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Application For an Environmental Permit

LAURENS PATISSERIES, JESSOP WAY, NEWARK, NG24 2ER

PERMIT REFERENCE: KP3332GH

Application For an Environmental Permit

Laurens Patisseries, Jessop Way, Newark, NG24 2ER

Client:

LAURENS

	Author:
Name	Tom Cullingford
Signature	
Position	Senior Consultant

	Checked by:
Name	Steve Power
Signature	
Position	Associate Director

	Approved by:
Name	Steve Power
Signature	
Position	Associate Director

Reference:	E10162.R.1.1.3.TC.SP.AT
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Issued by: Waterman Environmental
Belgrave House
47 Bank Street
Sheffield S1 2DR

Telephone: 0114 229 8900
Fax: 0114 220 8901
environmental@waterman-group.co.uk
www.waterman-group.co.uk/we

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2A NON-TECHNICAL SUMMARY

Laurens operate a cake and dessert manufacturing plant with associated onsite effluent treatment at their existing facility located at Jessop Way, Newark, NG24 2ER. The company produce a variety of products mainly for supermarket customers. Products include deserts and cream cakes. Cream is a significant raw material in the vast majority of products, which along with the effluent treatment plant, obligates the company to apply for an environmental permit under the following schedule references of Schedule 1 to the Environmental Permitting Regulations 2007:

- Section 6.8 A(1)(d)(i) *to treat and process materials intended for the production of food products from animal raw materials (other than milk) at a plant with a finished product production capacity of more than 75 tonnes per day*; and
- Section 5.3 A(1)(c)(ii) *disposal of non-hazardous waste in a facility with a capacity of more than 50 tonnes per day by physico-chemical treatment, not being treatment specified in any paragraph other than paragraph D9 in Annex IIA to the Waste Framework Directive, which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D12 in that Annex (for example, evaporation, drying, calcination, etc) (D9).*

The company produce a number of products and depending on the requirements of a wide-ranging client base using flexible production process that may be continuous or batch. Production follows the route as specified in the process flow diagram in Figure 1 and can be broken down into three sections:

- Stage one - raw materials are weighed and mixed to a specific recipe. This mixture is then sent to a dedicated process line where it is formed into individual components and undergoes a form of heat treatment; either baking, frying or boiling.

- Stage two - the individual components are decorated and filled, with for example, cream, jam, custard and/or chocolate before being chilled in nitrogen tunnels and being individually packaged into customers' own branded packaging.
- Stage three - once packed into customers' own branded packaging the components are prepared for distribution by: being packed into outer packaging; palletised; and transferred to chillers, prior to transportation to customers.

Effluent generated by cleaning the plant and equipment and is sent to the dissolved air flotation effluent treatment plant (ETP). The effluent is dosed with coagulant and caustic; flocculated sludge removed from the effluent and sent offsite for land spreading. Treated effluent is tested for pH, suspended solids and COD to ensure it meets the requirements of the facilities discharge consent, prior to being discharged to foul sewer for further offsite treatment at Crankley Point Wastewater Treatment Works (WwTW).

Abatement for health and safety purposes is fitted to the weighing stations to remove dust from the internal atmosphere. Three nitrogen tanks store nitrogen to chill the components. Details of all plant and equipment where there is a potential to impact on surface, groundwater and land contamination have been detailed in the site condition report in appendix C. Two gas fired boilers provided steam for the process, and gas fired ovens provide heat locally to the process lines.

An Accident Management Plan and fugitive emissions management plan have been developed for the site in accordance with Sector Guidance Note IPPC S6.10 *Guidance for the Food and Drink Sector*, Issue 1, August 2003. Odour and noise are not anticipated to be significant issues at the site and as such these have been considered but comprehensive management plans have not been developed.

There are a limited number of hazardous raw materials stored onsite, either as flavours in the products, or for ancillary functions such as effluent treatment and detergents for cleaning. Raw materials and details of their location and hazardous properties are provided in section 5E as well as details on water use, water efficient techniques and a breakdown of water consumption across the site. Towns water is supplied for use onsite, with main uses being approximately 65% for cleaning process, and 15% as a raw material in the product.

Point source emissions to atmosphere, water and sewer are listed. There are no emissions to land within the installation. There are a number of emission points to atmosphere, releasing products of combustion (NOX, CO and CO_2) from two steam generating boilers rated at 2.2MW each, and a number of gas fired burners in baking ovens. Emissions are not considered significant and do not warrant further assessment. Emissions to water are not assessed as these release surface water runoff only. An H1 assessment of emissions to sewer has been conducted using data provided by Laurens; it is concluded that of emissions of the substances assessed (suspended solids) are insignificant.

The site is not subject to an environmental impact assessment. The company have a CCLA and a copy of the underlying agreement with DEFRA is provided in appendix E. The company use grid electricity and natural gas from an interruptible mains supply. No energy is generated onsite, or exported offsite. Details

on energy consumption, a breakdown of energy use across the site and basic energy efficiency techniques employed at the site to minimise energy consumption is provided in section 9.

Waste at the site is segregated and the majority of waste streams are re-used or recycled. These include effluent sludge, which is spread on land, packaging waste, which is recycled and food waste, which is used as animal feed. Records will be kept of the quantity, nature and destination of all waste produced. Waste will only be disposed of via appropriately licensed contractors.

Maps showing the site location, installation layout, drainage plan and location of sensitive receptors are in appendix A. An assessment of the installation against BAT requirements of the sector guidance is given in appendix B.

2B PROPOSED INSTALLATION ACTIVITIES

Table 1. Installations and Waste Facilities

Installation Ref. No.	Installation Schedule 1 Ref.	Description of the activity	Description of directly associated activities	Description of the waste facility
	Section 6.8 A(1)(d)(i) Treating and processing materials intended for the production of food products from animal raw materials (other than milk) at a plant with a finished product production capacity of more than 75 tonnes per day.	Production of bakery and dessert products containing cream.	Steam generation	N/A
			Raw materials storage and handling	
			Chilling	
			Finished Product Storage	
	Section 5.3 A(1)(c)(ii) Disposal of non-hazardous waste in a facility with a capacity of more than 50 tonnes per day by physico-chemical treatment, not being treatment specified in any paragraph other than paragraph D9 in Annex IIA to the Waste Framework Directive, which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D12 in that Annex (for example, evaporation, drying, calcination, etc) (D9).	Effluent Treatment by Dissolved Air Flotation	Chemical Storage	
			Standby Diesel Generator	

2C LOW IMPACT INSTALLATIONS

N/A

3. STANDARD FACILITIES

N/A

4. PLANNING STATUS

N/A

5. OPERATING TECHNIQUES

5A TECHNICAL STANDARDS

Table 2. Technical Standards

Schedule 1 Activity	Relevant Technical Guidance Note	Document Reference
Section 6.8 A(1)(d)(i) Treating and processing materials intended for the production of food products from animal raw materials (other than milk) at a plant with a finished product production capacity of more than 75 tonnes per day.	Sector Guidance Note IPPC S6.10 Guidance for the Food and Drink Sector Issue 1 August 2003	N/A
	Getting the Basics Right	N/A
	IPPC H1 Environmental Assessment and Appraisal of BAT. Pt1 and Pt2.	N/A

5A.1 SITE DESCRIPTION

The site is an existing installation located at National Grid Reference 481160, 354530 on Jessop Way, Newark and occupies an area of approximately 8 acres. The property comprises a main unit and external facilities. The main production area is divided into a number of discrete areas depending on the activity taking place. These are: the bakery area; the high risk area; the outer packaging area; the finished product chiller area; and storage locations. The main production unit also includes kitchens, a laboratory, an engineering workshop and offices. Production lines within the installation are located within four bays. The site has expanded in line with the business over time. Each bay represents a period of business expansion, bay 4 being the most recently constructed.

External facilities include loading bays, waste storage areas, a boiler house, pump house, effluent treatment plant (ETP), one electricity substation, two water storage tanks, three flour silos, two bulk tanks containing edible oil, and car parks.

The installation covers the entirety of the site excluding car parking areas. A site location plan is presented as Figure 1 and an installation boundary in Figure 2 in appendix A.

The site is bounded by a dyke to the northwest while further to the northwest there is a small industrial unit and food manufacturers. A unit recycling tyres is located to the immediate southwest, while further to the south there is a hazardous waste transfer station. A brewery distribution centre is located to the southeast of the site while a warehouse and call centre occupied by Vodafone bound the site to the northeast.

5A.2 PROCESS OVERVIEW

The site is involved in the manufacture of cream cakes and desserts, mainly for supermarket customers. There is also an associated onsite effluent treatment plant installed within the installation. Cream is a significant raw material in all products, which along with the effluent treatment plant, obligates the company to apply for an environmental permit under the schedule references given in table 1 above.

Laurens have a wide product range. Consequently there are a number of different processes, plant and equipment installed and used, depending on the product being manufactured. This description does not intend to cover each product, or to specify exact locations of plant and equipment as currently installed, but rather to give an overview of the range of products manufactured at the installation and the technologies in use. It is impractical to describe plant layout in detail and product range as this can vary considerably due a number of factors including: customers heavily promoting or discounting certain products; seasonal variations in product demand; and the ever changing nature of consumer demand in general, driven by various factors such as dietary issues, price and fashion.

The process description will therefore describe a typical production line. Specific recipes and operational procedures for each product have been produced by the company and are available for inspection upon request; likewise, a detailed asset register of all plant and equipment exists on site and is available for inspection on request. The required flexibility of the processing lines does not fundamentally alter the potential for environmental effect as the overall risk to the environment is considered to be low and the plant configured in such a way as to minimise and manage energy flows, raw materials, waste and effluent.

Excluding materials delivery, storage and transfer the production typically follows three stages, each stage equating to product transfer through the installation from low risk to high risk to a further low risk area. The distinction between low and high risk being based on the potential for microbial contamination of the product. A summary of each stage is given below:

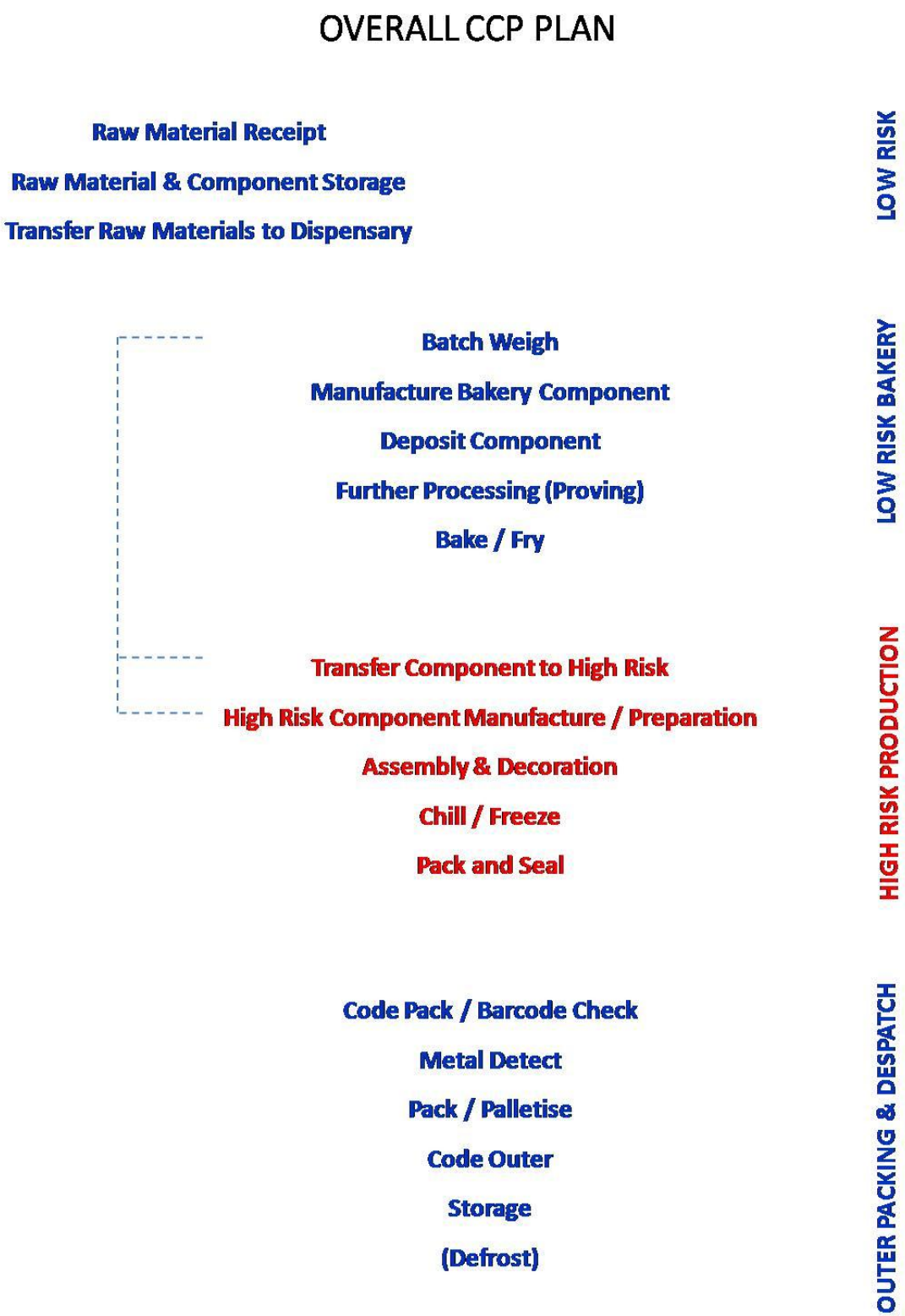
- Stage one occurs in the low risk area. Raw materials are weighed and mixed to a specific recipe. This mixture is then sent to a dedicated process line where it undergoes a form of heat treatment; either baking or frying. It is due to the subsequent heat treatment that this stage is classified as low risk. The product is then transferred to the high risk area for stage two.
- In stage two the product is decorated and filled, with for example, cream, jam, custard and/or chocolate before being chilled in nitrogen tunnels and being individually packaged into customers' branded packaging. This is classified as a high risk process because the products are exposed to the factory conditions without further treatment.

- Stage three - once packed into customers' branded packaging these products leave the high risk area and are prepared for distribution by: being packed into outer packaging; palletised; and transferred to chillers, prior to transportation to customers.

The majority of production lines are batch continuous. Due to operator experience and the site's expansion over a number of years, it is known which lines are the most efficient in terms of output, ingredient usage, manpower and time, and production is planned so that the most efficient processes are used preferentially.

A process flow diagram for a typical process route for Laurens' Products is shown in Figure 1, followed by an explanation of each stage within the PFD.

Figure 1. Process Flow Block Diagram



Raw Material Receipt, Storage and Transfer (Low Risk)

Raw materials are delivered to site either in bulk, IBCs or smaller containers up to 25kg in weight. The bulk raw materials (flour and cooking oil), are stored externally. Details of these storage tanks are given in table 3 below. Further details on the nature of containment of raw materials, and of storage of ancillary raw materials is provided in the site condition report in appendix C.

Table 3. Ingredient Storage Tanks within the Installation

Tank and Substance	Capacity (t)	Safety Features
Flour Silo 1	25	Reverse jet enclosed system with three explosion covers and pressure release valves
Flour Silo 2	25	Reverse jet enclosed system with 1 explosion cover and pressure release valve
Flour Silo 3	30	Open vented air jet
Oil Tank 1	30	Self bunded
Oil Tank 2	30	Self bunded

All other raw materials are stored internally. Liquid raw materials including egg and cream are delivered in IBCs. Non bulk raw materials are delivered in IBCs, 25kg bags, containers or similar packaging. Where possible, raw materials are delivered in pelletised form to minimise the potential for fugitive dust emissions.

All deliveries of raw materials are strictly controlled through procedure B4.4F Inspection of Raw Materials. This includes checks for appearance; odour; contamination and any potential damage to the integrity of the container that could result in an uncontrolled release. Upon receipt, raw materials are also inspected to ensure they are suitable for use. This includes packaging. Any out of specification raw material would be rejected in line with the Procedure B4.11a Isolation Procedure, and returned to the supplier/disposed of as waste.

Raw materials are stored according to their nature and the process in which they will be used. Non-bulk raw materials are delivered to a storage area adjacent to the appropriate area/line. This minimises double handling of raw materials and subsequently, the potential for spillages.

Consideration is also given to the potential for the raw material to deteriorate. For example, raw material stocks are rotated and best before codes monitored to ensure waste is minimised from out-of-specification stock.

Hazardous raw materials such as flavourings and colours are used within the installation. These are stored in designated and clearly labelled areas and in small individual containers, typically 5 litres, to reduce the impact of any loss of containment. The company assess all

new raw materials for potential risk to the product and process food safety, as documented in procedure 4.4d Approval of New Raw Materials. This includes an environmental assessment to review environmentally benign alternatives and potential impact to the environment upon release and whether additional control procedures would be required. Details on the nature of raw materials are given in section 5E.

Packaging for the final product is also received and stored onsite. Packaging is treated as a raw material as it comes in direct contact with the products.

Production Stages

Stage 1: Low Risk Bakery

Batch Weigh

The first stage of manufacture is the weighing and mixing of raw materials. Where bulk flour is used, it is delivered from silos directly to mixing units via overground, enclosed delivery lines. In this instance, delivery and weighing is controlled by a Programmable Logic Controller (PLC) unit, which accurately measures and doses the flour into the mixing units. This minimises manual handling and transportation of raw materials. In addition, delivering flour in bulk reduces the amount of packaging waste generated.

Non-bulk powdered raw materials are delivered from the adjacent storage areas through sieves to one of the weighing stations. Here, raw materials are manually weighed out. Extraction for health and safety purposes is located in the weighing stations.

Manufacture Bakery Component

Following weighing, the powdered raw materials are mixed with other ingredients in the bakery area in automated mixing units. Mixing parameters are PLC-controlled to ensure optimum mixing time and quality, thereby minimising energy consumption.

Deposit Component

The mixture is then transferred to a specific process line for further production. Transfer may be conducted manually or be automated as part of a continual integrated process.

The resultant mix is then formed into individual components either manually, or more commonly through a continuous automated plant.

Further Processing (Proving)

Yeast raised doughs are proved either as part of a continuous process or batch continuous. There are three proving ovens, two electrical and one gas-fired which is fitted with exhausts that emit products of combustion. The provers are fitted with PLCs to ensure the products are held at the optimal temperature for the optimal time.

Bake / Fry

Components are heat treated (baked) in rack or travelling ovens or fryers; continuous production on the travelling ovens is favoured due to the higher rate of production and greater control achieved. Components are baked in the ovens at a pre-determined speed and temperature to obtain a uniform product.

All provers and baking ovens are maintained under a computerised maintenance system. The ovens have stacks which exhaust products of combustion to atmosphere (as listed in table 11 and shown in figure 6 in appendix A). In addition, all ovens are alarmed for burning out and overheating. All burners are regularly serviced by an external contractor to ensure optimum combustion efficiency. The fryers have extraction via filters, which exhaust to atmosphere (as listed in table 11 and shown in figure 6 in appendix A). The fryers are temperature controlled via a PLC and the components are transferred by a moving bed conveyor through the heated oil.

This marks the end of stage 1 of the process.

Stage 2: High Risk

Transfer Component to High Risk

The baked/heated products are transferred via conveyor to the high risk area. The products are first allowed to cool either by passing them through enclosed refrigerated plant or by being allowed to stand within the high risk area.

High Risk Component Manufacture / Preparation

Cream and other fillings such as custard, chocolate and jam are added to the components in the high risk area. Some fillings may require preparation prior to being added to the component for example blending and aeration of ingredients. This activity occurs in designated locations within the high risk production area. The amount of filling required is dictated by the product and the order volume. The raw materials are weighed out and delivered to the point of use as required.

Assembly and Decoration

Prepared fillings are added to the bakery components or assembled either manually, or via an automated process. Fillings added via the automated process are delivered via pipework. The IBCs containing components are connected up to pipework, forming the distribution systems at the storage location.

Chill / Freeze

After filling or decoration the components go through nitrogen tunnels on conveyors in order to chill or freeze them. Nitrogen gas is supplied at temperatures at -196^{o}C from one of three

nitrogen tanks located externally. Each of the nitrogen tunnels is provided with a stack (as listed in table 11 and shown in figure 6 in appendix A) to exhaust nitrogen gas to atmosphere. The nitrogen tunnels and associated tanks and delivery pipework are owned by BOC Gases who are also responsible for their maintenance. The nitrogen system is alarmed and PLC controlled.

Pack and Seal

The components are subsequently placed into customer's retail packaging and transferred by conveyor to the low risk area. This marks the end of stage two of the process.

Stage 3: Low Risk

Outer Packaging and Despatch

Finished and packed cakes are then packed in outer packaging (cardboard boxes), palletised and stored in the despatch chiller, prior to despatch to the client. During busy periods the company may also bring temporary storage facilities onto site for additional storage.

This marks the end of the permitted process.

Directly Associated Activities

Boiler House

Laurens supply steam to steam jackets within the process area via two gas-fired boilers with a rated thermal input of 2.2MW each. There is no standby fuel for the boilers, which run on a duty-standby set up. The boilers are maintained by external contractors who are responsible for regular servicing and ensuring optimum combustion efficiency of the units. Each boiler is fitted with a stack for release of combustion products to atmosphere (as listed in table 11 and shown in figure 6 in appendix A).

Water supplied to the boilers is treated by B&V for oxygen and hardness. The water treatment unit is located within the boiler house and regularly serviced by external contractors. Associated chemicals for the water treatment unit and boiler servicing are housed internally on hardstanding and are appropriately bunded.

Chillers

Due to the nature of the process, the majority of the internal processing areas are refrigerated. Air curtains and roller doors are in place to minimise energy loss from heat ingress to these areas. All refrigeration and air conditioning equipment is regularly serviced by external contractors to ensure efficient operation of the plant and to inspect for refrigerant leakage.

Laurens maintain an inventory of refrigeration and air conditioning units held onsite and the quantity and type of refrigerant within each unit. The refrigeration contractor provides Laurens

with an inventory of refrigerants supplied, used, reclaimed and lost. The company operate to the Group policy on R22 replacement to ensure compliance with the relevant regulations.

Effluent Treatment Plant

The effluent treatment plant (ETP) is a dissolved air flotation (DAF) unit. The plant has a treatment capacity of 650m^3 and has recently been expanded with a new tank fitted to replace a previously smaller volume tank of 200m^3.

The ETP receives all effluent from internal drains within the process areas. This mainly comprises wash water from the Cleaning in Place systems (CIP), general washing and plant and equipment washing.

The first stage of the effluent plant is to screen out large solid waste that has entered the system. This is removed and sent to skip; from here it is sent to landfill. Screened effluent is then pumped into the storage tank until treated.

The storage tank is continually aerated to help mix the effluent. Prior to the DAF clarification unit, caustic and coagulant are dosed to the effluent stream. Coagulant is diluted with water in a separate mixing tank prior to addition. Caustic and coagulant are stored in self bunded 4m^3 tanks. Dosing is automatically controlled by a pH probe.

The mix of additives and untreated effluent is referred to as primary flock. The primary flock is then sent to the saturator unit where it is injected with air. The aerated primary flock is then passed to the DAF clarification unit for separation. The flocculent binds the solid waste in the effluent, which gets pushed over into the DAF unit, where air separates and pushes this sludge to the top of the tank. A scraper at the tank's surface pushes the sludge into the scum transfer tank. Transfer pumps transfer the sludge to the sludge holding tank. Transfer is controlled automatically by high and low level probes in the scum transfer tank. Sludge is removed periodically by tanker from the sludge storage tank. The liquid fraction of the effluent weirs over the DAF unit and runs to foul sewer.

In the event of a power failure to the ETP, a backup diesel generator is in place to provide electrical power. The generator is housed within the generator station adjacent to the ETP. A self bunded oil storage tank of approximately 1.3m^3 is also housed in this area. The effluent plant, generator and diesel tank are all located on suitable hardstanding.

Only trained operators are permitted to operate the effluent plant.

Clean In Place (CIP) Systems and Detergent Usage

There are two CIP systems, each serving specific plant in each half of the factory. The CIP systems allow the company to clean internal areas of process lines without the need for dismantling. This ensures that cleaning is faster and reduces exposure to hazardous cleaning

chemicals. It also ensures that cleaning is more efficient by minimising the amount of cleaning chemical and water is used.

Other cleaning is conducted manually. Equipment such as mixing bowls and trays are cleaned in hygiene areas located throughout the installation and floors are periodically washed. Cleaning is undertaken in line with specific procedures HP001-HP087, which detail the type of chemical, dilution ratio and cleaning frequency. This ensures maximum efficiency in terms of chemical and water usage.

Effluent runs to the effluent treatment plant for treatment.

Detergent is stored externally in a number of tanks ranging from 5-7m^3 Details of detergents are given in section 5E, raw materials and storage details are given in the site condition report in appendix C.

Waste Storage

Waste is segregated at source and transferred to external areas for storage in one of a number of skips and compactors. Waste is removed from site for either disposal or recovery depending on its nature. A waste storage area has been built in the external area to house waste skips to prevent ingress from rainwater. Details of waste streams and disposal routes is given in section 9, and storage details are given in the site condition report in appendix C.

Site Drainage

The company have recently reviewed site drainage and an up to date drainage plan has been produced, which is included in appendix A. All drains within internal areas run to the effluent treatment plant prior to discharge to sewer in line with the company's consent from the sewerage undertaker, labelled S1 on figure 6 in appendix A.

Drains in external areas transfer rainwater runoff to a dyke via one of four interceptors. The dyke runs between the western boundary of the site and Brunel Drive. The dyke and the interceptors are inspected by visual check on a regular basis as part of the planned preventative maintenance program.

There is also a release of domestic effluent directly to foul sewer.

5A.3 ENVIRONMENTAL MANAGEMENT SYSTEM

The company already operate effective quality and food hygiene management systems. Laurens understand that an effective system of management is a key technique for ensuring that all appropriate pollution prevention and control techniques are delivered reliably and on an integrated basis. Therefore, the operator is implementing an environmental management system (EMS) which will meet the requirements of International Standard BS EN ISO 14001.

Any requirements of the environmental permit will be incorporated into the emerging EMS to ensure that permit operation is an integral part of environmental management at the site.

The EMS will provide a formal, documented system of managing environmental issues at the site ensuring that appropriate pollution prevention and control techniques are delivered in a coherent and structured manner. Through it, the company will identify the potential significant aspects of the installation and wider site and implement control measures to minimise any potential impact from normal, as well as abnormal operating scenarios and emergency situations. The aim to continually improve will be achieved through setting challenging but achievable objectives and targets. These will be quantifiable where possible allowing measurable goals for improving environmental performance. Improvements will be identified with reference to the technical guidance applicable to the site (see table 2) and reporting and reviewing requirements specified in the permit.

The company will periodically review the system to ensure it remains relevant to company activities; reviews will also be held in the event of a significant business or operational change. Regular meetings will also be held to review day to day operation of the EMS, as well as an annual review of achievements against objectives and targets. This information will be fed to senior management.

The company has assessed potential accident and fugitive release scenarios for the installation, and this, along with the company's aspects register, which details potential abnormal and emergency scenarios, has formed the basis of the company's approach to identifying any potential environmental or health and safety issues from the installation. Laurens will act upon the findings and implement appropriate measures to minimise potential environmental incidents.

The company already have operating procedures in place to control the normal running of the installation. These procedures include start up, shut downs and contingency plans as well as operations under normal conditions.

The company have also implemented a planned, preventative maintenance procedure to minimise the potential for an environmental incident through equipment failure or breakdown. Maintenance will be carried out in house wherever possible although suitably qualified external contractors will carry out any maintenance of equipment that requires specific qualifications not held by Laurens maintenance staff.

In the event of a non-compliance, incident or near miss, to company will follow set procedures, with the objective of identifying the root cause of an issue and implementing appropriate corrective action. Foreseeable environmental scenarios are restricted to small scale spills and leaks, which are covered by the company's Spill Procedure. Large scale releases and other emergency situations are covered by the company's Emergency

Response Procedure. The Emergency Response Procedure assesses the risk and hazard posed by a number of potential situations and identifies the appropriate action to take in the event of such an incident. Staff are trained in these procedures and the procedures are reviewed periodically to ensure continued effectiveness in the event of an incident.

A number of preventative measures are in place to minimise the likelihood of such an incident including: incompatible materials not being stored in close contact with each other; having high integrity primary and secondary containment onsite; and ensuring deliveries are supervised by trained personnel.

Security at the site will be appropriate to the nature and scale of a potential incident. As the company operate 24 hours per day, 7 days per week, trained staff will be onsite at all times. Two metre high palisade fencing is in place around the external border of the installation and gates will be manned at all times with all deliveries being supervised.

A complaints procedure is in place and all complaints are investigated and corrective action implemented where appropriate. Laurens have not received any recent complaints from the public in relation to environmental issues.

The EMS, in conjunction with the current training system in place, will be used to promote environmental awareness across the company. Roles and responsibilities will be defined within the EMS and the training needs of all relevant staff and contractors will be assessed in relation to the installation. Training will be reviewed regularly as part of the company's effective operation of its management systems.

The EP OPRA spreadsheet submitted as part of this application illustrates how the site will respond to specific requirements for management techniques.

5B GENERAL REQUIREMENTS

Table 4. General Requirements

Installation or Waste Facility Reference	
Confirm that you have an Accident Management Plan that meets the requirements set out in our guidance document 'how to comply'.	See Section 5B.1
Where the technical guidance note or H1 assessment shows that fugitive releases are an important issue, include a fugitive management plan.	See Section 5B.2
Where the technical guidance note or H1 assessment indicates that odours are an important issue, include an odour management plan.	See Section 5B.2
Where the technical guidance note or H1 assessment shows that noise or vibration are important issues, include a noise and/or vibration management plan.	See Section 5B.2

The information in the following sections should be read in conjunction with the BAT requirements document provided in Appendix B.

5B1: ACCIDENT MANAGEMENT PLAN

Table 5. Accident Management Plan

Hazard	Receptor	Pathway	Consequence	Measures to Manage Risk		Probability of exposure	Severity of Accident	Overall Risk
				Procedural	Engineered			
Transfer of substances (e.g. filling or emptying vessels)	Surface water/ sewer	Drainage system/ direct runoff	Contamination of local water course	Operating Procedures / Delivery Procedures / Planned Preventative Maintenance Program (PPM) / Spill Procedure	Drain covers and spill kits/ Bunded tanks/ Impervious hardstanding/ Interceptors on surface water drainage system/ Automated control system with manual override/	Somewhat unlikely	Limited	Medium
Overfilling of vessels	Surface water/ sewer	Drainage system/ direct runoff	Contamination of local water course	Operating Procedures / Delivery Procedures / PPM/ Spill Procedure	Drain covers and spill kits/ Bunded tanks/ Impervious hardstanding/ Interceptors on surface water drainage system. Automated control system with manual override/	Unlikely	Limited	Low
Emissions from plant or equipment (eg. leakage from joints, over-pressurisation of vessels, blocked drains)	Surface water/ sewer	Drainage system/ direct runoff	Contamination of local water course	PPM	Drain covers and spill kits/ Bunded tanks/ Impervious hardstanding/ Overflow on tanks/ Interceptors on surface water drainage system/ Automated sensors	Somewhat unlikely	Minor	Low

Failure of containment	Surface water/ sewer	Drainage system/ direct runoff	Contamination of local water course	PPM	Drain covers and spill kits/ Impervious hardstanding/ Interceptors on surface water drainage system	Unlikely	Limited	Low
Wrong connection made in drains or other systems	Surface water/ sewer	Drainage system/ direct runoff	Contamination of local water course	Operating Procedures / PPM	Interceptors on surface water drainage system	Somewhat unlikely	Limited	Low
Incompatible substances allowed to come into contact	Air / surface water/ sewer	Direct to atmosphere/ drainage system/ direct runoff	Deterioration of local air quality / Contamination of local water course	Operating Procedures/ Storage Procedure/ Majority of raw materials and products are non reactive and non hazardous in nature	Drain covers and spill kits/ Impervious hardstanding/ Interceptors on surface water drainage system/ Sprinkler System	Very Unlikely	Sustained	Low
Spillage during tanker loading/offloading	Surface water/ sewer	Drainage system/ direct runoff	Contamination of local water course	Operating Procedures / Delivery Procedures / Spill Procedure/ PPM	Drain covers and spill kits/ Bunded tanks/ Impervious hardstanding/ Interceptors on surface water drainage system	Somewhat unlikely	Limited	Medium
Spillage during process additions	Surface water/ sewer	Drainage system/ direct runoff	Contamination of local water course	Operating Procedures/ Spill Procedure	Drain covers and spill kits/ Impervious hardstanding/ Interceptors on surface water drainage system	Somewhat unlikely	Minor	Low
Release of effluent prior to adequate checking of its composition	Sewer	Drainage system	Contamination of local water course	ETP Operating Procedure	Not applicable	Unlikely	Limited	Low

Unexpected or runaway reaction	Air/ surface water/ sewer/ human	Direct to atmosphere	Deterioration of local air quality / Contamination of local water course/ human health impact	Operating Procedures/ Majority of raw materials and products are non reactive and non hazardous in nature/ Emergency procedure	Drain covers and spill kits/ Interceptors on surface water drainage system/ Sprinkler System	Very Unlikely	Sustained	Low
Over-pressurisation of vessels	Air/ surface water/ sewer	Direct to atmosphere/ drainage system/ direct runoff	Deterioration of local air quality / Contamination of local water course	Operating Procedures / Delivery Procedures / PPM	Drain covers and spill kits/ Bunded tanks/ Impervious hardstanding/ Interceptors on surface water drainage system/ Pressure switches; safety relief valves installed.	Unlikely	Limited	Low
Power failure	Air/ surface water/ sewer	Direct to atmosphere/ drainage system/ direct runoff	Deterioration of local air quality / Contamination of local water course	Emergency Procedure	Effluent Treatment Plant has back-up diesel generator in case of power failure.	Very Unlikely	Limited	Low
Failure of cooling system	Air / surface water / sewer	Direct to atmosphere/ drainage system/ direct runoff	Deterioration of local air quality / global warming potential / Contamination of local water course	PPM	Drain covers and spill kits/ Interceptors on surface water drainage system/ Refrigerant leakage detection equipment installed	Unlikely	Minor	Low

Steam failure	Air / surface water / sewer	Direct to atmosphere/ drainage system/ direct runoff	Deterioration of local air quality / Contamination of local water course	PPM	Backup boiler/ Steam traps on steam line	Unlikely	Minor	Low
Fire	Air/ humans	Direct to atmosphere	Deterioration of local air quality/ human health impact	Emergency Procedure	Fire sprinkler system in place/ Smoking in designated areas only.	Somewhat unlikely	Sustained	Medium
Failure to contain fire water	Surface water/ sewer	Drainage system/ direct runoff	Contamination of local water course	Emergency Procedure	Depression in loading bay acts as natural firewater containment/ Effluent plant provides additional storage	Very Unlikely	Sustained	Low
Vandalism	Air/ surface water/ sewer/ humans	Direct to atmosphere/ drainage system/ direct runoff	Deterioration of local air quality/ Contamination of local water course/ human health impact	Procedure for admission of visitors to the site.	Security onsite/ Fencing in place.	Unlikely	Sustained	Medium
Spillage during reclaim product transfer	Surface water/ sewer	Drainage system/ direct runoff	Contamination of local water course	Operating Procedures/ Spill Procedure	Drain covers and spill kits/ Interceptors on surface water	Unlikely	Minor	Low
Ensure that gross FOG does not block drains.	Surface water/ sewer	drainage system/ direct runoff	Contamination of local water course	Operating Procedures / PPM	Catch baskets in sensitive drains.	Unlikely	Minor	Low

Interlock chemical dosing pumps with cleaning operations in order to prevent continued dosing after cessation of cleaning.	Surface water/ sewer	drainage system/ direct runoff	Contamination of local water course	Operating Procedures / PPM/	Automated control system with manual override/	Unlikely	Limited	Low
Collision of delivery vehicles	Surface water/ sewer	drainage system/ direct runoff	Contamination of local water course	Operating Procedures / Spill Procedure	Drain covers and spill kits/ Interceptors on surface water	Unlikely	Limited	Low
Adequate effluent buffer storage to prevent spills reaching the ETP or controlled water	Surface water/ sewer	drainage system/ direct runoff	Contamination of local water course	Operating Procedures / PPM/	Drain covers and spill kits/ Bunded area/ Impervious hardstanding/ Interceptors on surface water drainage system	Unlikely	Limited	Low
Effluent Treatment Plant Risks								
Leakage of effluent from internal pipework.	Surface water/ sewer	drainage system/ direct runoff	Contamination of local water course	Spill Procedure/ PPM	Drain covers and spill kits/ Bunded area/ Impervious hardstanding/ Interceptors on surface water drainage system	Unlikely	Limited	Low
Pump failure	Surface water/ sewer	drainage system/ direct runoff	Contamination of local water course	ETP procedures/ PPM	Standby pumps/ balance tank. Extra effluent storage tank	Unlikely	Limited	Low
ETP dosing system failure – pH imbalance	Sewer	drainage system	Contamination of sewer	ETP procedures/ PPM	Automated control system with manual override/	Unlikely	Limited	Low

Table 6A. Probability of Exposure:

Score -Description	Description
5 - Probable	Occurs regularly and no control mechanism in place
4 - Fairly Probable	Has occurred in the past and no control mechanism in place
3 - Somewhat Unlikely	Has occurred in the past but control measures implemented to minimise re-occurrence
2 - Unlikely	No known occurrence and potential risk only from an abnormal situation
1 - Very Unlikely	No known occurrence and potential risk only from emergency situation

Table 6B. Severity of Accident:

Score	Description of Severity
5	Sustained or severe on a regional or national level
4	Sustained or severe on a localised level
3	Limited, or can be remediated
2	No significant impact but contributes to a wider environmental problem
1	No discernable impact

Table 6B. Overall Risk

Severity					
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5
	1	2	3	4	5

Probability

Risk Key: Low =1-5; Medium = 6-10; High = 12-25

Accidents – Supporting Information

The assessment above forms the accident management plan (AMP) as required under the Environmental Permitting process. Each accident scenario is assessed against the criteria in tables 6A and 6B and from the outcome given a risk score as shown in table 6C. Based on the risk rating, it is considered that:

- Current business as usual approach is considered acceptable for any accident scored 0-6
- Adequate control mechanisms and/or detailed Accident Management Plans should be in place for all incidents scoring 8 –10
- Those incidents scoring 12 or above are unacceptable and must be subject to an improvement plan.

“Accidents” in this context means incidents or abnormal operating situations that could lead to increased emissions/pollution event. This AMP will remain a live document to be reviewed periodically or following an incident (whichever is sooner) to ensure that it remains relevant to the company’s operations.

The prevention and control of such accident scenarios is detailed in the table, in the column on measures to manage risks. These include both managerial/operational procedures and engineered measures, together ensuring that operations within the installation are intrinsically safe.

The prevention and control measures will be implemented through the company’s developing EMS. This will ensure that there is a robust system in place to identify, assess and minimise the environmental risks and hazards associated with environmental accidents on an ongoing basis.

In the unlikely event of a serious environmental incident, the consequences are addressed through the operation of the formalised emergency procedures. The procedures detail actions to follow in the event of a number of emergency situations including fire/explosion, nitrogen tank failure, bulk chemical spillage and flooding.

Through the EMS, staff will be trained to recognise and report any potential environmental accidents, which will then be acted upon by competent personnel within the company in line with the incident/emergency plan.

Those accidents of a lower risk rating not requiring specific accident management plans to be developed also have planned actions that would be implemented if the event described were to occur. This demonstrates how all reasonably foreseeable emergency/accident scenarios are effectively managed at the site to prevent pollution or manage releases should they occur.

Specific Measures to Minimise Accidents

Planned Preventative Maintenance

All assets whose operation could have an environmental impact are included on the Planned Preventative Maintenance System. Each asset is inspected as required i.e.; weekly, monthly or annually, to agreed worksheets for each asset. Inspections look for issues such as general damage to equipment, leaks, loose fittings or connections, excessive heat or noise emissions and oil levels. These inspections and any work are then documented onto the formalised system.

The system includes both current and outstanding worksheets and this procedure is closely monitored, enabling the company to ensure all worksheets are returned and maintenance is kept up to date.

Spill Response Procedure

In the event of a spill, the spill procedure will be implanted. Personnel trained in spill response will be alerted. These personnel assess the nature of the spill and will deal with the spill in the most appropriate manner depending on the nature of the spill. This could either be to send the spill to the foul drain for treatment in the effluent treatment plant, or to dispose of the spill as waste. Spill kits located at strategic locations throughout the site.

Operating Procedures

Operating procedures have been developed to ensure that all staff are trained in the use of plant and equipment relevant to their responsibilities. These procedures minimise raw material and energy wastage as well as the potential for accidental spillages to occur through mishandling or poor operation of such equipment.

Delivery Procedure

Deliveries are supervised in line with specific delivery procedures. Only personnel trained in the delivery procedure are authorised to supervise a delivery. The procedure minimises a number of potential accident scenarios such as unloading a raw material to the wrong tank, poor connection to tanks, or a spillage occurring during unloading or handling.

Effluent Treatment Plant

The effluent treatment plant is only operated by trained and competent personnel.

5B2 FUGITIVE EMISSIONS

With the exception of nitrogen and small amounts of losses of refrigerants, no raw materials are likely to be released fugitively to atmosphere. Release of nitrogen per se is not considered environmentally hazardous although fugitive releases are undesirable for financial reasons and the indirect emissions from increased production requiring energy consumption. The nitrogen tanks are maintained by a BOC Gases, a specialist contractor and supplier. The refrigeration units are maintained by external specialist contractors and are serviced on a regular basis. The company maintain a register of refrigerants supplied, used, reclaimed and lost in order to track refrigerant usage and minimise wastage. The cooling and refrigeration infrastructure is subject to a detailed inspection and Planned Preventative Maintenance (PPM) that seeks to identify and minimise the potential for fugitive losses. This is considered BAT for controlling fugitive emissions to air. Potential fugitive emissions to air and an appropriate management plan is detailed in table B3.2.

Fugitive emissions to surface water, groundwater, or sewer are not routine and could only occur as a result of spillages onto the hard standing (which may then run or be washed into watercourses) or from gradual releases from sumps and associated drains. An up to date drainage plan is included in appendix A. This shows that there are no surface water drains in the factory area and that surface water drains connect to interceptors prior to release. Therefore direct emissions to controlled waters or groundwater is unlikely. Furthermore, all pipework for the transfer of raw materials is above ground. All bulk storage tanks are bunded and tertiary containment in the form of high integrity hardstanding is provided to all tanks, external and internal areas.

Potential for fugitive emissions are reviewed on a daily basis through on-going site observations and through more systematic inspections as part of the planned preventative maintenance procedure, which includes tanks, pipework, bunding and site surfacing.

A spillage procedure is in place and spill kits are available and are used for minor spills. More significant spills are dealt with through the emergency response procedures. Work instructions are in place to reduce the potential for emissions as far as is reasonably practicable. Potential fugitive emissions to water and land and an appropriate management plan is detailed in table B3.2.

Odour releases from the installation are not considered a significant issue. The products are susceptible to tainting from odorous substances and therefore the company inspect raw materials and other substances being brought onto site for any potential odour. Furthermore, the installation is located in an industrial area with no residential receptors close by. No complaints have been received at the site to date regarding odour. Potential odorous fugitive emissions and an appropriate management plan is detailed in table B3.3.

All plant and equipment with the potential to generate noise emissions are housed within existing structures. The diesel generators are only used as a backup and will function infrequently. Deliveries are restricted due to capacity onsite. To date, no noise complaints have been received at the site.

The installation is located in an industrial area with no residential receptors close by. No complaints have been received at the site to date regarding noise. Potential fugitive noise emissions and an appropriate management plan is detailed in the tables overleaf.

Table 7. Fugitive Emissions Risk Assessment and Management Plan

Hazard	Receptor	Pathway	Consequence	Measures to Manage Risk	Probability of exposure	Severity	Overall Risk
To Air							
Flour during unloading or use	Humans working on site	Air	Atmospheric pollution	Operating Procedures Delivery Procedures Planned Preventative Maintenance Program (PPM) Drain covers and spill kits Interceptors on surface water drainage system Safety devices installed on silos Flour is only used internally.	Very Unlikely	Limited	Low
Refrigerant gases from refrigeration units and air conditioning	Humans working on site; stratospheric ozone layer; global impacts from contribution to global warming	Air	Atmospheric pollution	Planned Maintenance conducted by trained contractors Regular visual inspections	Somewhat Unlikely	No significant impact but contributes to a wider environmental problem.	Low
To water / Land							
Spills during unloading/transfer of raw materials	Controlled water / sewer	Drainage system / direct runoff	Contamination of local watercourse/ groundwater	Operating Procedures Delivery Procedures Planned Preventative Maintenance Program (PPM) Drain covers and spill kits Secondary and tertiary containment in place Liquid products mainly used internally.	Somewhat Unlikely	Limited	Medium

Hazard	Receptor	Pathway	Consequence	Measures to Manage Risk	Probability of exposure	Severity	Overall Risk
Leakage from tanks, vessels and bunds	Controlled water / sewer	Drainage system / direct runoff	Contamination of local watercourse/ groundwater	Planned Preventative Maintenance Program (PPM) Secondary and tertiary containment in place	Somewhat Unlikely	Limited	Low
Leakage from Drainage system	Controlled water / sewer	Drainage system / direct runoff	Contamination of local watercourse/ groundwater	Planned Preventative Maintenance Program (PPM) Secondary and tertiary containment in place	Somewhat Unlikely	Limited	Medium
Leakage / spills from effluent treatment plant	Controlled water / sewer	Drainage system / direct runoff	Contamination of local watercourse/ groundwater	Operating Procedures Planned Preventative Maintenance Program (PPM) Secondary and tertiary containment in place	Unlikely	Limited	Medium

Table 8. Odour Risk Assessment and Management Plan

Hazard	Receptor	Pathway	Consequence	Measures to Manage Risk	Probability of exposure	Severity	Overall Risk
Leakage of ammonia (R717) used as a refrigerant	Humans working on site and surrounding workplaces	Air	Nuisance	Ammonia not currently used as a refrigerant Planned Maintenance conducted by trained contractors Regular visual inspections	Extremely Unlikely	No significant impact but contributes to a wider environmental problem.	Low
Use of odorous raw materials	Humans working on site and surrounding workplaces	Air	Nuisance	Odorous materials are not permitted onsite to prevent tainting of product. In accordance with procedures, all deliveries are checked for odours.	Extremely Unlikely	No significant impact but contributes to a wider environmental problem.	Low

Hazard	Receptor	Pathway	Consequence	Measures to Manage Risk	Probability of exposure	Severity	Overall Risk
Odours generated from production processes	Humans working on site and surrounding workplaces	Air	Nuisance	As above. In addition, PPM programme ensures suitable operation of all plant and equipment to prevent odours.	Extremely Unlikely	No significant impact but contributes to a wider environmental problem.	Low

Table 9. Noise Risk Assessment and Management Plan

Hazard	Receptor	Pathway	Consequence	Measures to Manage Risk	Probability of exposure	Severity	Overall Risk
Deliveries	Onsite and neighbouring employees	Air	Nuisance	Scheduling of deliveries	Very Unlikely	Limited	Low
Diesel Generator			Nuisance	Housing	Very Unlikely	Limited	Low

5C INFORMATION FOR SPECIFIC SECTORS

Laurens do not fall under one of the categories listed in table 4 of application form B and are therefore not required to answer the sector specific questions detailed in the appendices of application form B.

5D TYPES AND AMOUNTS OF WASTE

The Laurens installation does not accept waste and is therefore not required to complete section 5d of application form B. Details of waste generated from the installation and the method of disposal or recovery is detailed in section 9F.

5E TYPES OF RAW MATERIALS

Table 10. Types and amounts of raw materials

Schedule 1 Activity	Material	Function	Maximum amount (t)	Annual Throughput (t/yr)	Storage Location(s)	Storage Environment(s)	Haz Code
Section 6.8 A(1)(d)(i) Treating and processing materials intended for the production of food products from animal raw materials (other than milk) at a plant with a finished product production capacity of more than 75 tonnes per day.	Alcohol	Ingredient	1.225	23.4	Old Cream Chiller	Ambient and held in locked room (Old Cream Chiller)	H3A
	Caramel	Ingredient	3.0125	63.7	Bakery Stores & New Stores	Ambient	
	Chocolate	Ingredient	53.88	1824.6	Bakery Stores & New Stores	Ambient	
	Colours	Ingredient	1.538	11.1	Bakery Stores	Ambient	
	Concentrate	Ingredient	7.301	47.1	Main Chiller	Chilled	
	Cream	Ingredient	48.157	10938.7	Cream Chillers & Main Chiller	Chilled	
	Custard	Ingredient	40.14	3884.4	Main Chiller	Chilled	
	Egg	Ingredient	24.22	4116.3	Egg Chillers	Chilled	
	Emulsifiers/ Stabilisers	Ingredient	5.118	127.7	Bakery Stores, Fat Chiller & Mezzanine	Ambient & Chilled	
	Fats & Oils	Ingredient	73.863	2855.9	Bakery Stores, Fat Chiller, Main Chiller & Silos A & B	Ambient & Chilled	
	Flavours	Ingredient	3.905	24.1	Bakery Stores, Main Chiller & Yellow Cabinets	Ambient & Chilled. Held in flame proof cabinets & main chiller	H3B

Schedule 1 Activity	Material	Function	Maximum amount (t)	Annual Throughput (t/yr)	Storage Location(s)	Storage Environment(s)	Haz Code
	Flours	Ingredient	79.816	5954.2	Bakery Stores & Silos 1, 2 & 3	Ambient	
	Frozen Fruit	Ingredient	395.81	1084.2	Freezer & Offsite storage	Frozen	
	Fruit	Ingredient	70.371	351	Bakery Stores, Outside storage, Freezer, Main Chiller & New Stores	Ambient, Chilled & Frozen	
	Ice	Ingredient	19.502	182	Freezer & Offsite storage	Frozen	
	Jam	Ingredient	26.854	1227.3	New Store	Ambient	
	Milk	Ingredient	19.525	1583.4	Bakery Stores & Main Chiller	Ambient & Chilled	
	Mousse	Ingredient	11.63	252.2	Main Chiller	Chilled	
	Powders	Ingredient	23.895	471.5	Bakery Stores & Mezzanine	Ambient	
	Raising Agent	Ingredient	4.025	96.2	Bakery Stores	Ambient	
	Releasing Agent	Ingredient	2.946	109.2	Bakery Stores	Ambient	
	Salt	Ingredient	1.05	23.4	Bakery Stores	Ambient	
	Spices	Ingredient	0.95	8.4	Bakery Stores	Ambient	
	Starch	Ingredient	5.9	124.8	Bakery Stores	Ambient	
	Sugars	Ingredient	92.3	4920.5	Bakery Stores, Bay 4 Stores & New Store	Ambient	
	Yeast	Ingredient	3.744	182.0	Bakery Chiller	Chilled	
	Detergent	Cleaning	25000	310000	Self bund tank	Ambient	H8, H4

Schedule 1 Activity	Material	Function	Maximum amount (t)	Annual Throughput (t/yr)	Storage Location(s)	Storage Environment(s)	Haz Code
					Secure storage		
	Disinfectant	Cleaning	8000	75000	Self bund tank Secure storage	Ambient	H4, H8
	Misc.	Cleaning		400	Secure storage	Ambient	H4
Section 5.3 A(1)(c)(ii) Disposal of non-hazardous waste in a facility with a capacity of more than 50 tonnes per day by physico-chemical treatment, not being treatment specified in any paragraph other than paragraph D9 in Annex IIA to the Waste Framework Directive, which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D12 in that Annex (for example, evaporation, drying, calcination, etc) (D9).	Caustic	Effluent Treatment	4000	137000	Self bund tank Secure storage	Ambient	H8
	Coagulant	Effluent Treatment	4000	77000	Self bund tank Secure storage	Ambient	H4
	Flocculant	Effluent Treatment	50	300	Secure storage	Ambient	H4

Raw materials and packaging used in production are specified by the customer. The properties of each material are taken into account in selecting the storage and containment facilities. There are a limited number of hazardous materials stored within the installation. These are the chemicals required for the effluent treatment plant and flavours and additives used in production. The receipt, handling, and storage of all raw materials is controlled by procedures within the company's management system and additional training documents. This demonstrates that Laurens have made every effort to prevent emissions to the environment from raw material usage in line with BAT.

Water will be supplied from the towns water network and will be used: as a raw material in the process; for cleaning processes; domestic services; and cooling purposes. There are three water meters onsite, which are read to a schedule by the engineering department. This gives the company a good understanding of water usage onsite for analysing where potential efficiency savings could be made.

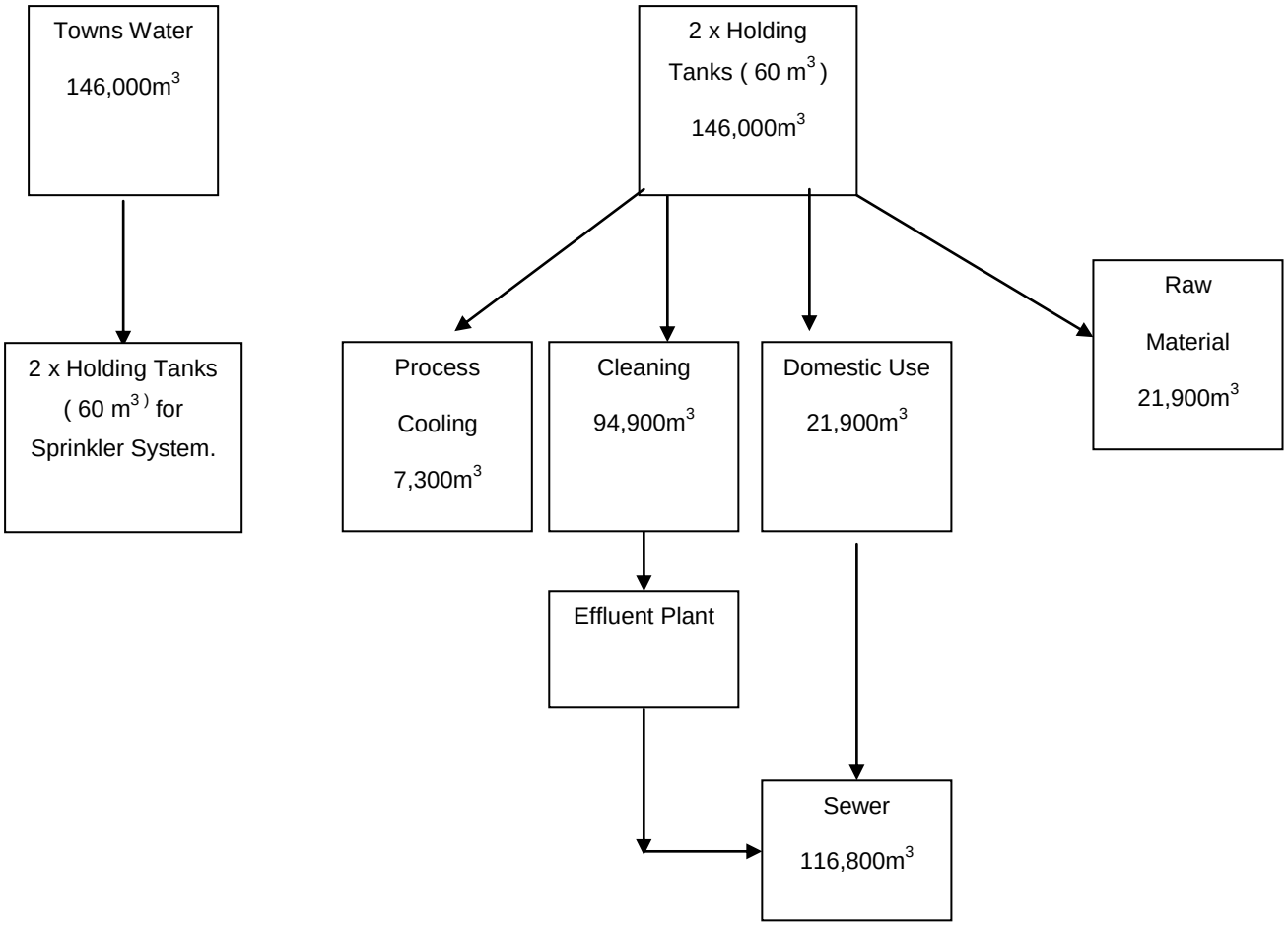
To this end, based on 2008 figures, the company estimate that annual water consumption is approximately 146,000m^3 with approximately 65% used in the cleaning processes, 15% for domestic use, 5% for cooling in the production process and the remaining 15% as raw material in the product, as shown in Figure 2.

A number of water efficient processes are in place in order to minimise water consumption:

- Two Clean in Place (CIP) systems are installed to minimise water used during cleaning on suitable lines; vacuuming, scraping or mopping is used in preference to hosing down;
- wash water (or recycled water) is re-used where practicable;
- cooling water for mixers is re-used;
- trigger controls on fitted to all hoses, and washing equipment;
- steam condensate is returned to the header tank in the boiler house for recycling; and
- two underground storage tanks that collect rainwater from the roof drainage system for domestic usage.

Whilst the company have considered recycling water back into products this is not considered feasible or hygienic for food safety reasons.

Figure 2. Water Flow Diagram



6. EMISSIONS TO AIR, WATER AND LAND

Point source emissions to atmosphere from the process are limited to products of combustion (NOx, CO, CO_2) from the gas fired boilers and ovens. There is also dust (flour) extraction for health and safety purposes. There is one point source emission to sewer (S1) from the process, from the effluent treatment plant. There are six point source emissions to surface water (W1-6), from the surface water drainage system. Four of these releases are via interceptors, whilst two (W3 and W4) are straight to dyke. All releases are only for surface water runoff and do not result in process water or other effluent being released to surface water. The two releases that discharge straight to the dyke, without an interceptor in place are both from areas of the site where no raw material or product handling occurs.

There are no emissions to land.

An emissions inventory is given in Table 11, which sets out all point sources of emissions to air, water, sewer and land from the installation. Figure 6 in Appendix A illustrates the location of emissions points identified at the plant.

The two installed boilers are rated at 2.2MW thermal input. The boilers are operated on a duty standby-basis, with only one in operation at any one time. The most recent boiler maintenance reports were reviewed but no information relating to emissions concentrations was included on the report. Therefore emissions from the boilers cannot be assessed at this time. From the company's assessment of energy consumption onsite, the boilers are responsible for only 10% of energy (kWh) demand. The company use external contractors to ensure all gas burners including the boilers are regularly maintained. The contractors ensure the burners are operating optimally and ensure maximum combustion efficiency, thereby minimising gas consumption and emissions to atmosphere. Point source emissions to atmosphere from the process are not considered significant and have not been monitored or further assessed.

The values given in Table 11 below for emissions to sewer are actual monthly monitoring results as supplied to the sewerage undertaker.

Table 11. Emissions Inventory

Installation Reference:		**KP3332GH**			
Point Source Emissions to Air					
Emission Point Ref. and Location	**Parameter**	**Amount**	**Unit**	**Mass Emission in kg/year**	**Source**
A1	NOx, CO, CO_2	Not Monitored	N/A	N/A	Boiler House
A2	NOx, CO, CO_2	Not Monitored	N/A	N/A	Boiler House
A3	NOx, CO, CO_2	Not Monitored	N/A	N/A	Double D Proving Oven
A4	NOx, CO, CO_2	Not Monitored	N/A	N/A	Canopy Fan Rack Oven 6
A5	NOx, CO, CO_2	Not Monitored	N/A	N/A	Burner Rack Oven 6
A6	NOx, CO, CO_2	Not Monitored	N/A	N/A	Canopy Fan Rack Oven 7
A7	NOx, CO, CO_2	Not Monitored	N/A	N/A	Burner Rack Oven 7
A8	NOx, CO, CO_2	Not Monitored	N/A	N/A	Dampener Rack Oven 7
A9	NOx, CO, CO_2	Not Monitored	N/A	N/A	Dampener Rack Oven 6
A10	NOx, CO, CO_2	Not Monitored	N/A	N/A	Canopy Extract Cool Room
A11	NOx, CO, CO_2	Not Monitored	N/A	N/A	Double D Rack Oven 4
A12	NOx, CO, CO_2	Not Monitored	N/A	N/A	Double D Rack Oven 5
A13	N_2	Not Monitored	N/A	N/A	Line 3 Nitrogen tunnel
A14	N_2	Not Monitored	N/A	N/A	Line 2 Nitrogen tunnel
A15	NOx, CO, CO_2	Not Monitored	N/A	N/A	Dust Extract (Rheons)
A16	NOx, CO, CO_2	Not Monitored	N/A	N/A	Fume D D Rack Oven 8
A17	NOx, CO, CO_2	Not Monitored	N/A	N/A	Canopy Fan Rack Oven 8
A18	NOx, CO, CO_2	Not Monitored	N/A	N/A	Dampener Rack Oven 8
A19	NOx, CO, CO_2	Not Monitored	N/A	N/A	Canopy Fan Rack Oven 9
A20	NOx, CO, CO_2	Not Monitored	N/A	N/A	Dampener Rack Oven 9
A21	NOx, CO, CO_2	Not Monitored	N/A	N/A	Fume D D Rack Oven 9
A22	NOx, CO, CO_2	Not Monitored	N/A	N/A	Canopy Extract Cool Room
A23	NOx, CO, CO_2	Not Monitored	N/A	N/A	Canopy Extract Cool Room
A24	NOx, CO, CO_2	Not Monitored	N/A	N/A	Double D Rack Oven 3
A25	NOx, CO, CO_2	Not Monitored	N/A	N/A	Extract DD No 1–5 Bakery

A26	NOx, CO, CO2	Not Monitored	N/A	N/A	Dampener DD No 1–5
A27	NOx, CO, CO2	Not Monitored	N/A	N/A	Double D Rack Oven 1
A28	NOx, CO, CO2	Not Monitored	N/A	N/A	Double D Rack Oven 2
A29	NOx, CO, CO2	Not Monitored	N/A	N/A	Cool Room Extract DD 1-5
A30	N2	Not Monitored	N/A	N/A	Line 4 Nitrogen tunnel
A31	N2	Not Monitored	N/A	N/A	Line 5 Nitrogen tunnel
A32	N2	Not Monitored	N/A	N/A	Line 6 Nitrogen tunnel
A33	NOx, CO, CO2	Not Monitored	N/A	N/A	DFE Sponge Oven
A34	NOx, CO, CO2	Not Monitored	N/A	N/A	DFE Laminator
A35	NOx, CO, CO2	Not Monitored	N/A	N/A	DFE Laminator
A36	NOx, CO, CO2	Not Monitored	N/A	N/A	DFE Laminator
A37	NOx, CO, CO2	Not Monitored	N/A	N/A	DFE Laminator
A38	NOx, CO, CO2	Not Monitored	N/A	N/A	DFE Laminator
A39	NOx, CO, CO2	Not Monitored	N/A	N/A	DFE Sponge Oven Bay 2
A40	NOx, CO, CO2	Not Monitored	N/A	N/A	DFE Sponge Oven Bay 2
A41	N2	Not Monitored	N/A	N/A	Line 7 Nitrogen tunnel
A42	N2	Not Monitored	N/A	N/A	Line 8 Nitrogen tunnel
A43	N2	Not Monitored	N/A	N/A	Line 9 Nitrogen tunnel
A44	N2	Not Monitored	N/A	N/A	Line 10 Nitrogen tunnel
A45	NOx, CO, CO2	Not Monitored	N/A	N/A	Fryer Bay 2
A46	NOx, CO, CO2	Not Monitored	N/A	N/A	Fryer Bay 2
A47	NOx, CO, CO2	Not Monitored	N/A	N/A	Fryer Bay 2
A48	NOx, CO, CO2	Not Monitored	N/A	N/A	Egg Custard
A49	NOx, CO, CO2	Not Monitored	N/A	N/A	Egg Custard
A50	NOx, CO, CO2	Not Monitored	N/A	N/A	Egg Custard
A51	NOx, CO, CO2	Not Monitored	N/A	N/A	Imaforni 1
A52	NOx, CO, CO2	Not Monitored	N/A	N/A	Imaforni 1
A53	NOx, CO, CO2	Not Monitored	N/A	N/A	Imaforni 1
A54	NOx, CO, CO2	Not Monitored	N/A	N/A	Imaforni 2
A55	NOx, CO, CO2	Not Monitored	N/A	N/A	Imaforni 2
A56	NOx, CO, CO2	Not Monitored	N/A	N/A	Imaforni 2
A57	N2	Not Monitored	N/A	N/A	Line 12 Nitrogen tunnel
A58	N2	Not Monitored	N/A	N/A	Line 13 Nitrogen tunnel
A59	N2	Not Monitored	N/A	N/A	Line 14 Nitrogen tunnel
A60	N2	Not Monitored	N/A	N/A	Line 15 Nitrogen tunnel

A61	N2	Not Monitored	N/A	N/A	Line 16 Nitrogen tunnel
A62	NOx, CO, CO2	Not Monitored	N/A	N/A	Fryer Bay 3
A63	NOx, CO, CO2	Not Monitored	N/A	N/A	Fryer Bay 3
A64	NOx, CO, CO2	Not Monitored	N/A	N/A	Fryer Bay 3
A65	N2	Not Monitored	N/A	N/A	Imaforni Bay 4
A66	N2	Not Monitored	N/A	N/A	Imaforni Bay 4
A67	N2	Not Monitored	N/A	N/A	Imaforni Bay 4
A68	NOx, CO, CO2	Not Monitored	N/A	N/A	Den Boer Sponge Oven
A69	NOx, CO, CO2	Not Monitored	N/A	N/A	Den Boer Sponge Oven
A70	NOx, CO, CO2	Not Monitored	N/A	N/A	Den Boer Sponge Oven
A71	NOx, CO, CO2	Not Monitored	N/A	N/A	Den Boer Sponge Oven
A72	NOx, CO, CO2	Not Monitored	N/A	N/A	Rademaker Oven
A73	NOx, CO, CO2	Not Monitored	N/A	N/A	Rademaker Oven
A74	NOx, CO, CO2	Not Monitored	N/A	N/A	Andrews Water Heater 1
A75	NOx, CO, CO2	Not Monitored	N/A	N/A	Andrews Water Heater 2
A76	NOx, CO, CO2	Not Monitored	N/A	N/A	Washroom Boiler Bay 4
A77	NOx, CO, CO2	Not Monitored	N/A	N/A	Washroom Boiler Bay 4
A78	NOx, CO, CO2	Not Monitored	N/A	N/A	Office Heating
A79	NOx, CO, CO2	Not Monitored	N/A	N/A	Office Heating
A80	NOx, SOx, CO, CO2	Not Monitored	N/A	N/A	Back-up generator for sprinkler
A81	NOx, SOx, CO, CO2	Not Monitored	N/A	N/A	Back-up generator for sprinkler

Point Source Emissions to water (other than sewer)

Emission Point Ref. and Location	**Parameter**	**Amount** N/A	**Unit**	**Mass Emission in kg/year**	**Source**
W1	N/A	Not Monitored	N/A	N/A	Surface water run-off via interceptor
W2	N/A	Not Monitored	N/A	N/A	Surface water run-off via interceptor
W3	N/A	Not Monitored	N/A	N/A	Surface water runoff
W4	N/A	Not Monitored	N/A	N/A	Surface water runoff
W5	N/A	Not Monitored	N/A	N/A	Surface water run-off via interceptor
W6	N/A	Not Monitored	N/A	N/A	Surface water run-off via interceptor

Point Source Emissions to sewer, effluent treatment plants or other transfers off-site					
Emission Point Ref. and Location	**Parameter**	**Amount (mean) Mg/l**	**Unit**	**Mass Emission in kg/year**	**Source**
S1	COD	4530	mg/l	1,074,359*	Rinsing down and cleaning of plant; boiler blowdown; runoff
S1	Total Suspended Solids	324	mg/l	76,876*	

Point Source Emissions to Land				
Emission Point Ref. and Location	**Parameter**	**Amount**	**Unit**	**Source**
N/A				

*ESTIMATED QUANTITY BASED ON MAX. FLOW CAPACITY OF 650M3 PER DAY AND ACTUAL AVERAGE MONTHLY EMISSIONS RESULTS FOR 2008 PROVIDED BY LAURENS

7. MONITORING

7A. DESCRIBE THE MEASURES USED FOR MONITORING EMISSIONS REFERRING TO EACH POINT IN TABLE 7 ABOVE

No sample monitoring is undertaken for emissions to atmosphere. None are considered significant. It is proposed to continue the existing regime with regard to refrigerants, whereby the company maintain records of all refrigerants supplied used, reclaimed and lost, on an annual basis as provided by the refrigerant contractor.

Carbon dioxide emissions from combustion processes, namely the gas-fired boilers, ovens and electricity consumption, are measured indirectly through energy consumption data collected for participation in the climate change levy. It is not proposed to monitor emissions of other products of combustion from the installation, namely carbon monoxide and NOx from the gas fired boilers and ovens. It is deemed sufficient that the burners are serviced regularly on a maintenance contract, which ensures the burners are operating at the optimal efficiency for the process.

No sample monitoring is undertaken or proposed for emissions to controlled water as releases from these points consist solely of surface water runoff. No process effluent or other contaminant is deliberately discharged to controlled waters from the installation. Interceptors and the releases to the dyke are inspected on a daily basis and regularly as part of the PPM.

Releases to sewer are monitored for COD, suspended solids and pH. Monitoring is conducted regularly by the site and monthly sampling undertaken by the sewerage undertaker. The monitoring date shows that the company are significantly below the limit imposed in the company's discharge consent; there have been no incidences in the past 12 months where the company have breached the consent. It is therefore proposed to continue monitoring effluent in line with the company's trade effluent consent. This is in agreement with communication received from the company's compliance officer (see appendix D).

No further emissions monitoring is proposed.

7B. ASSESSMENT OF SAMPLING LOCATIONS USING M1

It is not proposed to monitor any point source emissions to atmosphere. Therefore no assessment is required.

8. ENVIRONMENTAL RISK ASSESSMENT

8.1 INTRODUCTION

The following section addresses the potential impact of the installation on the surrounding area as a result of its emissions.

8.2 LOCATION OF SENSITIVE RECEPTORS

In order to assess the impact of the installation on the surrounding environment, sensitive human and ecological receptors were identified. Human receptors were identified using a local knowledge of the area and appropriate web based searches. In particular, dwellings, schools and hospitals were searched for. The sensitive ecological receptors were identified using the Government Website www.magic.gov.uk. Ecological receptors were screened by looking for sites designated as either a:

- site of special scientific interest (SSSI),
- special area of conservation (SAC)
- special protection area (SPA) or
- a RAMSAR site.

In identifying sensitive ecological receptors a 10km radius around the site has been considered. For human receptors, a 1km radius has been considered. The details are given in table 12 below.

Table 12. Identification of Important and Sensitive Receptors (see Maps 4 and 5 in Appendix A)

Name of Receptor (designation/distance/direction)	Nature of Receptor	Emission which may impact on the receptor and their relevant pathways
Designated Environmental Receptors within 2km of the Installation		
None		
Designated and Other Relevant Environmental Receptors between 2-10km of the Installation		
Devon Park Pastures (LNR) 2.5km south west	Riverside nature reserve	Air
Farndon Ponds (LNR) 4.4km south west	Urban fringe nature reserve	Air
Besthorpe Meadows (SSSI), 9.8km north	Two unimproved alluvial grasslands representing an extensive area of a distinctive plant community	Air
Mather Wood (SSSI), 9.9km north west	Ash-oak-maple woodland	Air
Human Receptors within 1km of the Installation		
Surrounding industrial units, adjacent to installation.	Human	Noise, Odour, Air
Dwellings 0.25km north east beginning on Brunel Drive	Human	Noise, Odour, Air
Allotments, 0.5km north	Human	Noise, Odour Air
Beacon conurbation 0.65km south, beginning on Beacon Hill Rd	Human	Noise, Odour, Air
Lover's Lane Primary School, 0.9km west	Human	Noise, Odour, Air

*Information on sensitive designated areas supplied by Multi Agency Geographical Information for the Countryside.

8.3 EMISSIONS SCREENING AND DATA

Fugitive emissions and their controls are considered separately in section 5B.2. The principal point source emissions to the environment from the installation are identified in Table 11. This section presents an assessment of the impact of these emissions on these receiving environments. As discussed, there is no monitored data available for point source emissions to atmosphere.

With the exception of the main central boiler stacks referenced within this application are small scale. As described within section 5.1 the majority of vents release of products of combustion from proving and baking ovens, (filtered) extracted air from hoods associated with fryer and exhausted nitrogen gas from the chill/freeze tunnels. These emissions are not considered significant in terms of their potential to impact on local receptors, and carbon dioxide emissions are already monitored through the company's

participation in the CCL, therefore no further assessment of point sources emissions to atmosphere will be undertaken.

Releases to sewer can be screened through the H1 assessment tool. In accordance with the company's sewerage discharge consent, the company only monitor COD and suspended solids. Data is given in table 13 below.

Table 13. Monitored Emissions Data from Severn Trent Water Analysis Reports, Jan-Dec 2008

Month	Substance	Monthly Average Results (mg/)l	t/month
January	S.S	318	6.41
	COD	4724	95.19
February	S.S	437	8.02
	COD	4633	85.07
March	S.S	252	5.08
	COD	4850	97.73
April	S.S	147	2.87
	COD	3905	76.15
May	S.S	250	5.04
	COD	4355	87.75
June	S.S	328	6.40
	COD	4715	91.94
July	S.S	298	6.00
	COD	4385	88.36
August	S.S	427	8.60
	COD	4814	97.00
September	S.S	291	5.67
	COD	4425	86.29
October	S.S	244	4.92
	COD	5675	114.35
November	S.S	444	8.66
	COD	6390	124.61
December	S.S	457	9.21
	COD	1485	29.92
Average	S.S	**324**	**6.41**
	COD	**4530**	**89.53**
Total	S.S		**76.87631**
	COD		**1074.359**
Discharge Consent Limit (mg/l)			
S.S			2250
COD			7500

As COD is not included as a listed substance within the H1 assessment tool, it cannot be screened. Suspended solids is a listed substance and is therefore screened.

All discharges to sewer go to Crankley Point WwTW, which discharges to the River Trent. From its location, the final discharge category is best classified as *R-River*. Emissions monitoring results for suspended solids were assessed against the relevant EALs for rivers given in the H1 guidance document. The H1 document revised for the environmental permitting regime (EPR - H1 Environmental Risk Assessment Part 2, version 080328) does not give an EAL for suspended solids. The previous H1 document issued under the PPC regime does provide an EAL for suspended solids for rivers designated under the Freshwater Fisheries Directive. Therefore, this EAL, of 25,000 ug/l has been used.

The river flow rate was taken from data provided by compliance officer for the installation. The flow rate was specified as 28.22m^3 at the nearest gauging station (North Muskam). This is the 95% percentile flow and will therefore provide a good indication of a worst case scenario assessment.

It is well accepted that suspended solids are attenuated in WwTWs, and in lieu of other data, the Sewage Treatment Reduction Factor (STRF) of 0.6 as given in the H1 assessment guidance document was used.

An effluent flow rate of 650m^3/day was used. This also represents a worst case scenario assessment as it is the maximum day flow rate tht will be allowed under the company's new sewerage discharge consent. This figure equates to 0.007523m^3/s.

The data input into the assessment tool if presented in Table 14.

Table 14. Input Data for the Assessment of the Impact of Emissions to Water from the Installation using the H1 Assessment Tool

Release Point	Final Discharge Category	River Flow (m^3/s)	Discharge Via Sewer	Effluent Flow Rate (m^3/s)	Species	Long Term Conc^n (mg/l)	Short Term Conc^n (mg/l)	STRF*
River Trent at Crankley Point	R	28.22	Yes	0.007523	Suspended Solids	2250	2250	0.6

The assessment tool was then run using this data. The results are presented in table 15 below. The initial aim of the H1 tool is to screen out which emissions could be judged as insignificant. The H1 Guidance document states that emissions to water may be "screened out" as insignificant where:

PC < 1% of the environmental benchmark

Table 15. Results of H1 Assessment Tool

Species	EAL_{LT} (µg/l)	EAL_{ST} (µg/l)	PC_{LT} (µg/l)	%PC of EAL_{LT}	>1% of EAL_{LT}	PC_{ST} (µg/l)	% PC of EAL_{ST}	>1% of EAL_{ST}
Suspended Solids	25,000	25,000	360	1.44	**Yes**	360	1.44	**Yes**

Discussion of Results

The H1 Assessment Tool has generated the results shown in table 15 with regard to the significance of the emissions from the installation. This is discussed with the limitations of the data in mind.

The H1 assessment shows that the emissions of suspended solids from the process are marginally not insignificant at 1.44%. This assessment represents the worst case scenario. The assessment used the current maximum limit in the company's discharge consent for suspended solids and flow rate of 2,250mg/l and 650m^3 respectively. A more realistic figure for suspended solids would have been the actual emissions given in table 13 of 324mg/l. The 95 percentile flow rate used for the River Trent also makes for a worst case scenario assessment and the maximum effluent flow rate allowed by the discharge consent from the installation was used. Furthermore, the effluent runs to Crankley Point WwTW, which is regulated to tightly control emissions of COD and suspended solids under the Urban Wastewater Treatment Directive.

Therefore, the impact of emissions on the receiving water from a process of this nature is likely to be significantly lower than that predicted by the H1 tool, and therefore no further assessment is required.

9. IPPC DIRECTIVE SITES

9A

Have your proposals been the subject of an environmental impact assessment under Council Directive 85/337/EEC of 27 June 1985 (Environmental Impact Assessment)?

The installation or factory as a whole has not been the subject of an environmental impact assessment under Directive 85/337/EEC. Therefore no environmental statement is provided.

9B

Describe the basic measures for improving how energy efficient your activities are.

Laurens use two types of imported energy. These are:

1. Interruptible Natural Gas supplied by pipeline
2. Electricity supplied from the grid

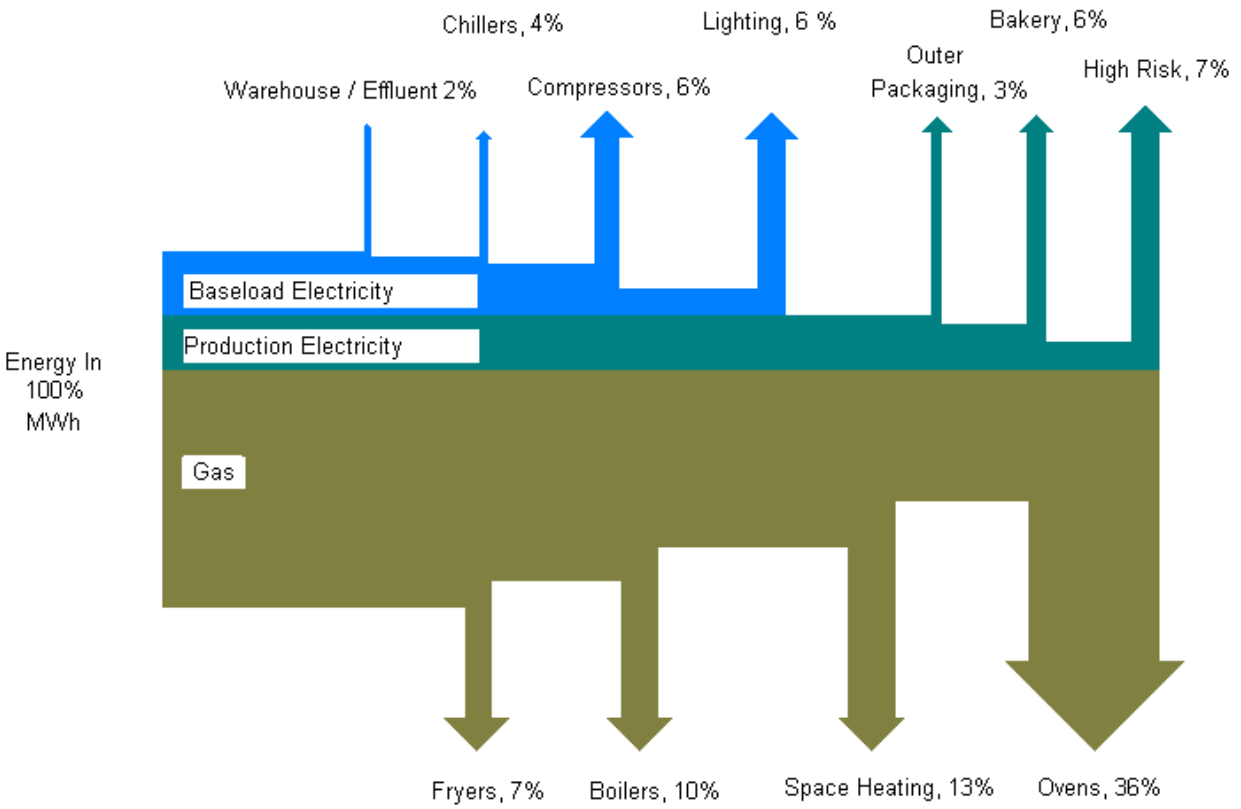
Gas is used to generate steam via two boilers of approximately 2.2MW capacity. It is also used to provide heat for baking ovens and heat for frying. Electricity is used to power production machinery such as chillers, motors, pumps and compressed air. Additional electrical consumption comes from lighting and powering computer equipment.

No energy is generated onsite or exported offsite.

Basic Energy Efficiency Measures.

The diagram below represents where energy is used within the process.

Figure 3. Sankey Diagram of Energy Use Onsite.



A number of measures are taken to maximise energy efficiency at the installation:

- Operating, maintenance and housekeeping procedures are in place for major energy users including maintenance of burners; chillers, compressors and boilers;
- A high degree of building insulation to prevent heat transfer between chilled areas and bakery areas
- Self-closing doors and staff training to ensure all staff are aware of basic energy efficiency measures
- Monitoring of energy flows to identify any further areas for improvement.

9C

Provide a breakdown of any changes to the energy your activities use up and create.

Table 16. Energy Summary for Jan-Dec 2008

Energy Source	Energy Consumption			
	Delivered, MWh	Primary, MWh	Tonnes CO_2 Eqv.	% of total
Electricity*	11,729	30,495	6,298	60
Gas	22,325	22,325	4,130	40
Total	34,054	52,820	10,428	100

**Grid Electricity*

Conversion Factors taken from the Carbon Trust website, last updated 29 September 2008. http://www.carbontrust.co.uk/resource/conversion_factors/default.htm.

- Grid electricity kWh 0.537
- Natural gas kWh 0.185

9D

Have you entered into, or will you enter into, a climate-change levy agreement? If not, describe the specific measures you use for improving your energy efficiency.

Laurens are part of a CCLA. A copy of the front sheet of the underlying agreement signed by DEFRA for the site is provided in appendix E.

9E

Explain and justify the raw and other materials, other substances and water that you will use.

Details on raw materials and water used within the installation have been described in Section 5E and table 10. The specific raw materials used are determined by the required characteristics of the end product, as specified by the supplier. Ancillary raw materials such as cleaning and effluent treatment chemicals are purchased as fit for purpose.

9F

Describe how you avoid producing waste in line with Council Directive 75/442/EEC on waste. If you produce waste, describe how you recover it. If it is technically and financially impossible to recover the waste, describe how you dispose of it while avoiding or reducing any effect it has on the environment.

The waste hierarchy of minimisation, re-use, recycling, recovery, and disposal has been part of the culture within the industry for a number of years and Laurens has a good record in this respect. The disposal route of each waste stream has been identified and is detailed in tables 17 and 18 below. For waste disposed of to landfill table 17 provides a justification for why the waste is disposed of in this manner. Recovered waste streams are detailed in table 18.

There is a strong commitment to minimise pollution arising from waste. There is a dedicated waste team onsite covering all shifts, who are actively involved in the minimisation of waste. The team monitor waste production and advise the supervisory/management team on any issues to do with waste that may arise. The waste team also undertakes project work to identify problem areas and instigate procedural changes thereby increasing efficiency/reducing waste.

Through the emerging EMS, the most environmentally appropriate disposal option for each waste will be sought and options reviewed on a regular basis. Laurens will continue, whenever practicable, to reduce waste and if this is not possible, to recover materials externally in order to minimise the amount of waste sent for disposal to landfill.

Out of specification product cannot be reworked within the factory for a number of reasons:

- The automated systems and processes prevent rework because the nature of the product changes from a material in its raw state to a baked, fried or decorated product
- The short shelf life of the products could artificially age the products
- Ingredients and their quantities are specific for each product and cannot be reworked into different products.

Therefore, the company focus on minimising waste at source and have implemented a number of systems to achieve this. Minimisation of waste product is achieved through a product traceability system. All products are colour coded and labelled with the date thereby ensuring correct product rotation. Minimising waste raw materials is achieved through the Planning Department who ensure production runs are maximised. Laurens therefore demonstrate BAT, in taking account of the general principals of Council Directive 75/442/EEC.

Table 17. Waste Disposed of to Landfill

Waste Stream	Quantity (t; m3)	Form	Hazardous	Justification
General Waste	2000 t	Solid	No	Cost / manpower to segregate.

Table 18. Waste Recovered

Waste Stream	Quantity (t; m3)	Form	Hazardous	Method of Recovery
Food Waste	3876.25 t	Solid	No	Recovered– Sold as animal feed
Paper/Cardboard	1300 t	Solid	No	Re-cycle
Plastic	0.5 t	Solid	No	Re-cycle
Oil	50 t	Liquid	No	Recovered – reprocessed by biodiesel plant
Sewage Sludge	4700t	Sludge	No	Recovered- Land spreading

APPENDICES

APPENDIX A: MAPS

MAP 1 – SITE LOCATION

MAP 2 – INSTALLATION LAYOUT

MAP 3 - DRAINAGE PLAN

MAP 4 – ECOLOGICAL RECEPTORS WITHIN 10KM OF LAURENS LTD

MAP 5 – SENSITIVE RECEPTORS WITHIN 1 KM OF LAURENS LTD

MAP 6 – EMISSION POINTS

MAP 7 – SITE ZONING

APPENDIX B : BAT DOCUMENT

APPENDIX C : SITE CONDITION REPORT

APPENDIX D: COMMUNICATION WITH ENVIRONMENT AGENCY

APPENDIX E : EVIDENCE OF CLIMATE CHANGE LEVY AGREEMENT WITH DEFRA