supporting information in this document is set out as follows:

- Section 2 provides and overview of the operations and the proposed changes to the activities that necessitate this permit application
- Section 3 identifies the environmental management systems in place at the site
- Section 4 provides the detailed operating techniques for the activities
- Section 5 identifies the environmental risks and summarises the environmental effects associated with the activities
- Section 6 provides the BAT justification for the main techniques and describes how they comply with BAT conclusions.

2 DESCRIPTION OF THE INSTALLATION

2.1 Overview

2.1.1 The existing site has an annual capacity of approximately 300,000 hl a year spread across cyder, vinegar and juice.

2.1.2 After investment the site is expected to have a capacity of 400,000 hl a year although the balance of finished products is likely to change with an increased focus on cyder rather than juice. Owing to the longer production time for cyder this does mean an expansion in number of vessels proportionally more so than the capacity increase.

2.2 Existing Activities

2.2.1 Raw materials delivered to site include whole apples, fruit juices, sugar, vinegar and water. Apples pressed in season may be stored off site and returned later as juice. A full breakdown of raw materials can be found in Appendix E of the application.

2.2.2 Apples are delivered to site in season running from August - May, they are delivered in trailers and unloaded direct for pressing.

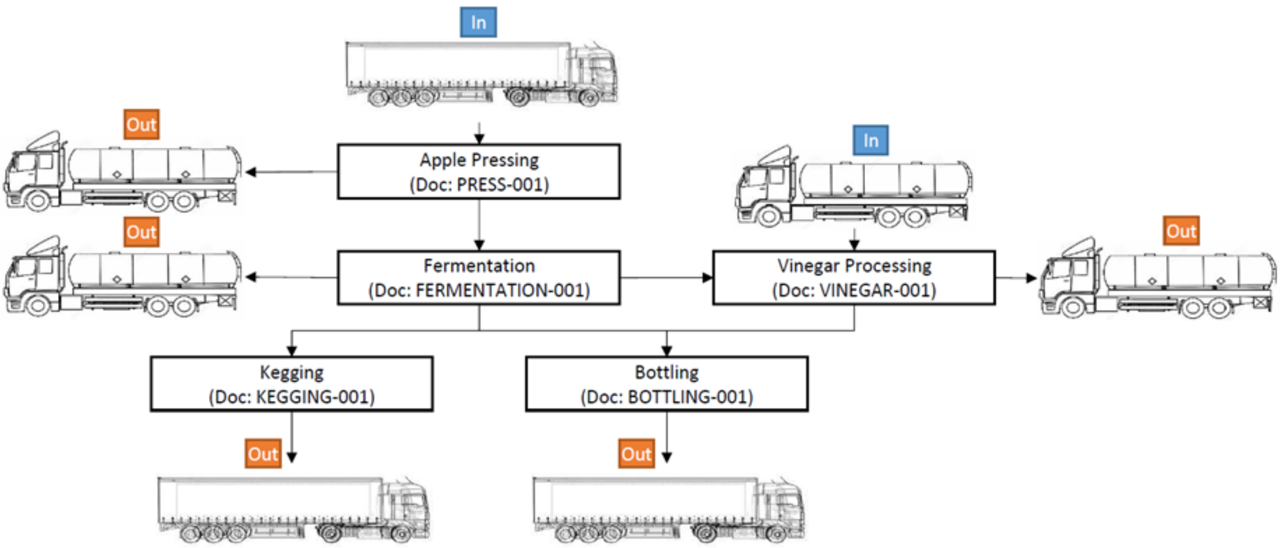
2.2.3 Fruit juices, sugars and vinegars are primarily delivered to site in an assortment of 1 tonne Intermediate Bulk Containers (IBCs and smaller drums which are stored internally prior to use).

2.2.4 Vinegar and apple juice, plus in the future bulk sugar, may all be delivered to site in bulk tanker for direct offload to storage vessels.

2.2.5 Potable water used on site is all supplied via town mains.

2.2.6 An overview of site activities is illustrated in Figure 2-1 below. Juice produced from pressing apples may be despatched as juice or may be fermented into cyder which can be bulk tankered out or packed into kegs or bottles onsite. Cyder vinegar can be processed and packed into bulk tankers or bottles along with other speciality vinegars.

Figure 2-1 - Site Activities



2.2.7 The site operates a 3.16 MWth boiler which provides steam for pasteurisation, process purposes and for hot water supply across the whole site. The boiler operates on gas oil, given the site's rural location there is no natural gas supply available.

2.2.8 There are six main chiller units on site, providing cooling both as part of the production process and as refrigeration for storage. An additional two chillers are planned to be installed as part of the tank farm expansion. All chillers are package style units using F-gas refrigerants, there is no ammonia used on site.

2.2.9 All liquid process waste is treated through the on-site effluent treatment plant with discharge to a stream flowing into the River Deben. This treatment plant is being upgraded as part of the site investment plans, any volumes of effluent in excess of the plant's treatment capability may be tankered away for disposal off site.

2.2.10 Foul effluent is collected and treated in three localised small package treatment plants (SPTP) on site which discharge to surface water, each of these discharges is below 5 m^3 a day and therefore do not require permitting or assessment. Each SPTP is maintained and serviced by a third party in accordance with the manufacturer's specification. It is not considered that there is a technical connection between the foul effluent collection and treatment and the activities to be permitted. It is not, therefore, considered to be a directly associated activity and will not be considered further within this application.

2.2.11 Surface water from the building roof and external yard areas is discharged into the on-site horse pond with an additional discharge to be installed for rainwater falling on the new process building.

2.2.12 There is a lab on the site for quality control purposes. This lab tests small quantities of finished products and effluent. Some testing in the lab is carried out in a fume cupboard which is operational for a total of between 30 to 60 minutes per day. There are very minor releases from this fume cupboard. The testing carried out in the fume cupboard is not considered to have any technical connection to the permitted activities as it is simply for quality control. The lab is therefore not considered further within this application.

2.3 Planned Changes to the Site

2.3.1 In 2018 significant investment was confirmed for the site, this will be spent across the site but primarily in the areas of:

- Vinegar barn upgrade – upgrading existing process equipment to give more reliable operation, installing new office and test facilities for operators and improving hygiene standards within the area.
- Weighbridge install – installing an on-site weighbridge to eliminate a 16 mile round journey to the nearest available weighbridge, significantly reducing vehicles on the road.
- Tank farm and process building – expanding and relocating parts of the existing external tank farms, allowing for increased storage on site and increased cyder production with a dedicated process building.
- Effluent treatment plant upgrade – improving the existing plant with addition of a divert system and increased biological capability to allow more reliable treatment, to a higher standard and with increased effluent discharge volumes.

2.3.2 Processes and activities on site remain as per existing. Overall site capacity will increase by approximately 1/3rd but with modernised facilities and more consistently reliable operation there is expected to be minimal impact with regards utilities and waste and overarchingly more likely a positive environmental impact.

2.3.3 The vinegar barn and weighbridge projects have already been completed. The effluent treatment upgrade is starting in Q2 2019 and is expected to be complete in Q4 2019, the tank farm project is commencing in Q2 2019 and is expected to be complete by Q3 2020.

2.4 Energy Consumption

2.4.1 Electricity and oil use are measured across the site monthly. The specific energy consumption of energy per hl of finished product is a site KPI. Details of how energy improvements are identified, and examples of initiatives implemented in the last 3 years are detailed in paragraph 3.3.3.

2.5 Water Usage

2.5.1 Potable water to site is supplied from town mains supplies, with two separate meters with a third planned for installation in 2019 as part of the tank farm project. Water is used both as a product ingredient and for processing purposes, primarily in the cleaning of equipment.

2.5.2 Metering is in place on both sources with further sub-metering in areas of significant use. A layout of this sub metering can be seen in drawing "Utilities sub metering / flow layouts" at appendix B.

2.5.3 Specific water consumption of water per hL finished product is a site KPI. Details of how water improvements are identified, and examples of initiatives implemented in the last 3 years are detailed in paragraph 3.3.3.

2.6 Waste Handling and Reduction

Liquid Waste

2.6.1 Liquid waste is measured in two forms, as chemical oxygen demand (COD) loading received at the on-site effluent treatment plant or as liquid waste leaving site as a waste stream.

2.6.2 Planned improvements to the effluent treatment plant will allow for better monitoring of this and it is hoped a significant reduction in tanker numbers.

Solid Waste

2.6.3 All solid waste stream details are recorded on site and duty of care checks made on all waste carriers used. Waste figures are reviewed on a monthly basis, no waste is sent directly to landfill and efforts are focused on minimising waste production and maximising recycling.

2.7 Maintenance

2.7.1 An electronic maintenance system known as Idhammar is in place on site. This system captures existing assets on site across all departments and is planned to be updated as new equipment is installed with maintenance schedules determined based upon manufacturer recommendations.

2.7.2 The system is also used to track both preventative and reactive maintenance tasks, providing trending data on engineering performance and effectiveness.

2.7.3 This maintenance programme is addressed within the environmental management system to ensure that all assets which pose an environmental risk are captured within the maintenance schedules.

2.8 Organisational Structure

2.8.1 An organisational chart for the site is included below. Roles and responsibilities are clearly defined within the site environmental management system and within individuals job descriptions.

2.8.2 The General Manager is accountable for all aspects of site operation, including environmental considerations, and for ensuring that sufficient resources are allocated to ensure ongoing compliance and continuous improvement.

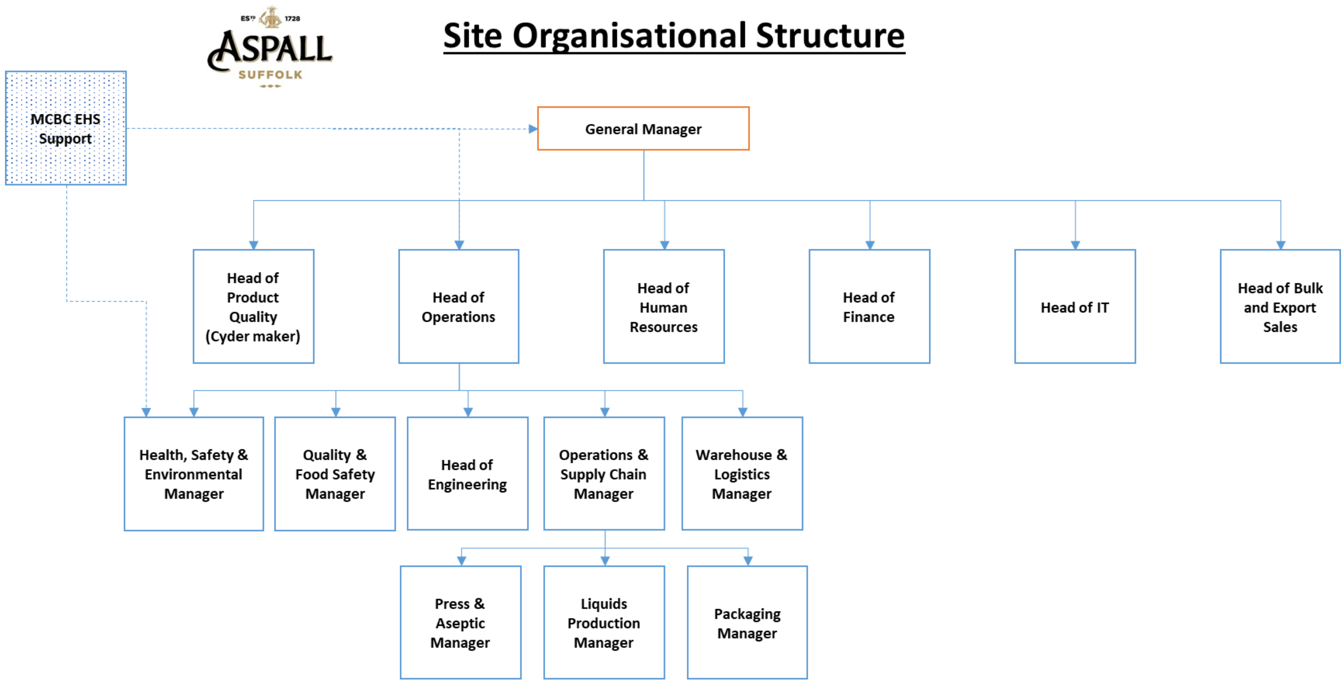
2.8.3 The Head of Operations is responsible for maintenance of the environmental management system and ensuring environmental performance and compliance is communicated to the Senior Management Team. They will take on additional responsibility for meeting requirements of the Environmental Permit and ensuring all requirements are frequently reviewed for compliance.

2.8.4 The Head of Operations is responsible for all site operations, ensuring that teams develop appropriate operating procedures and criteria and continue to operate according to these.

2.8.5 The Head of Engineering is responsible for all site maintenance and utilities. This includes responsibility for the operation of the site effluent treatment plant and for the ongoing monitoring and reporting of site environmental performance metrics relating to energy and water.

2.8.6 The Molson Coors EHS team provides further support to the site with specialist subject knowledge and examples of best practice implemented elsewhere within the group.

Figure 2-2: Organisational Structure



3 MANAGEMENT

3.1 Environmental Management System

3.1.1 Management systems are in place on site, with the requirement of the permit the environmental specifics of these will be split into a dedicated environmental management system (EMS) which will cover the elements required by the Environmental Permit; this includes details of the site operations, maintenance procedures, accident and incident management; non-conformances and complaints procedures; staff training and records management.

3.1.2 The list of requirements with in BAT 1 of the draft final BREF for the food and drink sector will be considered in the production of the EMS and all relevant elements will be included in the site EMS.

3.1.3 All staff and external contractors shall be given information on the requirements of the EMS as part of the induction training and a copy will be made available on site. Aspall will also implement a record keeping system on site as part of its management system.

3.2 Environmental Performance Indicators

3.2.1 A number of environmental performance indicators have recently been put in place at the site and the operator is in the process of setting relevant targets for these once a suitable baseline has been established. These targets are in line with the site environmental policy as well as the wider sustainability targets of Molson Coors. These performance metrics are regularly reviewed within monthly management review meetings.

3.2.2 A summary of the environmental performance indicators is listed in Table 3-1 below.

Table 3-1: Environmental KPIs

Sector	Indicator	Unit
Energy	Electricity	Kwh/hl
	Gas oil	MJ/hl
Water	Total use	m^3/hl
Waste	Solid streams	Tonnes
	Solid streams	% landfill avoidance
	ETP loading	kgCOD

3.3 Energy Efficiency

3.3.1 Site currently achieves an energy consumption ratio of approximately 39.7kwh/hl (delivered energy), whilst this isn't directly comparable against beer production it is of a similar benchmark to Molson Coors UK breweries which undergo annual benchmarking.

3.3.2 Review of energy performance on site is the responsibility of the Engineering Manager and performance metrics are reviewed within the monthly site management meeting. This incorporates three separate incoming electricity supplies, solar energy generated via 100 solar panels on the packaging building roof and all gas oil used on site for both processing and domestic heating purposes.

3.3.3 Over the past years a number energy saving initiatives have been implemented including:

- Power factor correction
- Automated line control in bottling
- LED lights replacement in packaging and press buildings

- Motion sensor lighting in fermentation
- Dry conveyor apple handling system
- Main boiler replacement
- Replacement of vinegar cooling towers with adiabatic condensers
- Solar panels installed on kegging roof
- Vinegar & press chillers replaced with variable speed more efficient chillers
- Fork Lift Truck (FLT) fuel consumption optimisation

3.4 Accident Prevention and Management Plan

3.4.1 Site is in the process of completing aspect and impact assessments across its entire range of operations including in normal, abnormal and emergency modes.

3.4.2 Procedures have been developed to address those operations deemed a risk, this includes emergency scenarios such as spills or leaks and fire response.

3.4.3 Additionally, an incident reporting and investigation procedure is in place. This captures incidents on site or reported to site by external parties such as neighbours and ensures all incidents are investigated and appropriate corrective and preventative actions put in place.

3.5 Site Security

3.5.1 Site is entirely enclosed by palisade fencing to prevent unauthorised persons accessing site. All access is through the main entrance as controlled by 24/7 site security personnel. CCTV is installed around the site for monitoring purposes.

3.6 Staff Competence and Training

3.6.1 Staff are sufficiently trained to ensure that they are technically competent to operate the plant according to the manufacturer's recommendations. Competency and training needs are already identified within the site training matrix. Specific details of necessary qualifications or competencies are also included within job descriptions.

3.6.2 All employees on site receive induction training including training on the EMS requirements, this will include environmental awareness covering appropriate environmental topics. Standard operating procedures are in place for key or high risk activities and employees are trained against procedures relevant to their area of work. Training needs for individuals are assessed at induction and as part of their performance development. Additional training is provided in response to changes in procedure or operation.

3.6.3 Induction training is also provided for any contractors or other persons working on the site. All contractors and their methods are assessed for approval through a work permitting system before any work can take place.

3.6.4 It is planned to adapt both the environmental awareness induction training and necessary operational procedures to include any permit specific requirements or consent limits once determined.

3.6.5 Copies of relevant plans, procedures and the environmental permit shall be kept at the site for reference.

3.6.6 Records are maintained by the HR Department of all the training provided to staff in the form of the site training matrix. Records shall be available for inspection as required. An example of the site training matrix is at Appendix F.

3.7 Records

3.7.1 The operator shall maintain records of any incident, accident, emergency or non-compliances shall be kept. All monitoring including samples and analysis results shall be recorded.

3.7.2 Records of the type and quantity of fuel used and the total annual hours of operation for each generator shall be kept.

3.7.3 A copy of all documents will be held on site and made available upon request. All records shall be kept for at least six years.

3.8 Monitoring

3.8.1 Emissions monitoring shall be carried out for the parameters, at the locations and at the frequency specified in the Table 3-2 below using MCERTS monitoring methods and qualified contractors.

Table 3-2: Proposed Surface Water Monitoring

Location	Determinand	Proposed Limit	Frequency
W1	Total Suspended Solids	30	Monthly for the first 12 months and quarterly thereafter
	BOD_5	15	
	Ammonia (as N)	5	
	pH	6.0 – 9.0	
	COD	tbc	
	TOC	tbc	
	Total Nitrogen	tbc	
	Total Phosphorus	tbc	
	Chloride	tbc	

3.8.2 A full explanation of the proposed monitoring is within the Report accompanying the H1 screening assessment at Appendix C.

3.8.3 There is no continuous monitoring of emissions to air from the boiler stack. The boiler is a directly associated activity to the main installation activity. It falls under the medium combustion plant directive and monitoring will be carried out in accordance with that directive. Monitoring of NO_x and CO will be carried out every three years.

3.8.4 Monitoring shall be undertaken for the parameters, at the locations and at the frequency specified in the environmental permit.

3.8.5 All monitoring shall be recorded and reported to the Environment Agency as required by the environmental permit.

3.9 Emission to surface water

3.9.1 No potentially contaminated water will be released to surface water. All process effluent from the activities will be treated via the onsite effluent treatment plant to the standards set out in Table 3-2 above.

3.9.2 Surface water runoff from some of the roof area, parts of the external yard area and from the warehouse area is collected through surface water drainage systems with six existing discharge points and a seventh to be added when the new process building is installed.

3.10 Other Emissions

3.10.1 Under normal operations there shall be no process emissions to sewer or land.

3.11 Site Infrastructure Plan

3.11.1 Copies of site infrastructure and layout plans can be found in Appendix B.

4 SITE OPERATIONS

4.1 Material Intake Overview

4.1.1 A wide variety of materials are delivered to site on a routine basis, a full raw materials inventory can be found in Appendix E. For those ingredients that pose a potential environmental risk delivery procedures are in place (see paragraph 4.3.1 to 4.4.4).

4.1.2 All deliveries to site must report to reception or the warehouse who will give authorisation for site access and ensure the delivery is directed to the correct area of site and the receiving department notified. For health and safety and environmental reasons all vehicles ignitions must be turned off during delivery.

4.2 Ingredients

4.2.1 Apples are delivered to site in season running from August – May, they are delivered in bulk trailers and directed straight to press upon arrival. Arrival times to site are staggered in order to reduce site traffic and associated noise and emissions, as well as to optimise use of the more efficient Tong dry handling intake system as detailed further below.

4.2.2 Assorted ingredients including vinegars, sugar syrups and fruit concentrates may be delivered to site in 1 tonne IBC containers or for smaller volume materials in drums of around 25 litres. Further dry ingredients such as 25 kg sugar bags may also be delivered in palletised forms. These are all unloaded in the warehouse area by fork lift truck and materials stored on the dedicated racking internally. These are then distributed around site on an as required basis.

4.2.3 Bulk liquid deliveries of apple juice, vinegar or cider may also take place on site via a road tanker. These deliveries must all be pre booked, will report to reception upon arrival and unloading cannot take place until contents are analysed and authorised for supervised unloading by a site operative.

4.2.4 There is no drainage within the warehouse area and spill kits are present to deal with any product losses. All drainage within the warehouse yard area is to surface water but passes through both an underground hydraulic attenuation sump and an oil water separator before release through a “dog flap” valve which can be manually isolated. This gives sufficient time to isolate the release point in event of any loss.

4.2.5 The new process building project will include installation of two bulk sugar tanks, each of a 45m^3 capacity. The tanks will sit in a bunded area of an appropriate size and be filled via bulk tanker deliveries of liquid sugar.

4.2.6 Apple juice previously pressed on site may be returned from 3rd party storage in 1,000 litre bag in box units known as combos. These are delivered to site on an as required basis and stored adjacent to their area of use depending on if to be used for juice or as a cyder ingredient. These areas are both on full hardstanding with drainage to the effluent treatment plant.

4.3 Fuel

4.3.1 Gas oil is delivered by tanker on an as required basis to one of four fuel tanks, the details of these tanks are as follows:

- main boiler fuel tank - 32m^3
- domestic boiler tank - 1m^3
- fork lift truck fuel tank - 5m^3
- generator fuel tank - 5m^3.

4.3.2 There is also a waste oil tank with capacity of 1.2 m^3. Locations of each tank can be seen on the site layout drawing “site storage locations” in appendix B.

4.3.3 Delivery to each tank is from the same tanker who will perform a round robin type delivery as supervised by warehouse staff. The main boiler fuel tank and the generator fuel tank are of a double skinned construction. The domestic fuel tank and the fork lift truck fuel tank are both self-bunded. The main boiler tank and the FLT tank are fitted with a visible level gauge at point of delivery. The generator tank and the domestic boiler tank are fitted with wireless telemetry systems with levels visible away from the point of delivery. All deliveries are on hardstanding material, with dedicated oil spill kits present. In the event of a significant oil loss reaching surface water drainage these locations have oil interceptors fitted at discharge points to the horse pond and from the warehouse ensuring no release to environment.

4.4 Chemical delivery

4.4.1 Areas of chemical storage are shown on the drawing “site storage locations” in appendix B. All chemicals are delivered in 1,000 litre IBCs or smaller drums and are stored in the warehouse or in dedicated chemical containers with integral bunding and clear demarcation and segregation of incompatible chemicals.

4.4.2 There is no bulk storage of chemicals on site presently, the new process building will include a bulk caustic tank which will sit in a bunded area and be filled via a bulk tanker. The tank is planned to be 6,800 litres in capacity.

4.4.3 A 5,000 litre bulk caustic chemical tank is also to be installed on the ETP

4.4.4 IBCs or drums of chemicals are moved to point of use on an as required basis and stored again on bunds with clear labelling and segregation of chemicals.

4.5 Processing Overview

4.5.1 There are five distinctly different manufacturing / packing processes that take place on site, these are known as:

1. Press
2. Fermentation
3. Vinegar
4. Kegging
5. Bottling

4.5.2 A detailed description of each process and controls in place is given below.

4.6 Press

4.6.1 The press area of site incorporates the intake of apples onto site, their pressing to create juice for cyder production or the aseptic packing of apple juice into 1 tonne combo’s or tankers. Juice tankers will be dispatched direct to customers, juice stored in combo’s is taken to 3rd party storage where it is kept before being returned to site as needed. This pasteurisation and storage of juice allows year-round cyder and vinegar production despite the apple harvesting and pressing season being between August and May.

4.6.2 Apples are delivered to site in tipper trailers where they are required to report to reception before proceeding onto the weighbridge. During peak season these deliveries take place throughout day and night with dedicated timed delivery slots approximately every 3 hours to minimise traffic and associated traffic noise and emissions on site.

4.6.3 Lorries are directed to the apple intake area where they are met in person and directed to the relevant intake area. Apples can be tipped into one of two intakes known as “the tong system” or the intake pit. The tong system was installed in approximately 2016 and is given priority over the intake pit, it is estimated more than 90% of loads are tipped through the tong system with the intake pit acting as a backup in event of malfunction or delays. This priority is given for efficiency reasons, namely:

- It offers more effective grading, removing significantly more waste from the intake such as rocks, leaves or twigs and thus minimising operator intervention at a later stage
- Apples are moved via conveyors rather via water chutes thus enabling significant water savings

4.6.4 Only one intake system may be operated at a time owing to a common outlet where both systems feed the next stage hopper.

4.6.5 On the tong system apples are tipped onto a conveyor through a material sock attached to the trailer which slows the tipping rate and ensures minimal loss of apples to the floor which would be wasted. Apples are moved via a conveyor and gain height before being tipped through a set of counter rotating rollers designed to remove the likes of stones, leaves, twigs and rotten fruit. This waste material is automatically diverted to a waste chute where it falls to collate in a dolav at ground level. A photoelectric cell level detector will pause the line if this dolav becomes full, allowing the operator to switch the dolav using a pallet truck without waste falling to the floor. This waste material is tipped via fork lift truck into a dedicated external 25 tonne trailer which is removed once full and sent for composting.

4.6.6 The apples which pass over the rollers pass into a destoner, an open topped vessel which is filled with water and in which apples are both cleaned and segregated from any soil or stones which will fall to the bottom whilst the apples float across the top of the water and are removed by conveyor. The water level within the vessel is manually controlled by the operator and refreshed based on visual assessment of contamination.

4.6.7 After the destoner there is an inspection table where an operator will visually assess the apples and remove any other items of contamination for disposal. From the inspection table the apples pass into a hopper prior to pressing.

4.6.8 If the intake pit system is used the lorry will back right up to a pit which must be unlocked by an operator. The trailer will tip the load into a stainless steel lined pit approximately 3 m deep. Soil and stones will sediment out into a pit as apples are moved via circulating water to an incline conveyor which lifts the apples to a set of fixed rollers which remove assorted vegetation to a disposal chute as the apples pass through. The water within the pit is manually recharged by an operator based upon visual assessment. After the fixed rollers there is an inspection table where an operator will visually assess the apples and remove any other items of contamination for disposal. From the inspection table the apples pass into a hopper prior to pressing.

4.6.9 The intake systems are controlled independently by localised control panels within the intake areas, requiring operators to manually start and stop the process for each intake load.

4.6.10 Post intake the entire system is automated and controlled from the press control room.

4.6.11 A stainless steel hopper is fed by both of the intake systems, this hopper is split into two 30 tonne hoppers each capable of holding an entire tipped load of apples. Apples exit the hopper via an automated gate in the bottom of each hopper as they are pushed by water jets, these gates can be operated independently but pass into a common flume which flows into the adjoining press room at low level into the auger pit.

4.6.12 Apples are moved vertically approximately 6m into a smaller 3 tonne hopper which in turn feeds the mill. The mill is a closed vessel containing a series of rotating blades which break down the apples into a near puree before it is transferred to the level-controlled mash hopper.

4.6.13 When making cyder the mash is transferred to one of three 16 tonne level controlled mash tanks where it is held at elevated temperatures to help break down the mash and increase juice yield.

4.6.14 The press can be fed from the mash tanks if making cyder, or if making cloudy juice will be fed directly from the mash hopper. Press operation is controlled by a series of predetermined setpoints selected by the operator depending upon recipe or apple type.

4.6.15 The press works via a series of pistons and filter socks which as the press rotates separates the liquid juice from the mash. The liquid is passed into an intermediate press juice tank before being transferred to the 8m^3 buffer tank. Both the press juice tank and buffer tank have level control and feedback to the control room.

4.6.16 Ascorbic acid may be dosed into the line as it passes from juice tank to buffer tank, this is used as an antioxidant to prevent spoilage of product. The ascorbic acid is made up manually in a dedicated 1,000 litre tank from powdered chemical mixed with hot water. Dosing rate of ascorbic into product is controlled via the system via a venturi dosing arrangement.

4.6.17 Waste pomace is removed via gravity from the press. This pomace is moved through a dedicated disposal line and discharges externally into an open topped 25 tonne trailer. The location of the discharge line within the trailer is controlled by the operator and is moved after each press to ensure even fill of the trailer. This trailer is replaced after approximately 4-6 loads and material sent to off-site third party anaerobic digestion.

4.6.18 From the buffer tank liquid can be sent to either fermentation if making cyder (see next fermentation section) or to one of ten juice holding tanks known as ISO's. As juice is pumped to an ISO tank it is chilled for quality reasons. This chilling is provided by the dedicated press chiller located adjacent to the ISO tanks.

4.6.19 The ISO tanks are of varying sizes as listed in appendix H. Connections to the tanks are made via fixed hard lines using swing bend flow plates and volumes transferred are recorded via a flowmeter between the press buffer tank and the flow plate. There is no level control on the majority of the tanks, the control system will record volumes transferred in and display this as a tank fill level. ISO tanks 7, 9 and 10 are an exception to this having been installed more recently and have level sensors.

4.6.20 From the ISO tanks juice may be loaded onto a tanker unpasteurised, or more commonly it is first pasteurised from where it can either be tanker loaded or packed into Combo's.

4.6.21 If loading an unpasteurised tanker, the tanker will park in the dedicated bay adjacent to the weighbridge where hose connections will be made, and the juice pumped from an ISO tank via the chiller as the tanker is loaded. The volume transferred will be flow metered to ensure the tanker is not overfilled.

4.6.22 If juice is sent for pasteurisation it passes through a flash pasteuriser supplied with steam from the site boiler at 93°C for 29 seconds to ensure micro standards are met. As juice exits the pasteuriser it passes through a heat recovery system to pre heat the unpasteurised liquid before being chilled.

4.6.23 If juice is destined for Combo's it is passed into a level controlled 4m^3 sterile buffer tank which feeds the Combo filler head. This is a manually initiated system where an operator attaches a 1,000 litre lined bag to the filler head, the bag sitting in a collapsible plastic pallet sized box. The filler will dispense 1,000 litres via a flowmeter into the bag. The operator will then manually seal the combo before moving with a fork lift truck and stacked ready for dispatch off site. This volume is verified by a recorded weight check for each combo filled.

4.6.24 If aseptic juice is to be loaded into a tanker it is passed from the pasteuriser into one of two level controlled 50m^3 sterile storage tanks known as KZE's. These tanks are caustic cleaned, and steam sterilised to ensure sterile conditions. Tankers are loaded directly from these tanks via a flexible hose, with juice being chilled as it is loaded, and volumes controlled via a flowmeter.

4.6.25 The loaded Combo's will be returned to site at a later date and may be used either for forward feed into fermentation or decanted for use as apple juice. For decanting into juice, they will be stored adjacent to the aseptic juice area and manually pumped out using a mobile monopump and flexi hose back into a chosen ISO tank. Once returned to the ISO tank the juice may be circulated via the chiller unit if required.

4.6.26 The emptied bags will be flattened and disposed of in site general waste whilst the collapsible plastic boxes will be re-used.

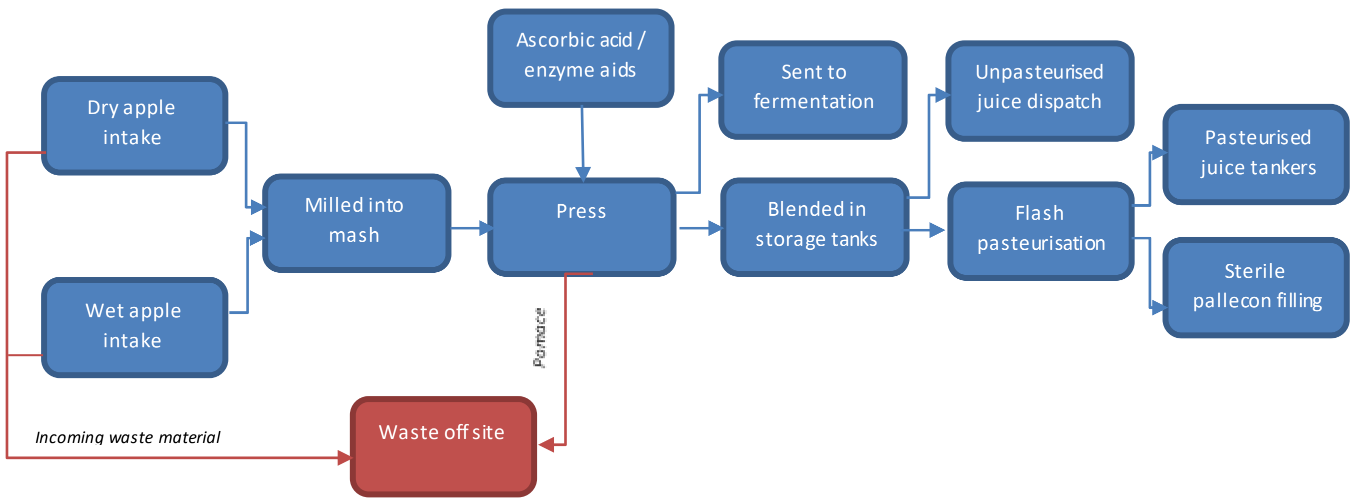
4.6.27 Cleaning throughout the press building is a combination of semi-automated CIP's and manual cleaning. The intake equipment lends itself better to cleans using pressure washers and detergent foams whilst the pipework and vessels associated with press, mash and juice are cleaned through CIP.

4.6.28 The press and mash equipment are cleaned through manual dosing of chemical to the equipment which is placed on an automated CIP cycle to flush, clean and rinse all equipment to drain.

4.6.29 The ISO tanks and the aseptic juice tanks have dedicated CIP systems. The ISO system utilises post rinse recovery and recovers caustic to minimise both water and chemical use. The aseptic CIP system is standalone owing to increased hygiene requirements on this plant and as such operates no water or chemical recovery.

4.6.30 Both fixed CIP systems are fed by caustic IBC's and operate on automated controls utilizing conductivity, time and temperature as critical parameters.

Figure 4-1: Press Process



4.7 Fermentation

4.7.1 Within fermentation apple juice is converted to cyder through the addition of yeast, which converts the sugars into alcohol over a period of days.

4.7.2 Fermentation may use apple juice direct from press, from juice returned in combo's or from purchased juice delivered via tanker.

4.7.3 There are a number of assorted vessels of different sizes located on the fermentation area tank pads, a breakdown of these vessels is included within Appendix H as well as a description of the use of each tank.

4.7.4 Juice is stored within dedicated juice vessels prior to the fermentation beginning. When required juice is transferred into a selected fermentation vessel with an operator physically making the desired connections using flexible hoses and flow plates. All flow passes through a flowmeter which records volumes transferred and automatically stops flow once a desired volume has been reached.

4.7.5 Volumes from assorted vessels may be transferred to create a desired blend within the fermentation vessels, each different connection being made by the operator. The operator will walk the line once the transfer has started to ensure connections are robust and that any leaks or losses are minimal.

4.7.6 Additions are added to the fermentation vessel, this is primarily a yeast addition to start the fermentation process and is manually weighed and dosed by the operator into the vessel prior to the fill commencing.

4.7.7 Sugar is also added to the fermentation process, sugar is currently stored in 25kg bags and manually added to a blending vessel as required where it is dissolved in hot water and fed into the required vessel. Much of this requirement will be replaced by liquid sugar dosing being installed in the new process building.

4.7.8 The fermentation process can take several weeks during which time the liquid is left alone other than for sampling. Temperature is a critical parameter in the fermentation process, not all fermentation vessels currently have chilling available but the upgrades being made in this area mean all will have cooling jackets and temperature monitoring, allowing for more efficient fermentation and minimised product wastage.

4.7.9 All fermentation vessels are vented at the top to allow for the release of CO_2 which forms during fermentation. This prevents the vessels from over pressurising which could lead them to deform and fail. In the event of an overfill of a vessel any flow would route down the Tank onto the concrete pad below for drainage to effluent.

4.7.10 Once fermentation is complete the liquid is to be transferred to a cyder storage tank. Yeast and other solids will have naturally settled to the bottom of the vessel and so connection points at different heights are used to connect a flexible hose and pump liquid, through a flow meter control, into the storage vessel. The collective solids known as lees are left in the base of the fermentation vessel before being transferred through a tank bottom connection to a dedicated waste lees tank. These are collected by tanker for removal off site.

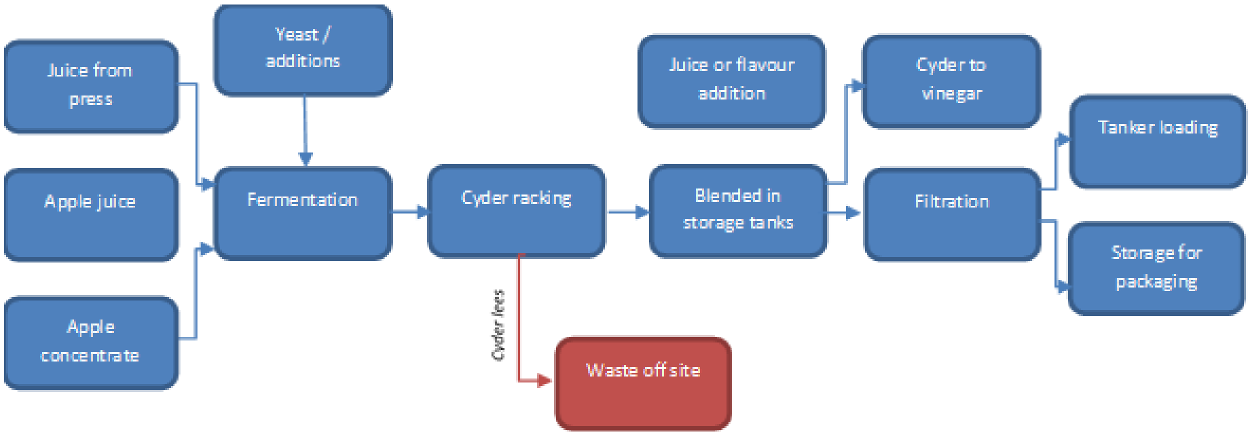
4.7.11 Cyders from different apple varieties may be blended by mixing volumes within storage vessels to create the desired flavour profile. Depending upon the recipe additional flavourings or juices may be added by the operator and the cyder is stored until ready for processing where it is passed through a crossflow filtration stage which uses membrane technology to filter solids from the clear cyder liquid. This filtered cyder is passed through a chiller and has a small amount of preservative added to prevent spoilage.

4.7.12 This finished cyder is stored in finished cyder tanks from where it can be loaded into a tanker or kept ready for transfer to packaging into either kegs or bottles.

4.7.13 Vessels and pipework are cleaned via operator initiated manual flushes or CIP's. Fixed volumes of hot or cold water is delivered via flowmeter through operator made connections, this can be circulated through a sprayball on the vessel using a mobile pump. Cleaning chemicals may be added to this using measured volumes in a dosing container feeding through a venturi style dosing system as the liquid is pumped.

4.7.14 A new process building is being installed adjacent to the fermentation area. This is expected to be completed in Q3 2020 and will include a fixed CIP system, liquid sugar dosing, additions dosing area and a new control room from where operators will be able to oversee the fermentation process. This will provide more automation to the processes in the area and give operators more visual feedback on each vessel status, ultimately minimising losses and providing more efficient operation.

Figure 4-2: Fermentation Process



4.8 Vinegar

4.8.1 The vinegar processing area incorporates the delivery and blending of purchased malt, red wine and white wine vinegar as well as the acetification of cyders to create cyder vinegars. The vinegars created in this area are either packaged in bulk containers within the area or pumped to the bottling area for further packaging.

Cyder receipt from fermentation

4.8.2 Once the cyder has been created in the fermentation department on site they are transferred to the vinegar processing area. Once transferred the cyder is stored in any of a number of fibreglass / stainless steel tanks (as listed in appendix H) awaiting further processing. Fill level is controlled via flowmeters monitored during transfer. Weekly stock control checks are made on the tanks to confirm contents.

Cyder acetified to create cyder vinegar

4.8.3 When production is about to be scheduled cyder is transferred from a storage tank into an acetator charge tank. When required the cyder is transferred from the charge tank into one of the acetators (1 x 12k litres, 2 x 6k litres). The acetators are used to convert the cyder into cyder vinegar. Cyder (10% – 12% alcohol) is placed into the acetator and is subject to a bacterial fermentation. Fermentation is controlled with the application of filtered diffused air and temperature control. Cyder vinegar production is a continual process with approximately 1,500 litres vinegar removed from the acetator and then 1,500 litres of cyder being added to the acetator (the total volume within the acetator is maintained at 5,500 – 6,000 litres at all times). Air and temperature control are critical for the biological viability of the acetators and as such the chilling plant and air pumps are placed on a back-up generator to reduce the likelihood of a failed fermentation and avoid potential waste. During fermentation the production team regularly monitor the fermentations to ensure that the critical parameters are maintained for the most efficient fermentation.

4.8.4 The bacterial fermentation converts the alcohol present in the cyder into acetic acid on a like for like basis – 10% - 12% alcohol is converted into 10% - 12% acetic acid (vinegar). After the fermentation has been completed approximately 1,500 litres of vinegar is discharged into a reception vessel (as listed in appendix H). The completed full strength vinegar is then transferred from the acetators into a storage tank. The size of the storage tank may vary and is determined by availability of tank storage space. The full strength vinegar is then stored long term until required for blending prior to finished packaging.

Malt / Wine vinegars purchased

4.8.5 Wine vinegars are purchased at full strength (10% – 12% acidity). All wine vinegar orders have a pre-delivery sample sent ahead of loading for analysis by Aspall. The purpose of the pre-delivery sample is to ensure that the product is the correct specification prior to loading, this greatly reduces the likelihood of a product being rejected and the attributed road miles associated with the delivery.

4.8.6 Wine vinegars are tankered to Aspall via road tankers in a variety of sizes ranging from 5k litres to 28k litres dependant on order quantity. Where possible small orders are transported in split tankers to ensure effective delivery.

4.8.7 Upon receipt the wine vinegars are pumped from the tanker into an awaiting storage tank (as listed in appendix H). The wine vinegars are then stored until required for blending prior to finished packaging.

4.8.8 Malt vinegars are either delivered in bulk via road tankers or in 1,000 litre IBC's.

4.8.9 Upon receipt bulk tanker deliveries of malt vinegar are pumped into a storage tank after being tested to ensure that they meet specification. IBC's of malt vinegar are delivered directly to the warehouse where they are subject to a delivery inspection. The malt vinegars are then stored until required for blending prior to finished packaging.

Vinegars blended

4.8.10 A product plan determines what vinegars are required for blending. Vinegars are not forwarded towards blending unless there is an imminent packaging requirement. Once a production order is raised the appropriate full-strength vinegar is transferred from bulk storage and then placed into one of six mixer vessels (as listed in appendix H). The amount of full-strength vinegar used is determined by a pre-defined recipe, this is then blended with mains potable water to get to the appropriate finished vinegar specification (between 5% - 9% acidity).

Vinegars sent to bottling area for packing

4.8.11 If required for bottling product is filtered through a plate and frame filter and then transferred over to the bottling area where it will be stored in a storage tank ready for bottling.

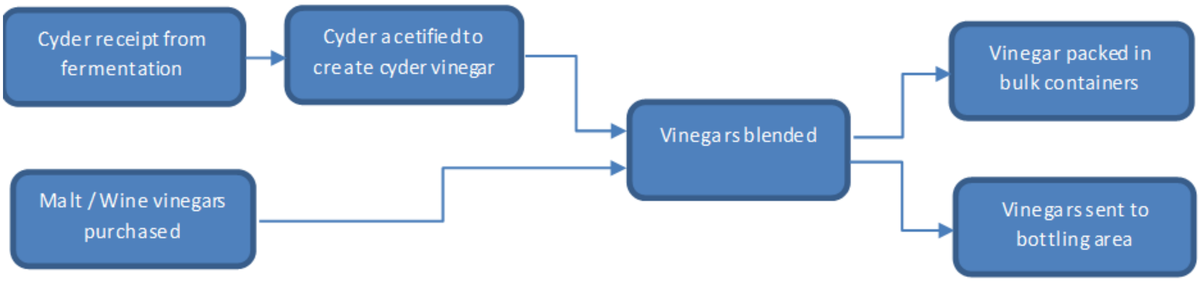
Vinegar packaged in bulk containers

4.8.12 Aspall packages bulk vinegar in a variety of formats. The packaging formats are 5 litre and 25 litres packaged into LDPE containers, 1,000 litres packaged into IBC's and food grade road tankers at volumes between 10k litres and 28k litres.

4.8.13 Packaging into 5, 25 and 1,000 litres is performed in the vinegar production area. Packaging strength vinegar is passed through a series of cartridge filters and delivered into the packaging via a nozzle. Fill levels are controlled via a calibrated flowmeter. Five and 25 litre containers are then placed onto a pallet ready for loading onto lorry for either warehouse storage or delivery to customer. The 1,000 litre containers are filled via a nozzle and then sealed with security tags and loaded onto a lorry for either warehouse storage or direct delivery.

4.8.14 For road tankers final packaging strength vinegar is transferred to a storage tank 'just in time'. Upon arrival the tanker is passed over the weighbridge to determine pre-loading weight. The tanker is then loaded via a calibrated flowmeter to a prescribed volume. Upon completion the vehicle is passed back over the weighbridge to confirm the loaded volumes. Vinegar is then shipped direct to the customer.

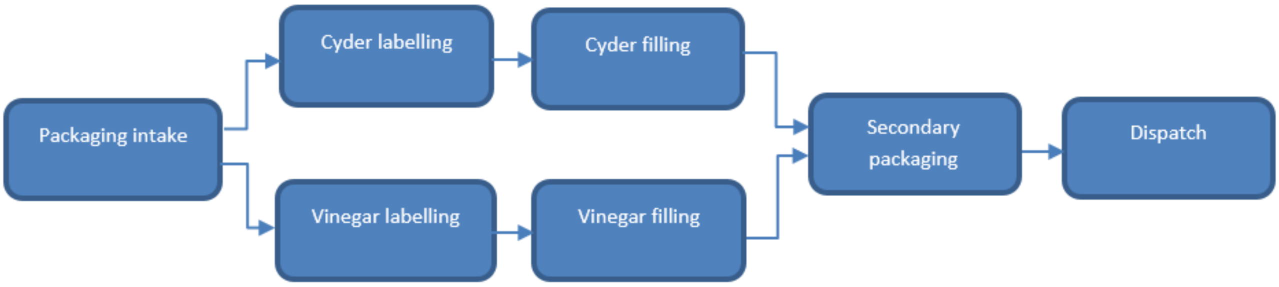
Figure 4-3: Vinegar Process



4.9 Bottling Area

4.9.1 The bottling area incorporates the bottling of both cyders and vinegars into a variety of glass bottles. The bottling lines have one common infeed and then the line splits into two fillers before converging again at the secondary packaging stage. The bottles are delivered just in time, filled through one of two fillers and then when palletised are loaded onto a stand trailer ahead of dispatch to a third party warehouse for later distribution or sent directly to the end customer. The bottling area operates 24 hours 5 days a week across the year. Due to the line set up only vinegar or cyder can be run at any one time.

Figure 4-4: Bottling Process



Packaging Intake

4.9.2 The glass is held at the manufacturers storage warehouses until called upon by Aspall. The glass is delivered in lorries 'just in time' for production. Glass deliveries may take place any point over a 24 hour period. Glass is typically delivered for packing the next day. The site packages into a variety of amber and clear flint glass ranging in size from 250 ml to 1 litre. Upon delivery the glass is transferred from the lorry into the day warehouse via fork lift truck. The day warehouse has a capacity of 68 pallets.

4.9.3 When the line is set up the glass is lowered from the racking and the outer plastic cover removed before being offered to the automatic depalletiser. All plastics are kept separate and disposed of via a dedicated plastic bin prior to being baled for recycling. When offered into the depalletiser the glass is swept layer by layer onto the travelling conveyor line. In between each layer of glass is a cardboard layer insert when removed these are saved and reused on the finished pallets at the end of the line to reduce waste. The empty bottles are then transfer via pressureless conveyors to the labellers. All the conveyors are intelligently controlled via a PLC to ensure that the lines ramp down speed and stop in the event of any piece of equipment in the process stopping, this reduces energy consumption and reduces the risk of bottle breakages and subsequent waste.

4.9.4 There are separate labellers for vinegar and cyder. All labels are self-adhesive and are applied pre-filling. Labelling pre-filling reduces the amount of waste as labelling post filling may mean condensation causes the labels to slip out of position and increases wastage of labels and bottles.

4.9.5 After labelling the bottles are inverted and passed through a bottle rinser for the removal of any potential foreign bodies. The water used to rinse the bottles is supplied via mains water stored in a 20 litre reception tank with the addition of 50ppm of peracetic acid used of microbial control. The water level is controlled via a float valve and the addition of peracetic acid is measured manually from a controlled 25 litre container.

4.9.6 After rinsing the bottles are filled via either the Cime cyder filler or the Cobert vinegar filler.

Cyder Filling (Cime)

4.9.7 Bright cyders are transferred from the fermentation department via flowmeter into one of four 30,000 litre stainless steel single skin storage tanks (as listed in appendix H). There is no fill level control on the tanks outside of the flowmeters used to transfer the liquids. The bright storage tanks are within the kegging hall building placed on resin floor with drainage linked directly to the effluent plant. Cyder is stored in these tanks until required by the bottling / keg line.

4.9.8 When required by the bottling line the cyder is transferred from the selected tank via a flow plate. From the flow plate the cyder is then transferred through a plate pack heat exchanger then into a batch carbonator where the product is carbonated with Carbon Dioxide (CO_2) from the main CO_2 storage tank (as listed in appendix H). Quality control checks are performed post carbonation to ensure that the correct level of carbonation has been achieved, this minimises the likelihood of over use of CO_2. From the batch carbonator the cyder is passed through a 1 micron cartridge filter followed by a 0.45 micron cartridge filter before being pumped through to the Cime Cyder filler. The Cime filler is a 48 head counter pressure filler with automation and an HMI detailing filler performance parameter, settings can be altered using this HMI. The Cime filler will control the transfer of cyder from the main bright tanks and all transfer lines are stainless steel in construction.

4.9.9 The filler has a series of change parts that are designed to fit the type of bottle being used. Using the correct change parts ensures that the fill levels are correct. Using the correct change parts also reduces the likelihood of damaged packaging which would lead to increased packaging waste due to damage. All change parts are colour coded to ensure that the right parts are used at all times.

4.9.10 Each bottle is then presented to the filling heads which open once in position to allow filling of the bottle. Each filling head has a dedicated filling tube which allows the correct amount of liquid to be deposited into the bottle. Each filling tube has a dedicated seal attached which reduces fobbing and reduces liquid wastage.

4.9.11 Once filled the bottles are passed through a crowner. The crowner has a stainless steel storage hopper at the back into which the crowns are decanted from cardboard boxes prior to use. The crowns are then sent via a slatted conveyor into the crown dispenser. Crowns are then dispensed down a chute to the point of application. Crowns are then applied to the bottles are crimped providing an air tight seal.

4.9.12 Bottles are then passed through a set of air blowers to remove any excess liquids and / or condensation before passing through a MAPEX bottle fill level detector. After checking the levels, the bottle is conveyed through to the secondary packaging stage.

4.9.13 Once the bottling run has been completed the lines are flushed through with water returning any left-over cyder to the bright cyder tank from which it originally came. This recovered liquid is sent back to fermentation for re-use. All returns and flushes are flow metered with a known volume as controlled by the HMI on the cyder filler.

4.9.14 The Cime cyder filler is connected to the main packaging CIP set. A variety of cleans can be performed automatically with the set. These include straight water flush, hot caustic cleans, hot water sterilisation or any combination of the above. The levels of clean is determined by parameters such as product mix and / or time. The type of cleans are detailed on the planning schedule ensuring the most efficient use of time and resources.

Vinegar Filling (Cobert)

4.9.15 Prepared vinegars are transferred from the vinegar preparation via underground plastic pipes into the bottling vinegar storage area. The vinegar is transferred into either one of three 32,000 litre fibreglass or one of four 45,000 litre fibreglass storage tanks ahead of process. All transfers are monitored via flowmeter. The 45,000 litre tanks contain level transmitters which act as visual feedback to operators and validation of fill levels recorded on their manual vat sheet. When liquid is required the tanks are connected to the Cobert filler via a stainless steel flow plate with stainless steel swing bends.

4.9.16 When being transferred to the Cobert filler the vinegar is passed through a 1 micron cartridge filter followed by a 0.45 micron sterile cartridge filter. There are several products that are not passed though sterile filtration as this has a detrimental effect on product quality. These products are Organic Balsamic vinegar, apple balsamic vinegar, raw organic cyder vinegar and raw cyder vinegar with honey. Once the vinegar has been filtered it is passed through into the filling bowl.

4.9.17 The Cobert filler is a 40 head vacuum filler that has a maximum running speed of 150 bottle per minute.

4.9.18 The filler has a series of change parts that are designed to fit the type of bottle being produced. Using the correct change parts ensures that the fill levels are correct. Using the correct change parts also reduces the likelihood of damaged packaging which would lead to increased packaging waste. All change parts are colour coded to ensure that the right parts are used at all times.

4.9.19 When the bottles enter the filler, they are presented to the filling head and the head will open to allow liquid to fill the bottle. The fill levels are controlled by vacuum preventing overfills and wastage. Once filled the bottles are released from the filler and are passed through to a separate capping machine.

4.9.20 Once filled the bottles are passed through the capper. The capper has a stainless steel storage hopper at the back into which the ROPP (Roll on Pilfer Proof) caps are decanted from cardboard boxes prior to use. The ROPP caps are then sent via a slatted conveyor into the cap dispenser. Caps are then dispensed down a chute to the point of application. Caps are then applied to the bottle; a set of rollers sets the thread onto the cap and then they are sealed created a tamper proof seal.

4.9.21 After sealing the bottles are conveyed through to the secondary packaging stage of the process.

4.9.22 The Cobert vinegar filler is connected to a dedicated CIP set. A variety of cleans can be performed automatically with the set. These include straight water flush, hot caustic cleans, hot water sterilisation or any combination of the above. The levels of clean is determined by parameters such as product mix and / or time. The type of cleans are detailed on the planning schedule ensuring the most efficient use of time and resources.

Secondary Packaging

4.9.23 The bottles of cyder / vinegar are conveyed through a series of line controlled conveyors to the multi pack case erector. The erector accumulates bottles on the infeed and then passes them through the machine where a variety packaging formats can be erected around the bottle. This may be either full cardboard cases or a cardboard tray with a low density polyethylene (LDPE) shrink wrap. Upon exiting the erector, the fully completed packages are then labelled via a printer before being placed onto a pallet.

4.9.24 When full pallets are produced, they are moved over to a pallet wrapping machine where an outer wrapping is applied to the pallets to restrict movement. The pallets are then moved to an air lock via an electric pallet truck. Completed pallets are then removed from the air lock via fork lift truck and placed onto a standard trailer. When full trailers are completed, they are removed from site by a third party warehouse and distribution company. The product is moved to a third party warehouse where they are stored until sent directly to customers to match purchase orders.

Boiler Operation

4.9.25 Site operates a 3.16MWth steam boiler installed in 2015. The boiler is fired solely on gas oil, given sites rural location gas supply is not a possibility.

4.9.26 The boiler is of a watertube design and provide the entire processing demand for steam and heat. It does not serve domestic heating or hot water, these are supplied by point of use electric water heaters.

4.9.27 The boiler is operated via an automated control system. This system contains a number of pre-set points that can only be altered by authorised trained engineering staff. The system is designed to achieve a continuous steam output pressure, this is currently set at 10 bar although could be reduced on the system. This pressure is sufficient to distribute the steam all around the site and provide sufficient heat and hot water for the variety of processes described above.

4.9.28 Hotwell level is controlled via conductivity level sensor. When top up is required water is supplied via mains through a dedicated boiler softener to meet required level. The softness of the water is controlled by an ion exchange unit which requires a manual refill of salt approximately 3 times a week determined via manual engineering checks. From the softened water tank, the water flows into the boiler hotwell which combines softened water with condensate return from previously used steam, this hotwell typically operates in the 80-90°C range as controlled by an in tank temperature probe and steam coil. There are three condensate collection vessels located around site, these are operated via level control and automatically feed back to the hotwell to maximise recovered condensate over incoming mains water.

4.9.29 The boiler is maintained at a constant level via a level probe which pumps pre-heated water from the hotwell. A pressure sensor within the boiler controls the boiler fire rate to maintain a steady pressure, currently set at 10 bar. A modulating burner control system trims the burner system to provide the optimum fuel to oxygen ratio dependant on the fire rate, this trim profile is assessed annually during boiler optimisation. Steam from the boiler is distributed around the factory, approximately fifty steam traps are in place to return the condensate back to the hotwell for recovery of heat and water. These steam traps are serviced on an annual basis to minimise passing of steam.

4.9.30 Total dissolved solids (TDS) is monitored within the boiler by a conductivity probe. This is linked to the control system and controls boiler blowdown rates to minimise the build-up of solids within the boiler. Manual TDS sampling also takes place daily and boiler blowdown can be manually initiated if required.

4.9.31 Sodium hydroxide, sodium bisulfite and boiler catalysts are stored in 100 litre containers within the boiler house and are dosed into the boiler hotwell system. These serve to prevent microbial growth and corrosion within the boiler system. Dosages are small and on a manually adjusted dosing rate controlled by trained engineering staff on a daily basis with monthly optimisation from a third party chemical specialist.

4.9.32 There is a Grant external condensing domestic heater installed in 2013 also fired on gas oil which provides hot water to the domestic block for heating and for washing facilities.

4.9.33 This is served by a separate $1m^3$ gas oil tank, integrally bunded and stored on hardstanding.

4.9.34 This boiler represents approximately 0.4% of site fuel usage and is considered de minimis with regards environmental impact.

4.9.35 This boiler is not considered to have a technical connection to the activities and is no therefore considered further in this application.

4.10 Refrigeration

4.10.1 A full list of refrigeration systems, the gas type and their charge size are included within the refrigerant gas list in appendix I.

4.10.2 The majority of units are air conditioning units for personal comfort. These are controlled by individuals within their area and are on a regular service contract with an external contractor ensuring leak tests are completed as required.

4.10.3 There is a total of five refrigeration units serving different processes around the site. The units are of package chiller types and relatively small by industrial standards, all contain F-gas type refrigerants. An overview of each unit is given below:

1. Vinegar chiller block
2. Tank farm chiller 1
3. Tank farm chiller 2
4. Main press chillers
5. New Daikin chillers

Vinegar chiller block

4.10.4 Located to the rear of the vinegar barn this unit provides cooling for the vinegar liquid as it undergoes an exothermic reaction in the acetators. Glycol is used as a secondary refrigerant which passes through both a set of dry cooler units and variable speed chiller units to provide cooling to a chilled water loop within the acetator vessels. This setup is used as a food safety precaution to eliminate risk of glycol coming directly into contact with product.

4.10.5 The circulation of the chilled water system is controlled via temperature monitoring in the acetators, fixed speed pumps are controlled either on or off dependent upon vessel temperature.

4.10.6 The glycol system is continuously pumped, temperature probes on the glycol return monitor the glycol temperature and in turn control the operation of dry cooler units to provide a small amount of cooling. If increased cooling demands are needed the variable speed chiller units will automatically operate to provide sufficient cooling, automatically switching off again when not required to minimise energy use.

Tank farm chillers 1 & 2

4.10.7 There are two existing package chiller units located in the fermentation area. These operate in tandem on a combined glycol distribution system which primarily cools fermentation and storage vessels to keep product chilled and control the fermentation process.

Main press chillers

4.10.8 Located near to the cyder house, these are 2 package chillers operated in tandem which serve all press and juice chilling requirements. These operate on direct contact as product flows through the chillers and there is no secondary distribution system.

New Daikin chillers

4.10.9 Two new package chillers are to be installed as part of the fermentation project. These will have a secondary glycol distribution system feeding product storage and fermentation vessels within the new section of the fermentation tank farm. Combined with the existing tank farm chillers this will ensure that all necessary vessels are cooled to minimise product spoilage and ensure more efficient fermentation cycles.

4.11 Effluent Treatment

4.11.1 The effluent treatment plant is an area that has been identified for upgrade as part of the site investment plans. Works on site are commencing at the time of permit application writing with intention that works be completed within Q4 2019. The description given below is for as the plant will be once completed.

4.11.2 The majority of liquid process waste from site is collected in a dedicated sump in the effluent treatment plant area as shown on the plan “site storage locations” in appendix B. A second sump within the effluent treatment plant area collects high strength liquid waste from the fermentation filtration crossflow process including yeast material.

4.11.3 The first sump contains two submersible pumps which operate on float switches, including a high level alarm to alert to any issues. The second sump collects purely yeast material and is transferred by a level switch controlled pump into one of two tanks each 20m^3 from where it is collected by tanker for landspreading or can be manually pumped into the main sump if required.

4.11.4 From the main sump effluent is transferred to a drum screen which removes solids into a dolav unit, the contents of which are transferred by fork lift truck to a dedicated waste skip for disposal. The screened effluent flows into a newly installed small agitated forward feed tank which is level controlled. Effluent is pumped through a refractometer which measures the brix content of the liquid and operates a series of automatic valves, selecting if the effluent feeds forward to the new 300m^3 balance tank or is diverted to the 63m^3 divert tank which forms the current balance tank.

4.11.5 At 300m^3 this balance tank is expected to provide in excess of 12 hours balancing time and with the divert system the plant should be better protected from shock loads in event of product loss.

4.11.6 The balance tank will be continuously mixed to encourage consistent flow whilst the divert tank will be aerated to both provide mixing and prevent the contents becoming anaerobic. Contents of the divert tank may be removed by tanker or can be pumped back to the inlet screen as the operator chooses depending upon their strength and ability to treat.

4.11.7 The balance tank feeds a 65m^3 selector tank. This is an anoxic zone where effluent is mixed with returned biological sludge at a high loading rate to encourage the growth of healthy biological sludge, which is then pumped to the existing aeration tank. A pH probe in line between the balance tank and selector tank monitors pH and can dose caustic to the feed from the new 5m^3 self-bunded tank.

4.11.8 An upgraded aeration system within the 680m^3 aeration tank allows for an increased biological sludge mass to be maintained with an expected 1700kgCOD/day treatment capacity. Temperature and dissolved oxygen are monitored within the aeration tank, two blowers provide aeration through the diffusers operating on variable speed drives linked to the dissolved oxygen levels.

4.11.9 Biological sludge from the aeration tank flows to the existing MBR container which is being expanded to accommodate more submerged membranes, designed to filter up to 210m^3 treated effluent per day. Biological sludge is pumped on a continuous loop from the MBR container back to the selector tank, the treated permeate filtering through the membranes. The treated permeate is passed through a 1m^3 existing tank fitted with a new pH probe to continuously monitor discharge pH and alarm in event of control parameters being exceeded.

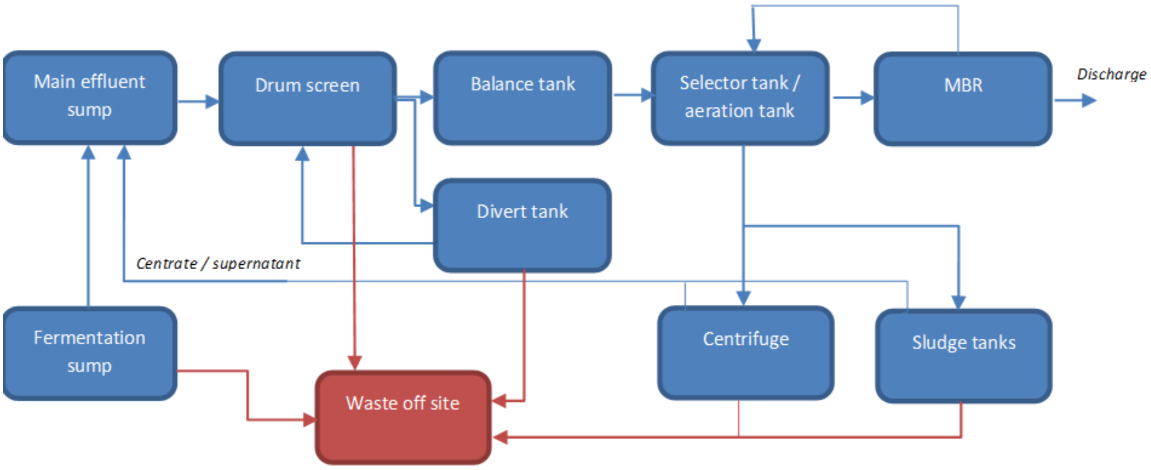
4.11.10 Within the same MBR container is a CIP system capable of backflushing or deep cleaning the membrane units. Utilising the treated water tank this pumps a reverse flow through the membranes and back into either the selector tank or aeration tank as the operator desires through manually operated valves. Cleans utilise treated permeate where possible although has a potable water supply as backup. A separate chemical dosing tank is filled by the operator within the container to start a clean, utilising sodium hypochlorite or hydrochloric acid as necessary, both extending the life of the membranes and maintaining necessary permeate flux rates.

4.11.11 The treated water tank overflows through manually operated valves that can be selected to flow to discharge or return to the divert tank if any discharge parameters are exceeded. Discharge passes through a newly installed MCERTS flowmeter with a flow proportional 24 hour composite sampler installed to provide representative samples.

4.11.12 Biological sludge can be wasted to maintain MLSS levels through a series of automated valves from the return activated sludge line. This sludge can be fed to a centrifuge capable of processing $3m^3$/hr which separates sludge solids into an adjacent dolav and returns concentrate back to the inlet sump. Dolavs are moved by pallet truck and contents collected by tanker. Alternatively, sludge can be sent to a $50m^3$ sludge holding tank, utilising varying level run off points to dewater the sludge, passing the supernatant back for treatment and collecting the solids via tanker.

4.11.13 A process flow diagram of the effluent treatment plant operations is shown in the diagram below:

Figure 4-5: Effluent Treatment Process



4.12 Waste Handling

4.12.1 Waste streams are created across the site under normal operation. The handling of liquid process waste is discussed in section 4.11 above. For solid waste streams receptacles are provided at the point of waste generation in sufficient quantities to encourage segregation at source.

4.12.2 The main waste skips are stored externally as shown on the diagram “site storage locations” in appendix B. These skips are stored on hardstanding areas under a canopy to prevent rain water ingress or leaching of any liquids.

4.12.3 Plastic and cardboard are baled on site to allow for easier storage and collection.

4.12.4 Hazardous wastes produced in normal operation include mineral oils, inks and chemicals used for analysis. A 1,235 litre waste mineral oil tip tank is located in the engineering area, this is a self-bunded tank stored on hardstanding. Waste oils generated from maintenance activities are decanted into sealed containers before being manually transferred to the tip tank. The level of the tank can be observed as filled and waste collections are arranged as required. Waste inks and analysis chemicals are generated in small volumes. They are transferred into sealed containers before being manually transferred to a secondary sealed container. A dedicated waste fluorescent tube coffin is also located in the engineering area.

4.12.5 Waste Electrical and Electronic Equipment (WEEE) is generated on an infrequent basis and collections arranged as required.

4.12.6 Waste from the effluent plant is tankered off site. This may be biological sludge as described in section 4.11, a large volume of process effluent is also tankered off site owing to the existing waste water treatment plant being unable to process the volumes produced and the permitted discharge rate being relatively low. Planned upgrades to the plant and an increased discharge rate will help minimise these volumes.

4.12.7 All waste volumes leaving site are logged and recorded on site, utilising transfer note details and the newly installed weighbridge. A duty of care waste matrix is in place and regularly reviewed to ensure use of licenced carriers and disposal sites.

4.12.8 A summary of the waste streams including: source; storage location; volumes produced, and the method of recovery or disposal is at Appendix J.

5 ENVIRONMENTAL RISKS AND EFFECTS

5.1 Environmental Risk Assessment

5.1.1 An environmental risk assessment has been carried out and can be found at Appendix C.

5.1.2 Emissions to surface water have been assessed using the EA's H1 assessment software tool, this assessment can be found at Appendix C to the environmental risk assessment.

5.2 Point Source Emissions to Air

5.2.1 The Environment Agency air quality risk assessment guidance[1] advises to check if there are any of the following within 10km of the site:

- special protection areas (SPAs)
- special areas of conservation (SACs)
- Ramsar sites (protected wetlands)

5.2.2 However, as the air emissions from the site are from boilers which are classed as medium combustion plant, the screening distance is reduced to 5 km to determine when an assessment is required of aerial emissions on Habitat's sites from MCP/SG fired on natural gas or low-sulphur diesel.

5.2.3 It also advises to check if there are any of the following within 2 km of the site:

- sites of special scientific interest (SSSIs)
- local nature sites (ancient woods, local wildlife sites and national and local nature reserves)

5.2.4 Based on the above criteria, there are no nature conservation sites within the designated screening distances of the site.

5.2.5 There is therefore no requirement to assess the environmental risks of the emissions to air from the boilers on site.

5.2.6 There is a lab on site which carries out various quality analysis on the products produced on site. This lab releases a minimal volume of vapour. This release is considered de minimis and too small to require assessment.

5.3 Point Source Emissions to Surface Water

5.3.1 Point source emission to water are shown on the drawing "Release points to sewer, water & air" at Appendix B. These are detailed in table 4.1 of the ERA. Point source emissions of process effluent have been assessed using the EA's H1 software tool and have been screened out as insignificant.

5.3.2 A full report relating to the H1 assessment is at Appendix C of the ERA.

5.4 Fugitive Emissions to Air, Land, Water and Sewer

5.4.1 Sources of fugitive emissions have been included in the environmental risk assessment above. It is concluded that the risk of fugitive emissions from the proposed activities is insignificant.

[1] https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#screening-for-protected-conservation-areas

5.5 Accident Management

5.5.1 The ERA has assessed accident risks and has concluded that the risk of accidents as a result of the activities is insignificant.

5.5.2 The AMP shall be updated once the variation has been determined and the new plant and equipment is installed and commissioned.

5.6 Odour

5.6.1 An odour assessment has been carried out and has concluded that the risk of odour causing a nuisance beyond the permit boundary is insignificant. The odour assessment is at Appendix A of the ERA.

5.7 Noise

5.7.1 A noise assessment has been carried out and has concluded that the risk of noise causing a nuisance beyond the permit boundary is insignificant. A single complaint has been received in 2019. Upon investigation increased noise was found to be being caused by a faulty air pump. This was quickly remedied. No complaints regarding noise have been received relating to the routine operation of the site. The noise assessment is at Appendix B of the ERA.

5.8 Raw Materials

5.8.1 A full breakdown of the raw materials used at the site are detailed in Appendix E.

5.8.2 Safety Data Sheets for all raw materials are attached as Appendix K.

6 BEST AVAILABLE TECHNIQUES (BAT) ASSESSMENT

6.1.1 This section contains a review against the BAT requirements detailed in Environment Agency guidance document How to comply with your environmental permit - Additional guidance for: The Food and Drink Sector (EPR 6.10) and the final draft BREF document for food, drink and milk industries[2] (October 2018).

6.1.2 It is noted that EPR 6.10 was published in 2009 and is likely to be reviewed once the draft BREF is published as a final document. For this reason, where there is discrepancy between the BREF and EPR 6.10 we have assumed that the techniques within the BREF should take precedence.

6.1.3 The following sections of the BAT Conclusions within the BREF have been assessed:

- General BAT Conclusions (Chapter 17.1)
- BAT Conclusions for the fruit and vegetable sector (Chapter 17.7)
- BAT Conclusions for the soft drink and nectar / juice made from processed fruit and vegetables (Chapter 17.11)

6.2 General BAT Conclusions

Environmental Management Systems

6.2.1 BAT 1. In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the [features listed].

6.2.2 As stated in paragraph 3.1 an EMS will be developed for the site which takes into account and includes all elements listed in BAT 1.

6.2.3 The scope (e.g. level of detail) and nature of the EMS (e.g. standardised or non-standardised) will be related to the nature, scale and complexity of the installation, and the range of environmental impacts it may have. These have been assessed in an Environmental Risk Assessment at Appendix C.

6.2.4 BAT 2. In order to increase resource efficiency and to reduce emissions, BAT is to establish, maintain and regularly review (including when a significant change occurs) an inventory of water, energy and raw materials consumption as well as of waste water and waste gas streams, as part of the environmental management system (see BAT 1), that incorporates all of the [features listed].

6.2.5 The site has KPIs which include the increase of resource efficiency and to reduce emissions. These are discussed in paragraphs: 2.4 and 2.5.

6.2.6 In order to review the KPIs the operator tracks consumption of water, energy and raw materials. All relevant elements of BAT 2 will be considered and included within the site EMS.

Monitoring

6.2.7 BAT 3. For relevant emissions to water as identified by the inventory of waste water streams (see BAT 2), BAT is to monitor key process parameters (e.g. continuous monitoring of waste water flow, pH and temperature) at key locations (e.g. at the inlet and/or outlet of the pre-treatment, at the inlet to the final treatment, at the point where the emission leaves the installation).

[2] http://eippcb.jrc.ec.europa.eu/reference/BREF/FDM/FDM_02-10-2018BW.pdf

6.2.8 A description of the waste water treatment, including monitoring is included a paragraph 5.3. All key process parameters will be monitored at key locations as described above.

6.2.9 BAT 4. BAT is to monitor emissions to water with at least the frequency given [in the table below BAT 4] and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.

6.2.10 The proposed monitoring regime is described in paragraph 3.8 above. The nature of the process effluent is well characterised and stable. The discharge is not direct to the receiving water body, it is treated in an effluent treatment plant so that the output is controlled. It is proposed to carry out monthly monitoring for the first year in order to ensure an appropriate dataset is collected to inform setting and revising discharge consent limits. Thereafter quarterly monitoring is considered adequate assuming the discharge quality has been proven to be sufficiently stable.

6.2.11 BAT 5. BAT is to monitor channelled emissions to air with at least the frequency given [in the table below BAT 5] and in accordance with EN standards.

6.2.12 The limits set out in the table associated with BAT 5 are not directly relevant to the cyder and juice producing activities at the site. It is not proposed to monitor emissions from any of the main permitted activities. Fugitive emissions from the production activities at the site have been assessed in the environmental risk assessment at Appendix C.

6.2.13 The boiler associated with the main activities at the site is a medium combustion plant having a rated thermal input of 3.16 MWth. It therefore must comply with the limits set out within Table 1 of Annex II of the Medium Combustion Plant Directive[3] by January 2030. The relevant emissions requiring monitoring are given in Table 6-1 below:

Table 6-1: Air emissions monitoring

Pollutant	Limit (mg/Nm^3)	Frequency
NOx	200	Every 3 years
CO	-	Every 3 years

6.2.14 Emissions monitoring was carried out on 7 March 2019 which showed the boiler to be compliant with the limit for NOx. See report at Appendix G. The next round of monitoring will be scheduled for March 2022.

Energy Efficiency

6.2.15 BAT 6. In order to increase energy efficiency, BAT is to use technique a and an appropriate combination of the common techniques listed in technique a [in the table below BAT 6].

6.2.16 An energy efficiency plan will be included within the EMS. This will include defining and calculating the specific energy consumption of the activity (or activities), setting key performance indicators on an annual basis (for example for the specific energy consumption) and planning periodic improvement targets and related actions. The plan will be adapted to the specificities of the installation (BAT 6a).

6.2.17 A discussion of KPIs for the site is at paragraph 3.2, these include the improvement of the efficient use of energy. Energy efficiency is discussed in detail in paragraph 3.3. A number of initiatives have been implemented which are considered to contribute to the site complying with BAT. These include: the use of solar energy from panels installed on the kegging building roof; the use of LED lighting in numerous buildings; motion sensor lighting in the fermentation building.

[3] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32015L2193&from=EN

Water consumption and waste water discharge

6.2.18 BAT 7. In order to reduce water consumption and the volume of waste water discharged, BAT is to use BAT 7a and one or a combination of the techniques b to k given [in the table below BAT 7].

6.2.19 BAT 7a is to recycle and / or reuse water streams (preceded or not by water treatment), e.g. for cleaning, washing, cooling or for the process itself.

6.2.20 This is undertaken in a number of processes on the site as described below.

6.2.21 Clean in Place (CIP) processes within kegging, bottling, vinegar and press are designed with water minimisation in mind, this is done by reusing final rinse water as initial flush water where possible. All pumps on the system are interlocked and controlled via PLC (BAT 7h).

6.2.22 The aseptic juice CIP process cannot reuse final rinse water owing to quality reasons.

6.2.23 Within fermentation cleans are manually completed using mobile pumps and venturi chemical dosing systems, volumes of water are controlled via flowmeter and chemical dosing controlled via use of single size containers. This cleaning process is to be upgraded with the installation of the new process building and a fixed CIP system with water reuse.

6.2.24 Boiler feedwater is minimised by use of returned condensate to the boiler hotwell for use as boiler make up water. This provides both energy and water savings.

6.2.25 Fridge plant units are sealed package units designed to operate as a closed system, there are no cooling towers with loss of water through evaporation.

6.2.26 The Site currently achieves a water ratio / hl of product of around 2.0hl/hl. This is inclusive of water used as an ingredient which can be calculated separately via recipe information.

6.2.27 Only process effluent and run off from process areas is directed to the effluent treatment plant. Clean run off from roofs is discharged directly to surface water at the locations listed in Table 4-1 of the environmental risk assessment in Appendix C (BAT 7d).

6.2.28 Cleaning of equipment is undertaken as soon as possible in order to minimise the amount of water required for effective cleaning (BAT 7k).

Harmful Substances

6.2.29 BAT 8. In order to prevent or reduce the use of harmful substances, e.g. in cleaning and disinfection, BAT is to use one or a combination of the techniques given [in the table below BAT 8].

6.2.30 All chemical usage on site is monitored on at least a weekly basis and any significant variances investigated.

6.2.31 Chemical use within certain process activities is controlled by use of conductivity probes to ensure optimum dosing rates are maintained, this provides benefits both to ensuring chemical cleans are effective and in minimising chemical use within the clean. Additionally, caustic is recovered within the CIP process to minimise losses to drain (BAT 8b).

Resource Efficiency

6.2.32 BAT 9. In order to increase resource efficiency, BAT is to use one or a combination of the techniques given [in the table below BAT 9].

6.2.33 Waste handling is discussed in paragraphs 4.12.1 to 4.12.7. Waste is segregated at source and recycled or disposed of appropriately.

6.2.34 During the appropriate season biological sludge is tankered off site and used in landspreading. When this is not possible this sludge is tankered off site for appropriate recovery via a sewerage treatment works.

Emissions to Water

6.2.35 BAT 10. In order to prevent uncontrolled emissions to water, BAT is to provide an appropriate buffer storage capacity for waste water.

6.2.36 The effluent treatment plant is described in detail in paragraph 4.11 above. This includes a 300m^3 balancing tank which is expected to provide in excess of 12 hours balancing time and with the divert system the plant should be better protected from shock loads in event of product loss.

6.2.37 BAT 11. In order to reduce emissions to water, BAT is to use an appropriate combination of the techniques given [in the table below BAT 11].

6.2.38 The effluent treatment plant is described in detail in paragraph 4.11. This included physical separation of solids using a drum screen (BAT 11c) and a Membrane Biological Reactor (MBR) and aeration tanks (BAT 11d).

Noise

6.2.39 BAT 12. In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to set up, implement and regularly review a noise management plan, as part of the environmental management system (see BAT 1), that includes all of the [elements stated below BAT 12]

6.2.40 This BAT is only applicable to cases where noise nuisance at sensitive receptors is expected and / or has been substantiated. Given the rural location of the site it is not anticipated that any receptors will be significantly affected by noise from the site and a noise management plan is not considered necessary. The site has a long operating history and has not had any previous issues with noise due to routine operation. If any issues become apparent, or if complaints are received then this will be reviewed.

6.2.41 A noise assessment has been carried out and concluded that there are no significant issues with noise from the site at local receptors.

6.2.42 BAT 13. In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to use one or a combination of the techniques given [in the table below BAT 13].

6.2.43 Consideration has been given to the location of plant and buildings with regard to noise and to appropriate operational measures. A noise assessment has been conducted and given the rural location of the site no additional noise reducing measures are considered necessary in order to comply with BAT.

Odour

6.2.44 BAT 14. In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1). This BAT is only applicable where an odour nuisance at sensitive receptors is expected and / or has been substantiated.

6.2.45 Given the rural location of the site and the long operating history it is not expected that any receptors will be significantly affected by odour from the site. An odour management plan is not considered necessary.

6.3 BAT Conclusions for the fruit and vegetable sector

Energy Efficiency

6.3.1 BAT 26 relates to deep freezing of fruit and vegetable and is not considered relevant to the site or this operation.

Water consumption and waste water discharge

6.3.2 The parameters provided in addition to the general BAT relate to specific sectors which are not relevant to this site or operation.

6.4 BAT Conclusions for soft drinks and nectar / juice made from processed fruit and vegetables

Energy Efficiency

6.4.1 BAT 32. In order to increase energy efficiency, BAT is to use an appropriate combination of the techniques specified in BAT 6 and of the techniques given [in the table below BAT 32].

6.4.2 Upon completion of the new building a tank will be installed in order to receive and store sugar in liquid form. See paragraph 4.2.5 above.

6.5 Additional considerations in EPR 6.10

6.5.1 The majority of the issues covered by EPR 6.10 are also covered in the draft BREF and have been considered above. It is not considered necessary to consider each element within EPR 6.10 where these have also been addressed by the draft BREF.

6.5.2 Accident management is included within EPR 6.10 and not considered by the draft BREF it is therefore considered here.

Accident Management

6.5.3 An accident management plan is discussed at paragraph 5.5. This will be reviewed and updated once the new plant is in place. The relevant elements of the indicative BAT provided in section 1.1 of EPR6.10 will be considered when this accident management plan is being updated to ensure it complies with BAT.

GLOSSARY

AMP	Accident Management Plan
BAT	Best Available Techniques
BREF	BAT Reference Document
CCTV	Closed Circuit Television
CIP	Clean In Place
COD	Chemical Oxygen Demand
EA	Environment Agency
EHS	Environment, Health and Safety
EMS	Environmental Management System
EPR	Environmental Permitting Regulations (England and Wales) 2016 as amended
ERA	Environmental Risk Assessment
ETP	Effluent Treatment Plant
FLT	Fork Lift Truck
HMI	Human Machine Interface
HR	Human Resources
IBC	Intermediate Bulk Container
IED	Industrial Emissions Directive
KPI	Key Performance Indicator
LDPE	Low Density Polyethylene
MBR	Membrane Bioreactor
MCERTS	EA's Monitoring Certification Scheme
MLSS	Mixed Liquor Suspended Solids
MWth	Mega Watt Thermal
PLC	Programmable Logic Controller
ROPP	Roll on Pilfer Proof
SAC	Special Area of Conservation
SDS	Safety Data Sheet
SPA	Special Protection Area
SPTP	Small Package Treatment Plant
SSSI	Site of Special Scientific Interest
TDS	Total Dissolved Solids
WEEE	Waste Electrical and Electronic Equipment

Appendix A

Application Forms

Appendix B

Site Plans

Appendix C

Environmental Risk Assessment

Appendix D

Site Condition Report

Appendix E

Raw Materials

Appendix F

Staff Training Matrix

Appendix G

Air Emissions Monitoring Report

Appendix H

Tank Volumes

Appendix I

Refrigerant Gases

Appendix J

Waste Streams

Appendix K

Safety Data Sheets

Appendix L

IED Baseline Report

Appendix M

Directors' Dates of Birth