APPLICATION FOR AN ENVIRONMENTAL PERMIT VARIATION UNDER THE ENVIRONMENTAL PERMITTING (ENGLAND AND WALES) REGULATIONS 2016 (AS AMENDED)

ENVIRONMENTAL PERMITTING TECHNICAL REQUIREMENTS DOCUMENT

Danish Crown

DANISH CROWN UK LIMITED,
EBENEZER, BUGLE, ST AUSTELL, CORNWALL

ECL Ref: DCUK.01.01/EPTR
Version: Issue 1
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ACRONYMS/TERMS USED IN THE TEXT

AELs	Associated Emission Levels
AMP	Accident Management Plan
BAT	Best Available Techniques
BRef	Best Available Techniques Reference Document
CCA	Climate Change Agreement
CO_2	Carbon Dioxide
COD	Chemical Oxygen Demand
DAA	Directly Associated Activities
DAF	Dissolved Air Flotation
DCUK	Danish Crown UK Limited
ECL	Environmental Compliance Limited
EH&S	Environmental, Health and Safety
EMS	Environmental Management System
EP Regulations	Environmental Permitting (England and Wales) Regulations 2016 as amended
EP	Environmental Permit
EPTR	Environmental Permitting Technical Requirements
ERA	Environmental Risk Assessment
ETP	Effluent Treatment Plant
HT	Holding Tanks
IED	Industrial Emissions Directive
MSDS	Material Safety Data Sheets
O/L	Overload (tripped)
PPMR	Planned Preventative Maintenance Regime
RAS	Return Activated Sludge
SAS	Surplus Activated Sludge
SHT	Solids Holding Tank
SWW	Southwest Water
The Installation	Danish Crown Bulge Pork Manufacturing Site

1. INTRODUCTION

1.1. Overview

1.1.1. Environmental Compliance Limited ("ECL") have been commissioned by Danish Crown UK Limited ("DCUK") to prepare an Environmental Permit ("EP") (EPR/DP3631RA) variation application in relation to their pork manufacturing site, hereafter referred to as "the Installation", located at Danish Crown Bugle, Ebenezer, Bugle, St Austell, PL26 8RR.

1.1.2. The Permit variation application proposes the following:

- the addition of a new Schedule 1 Activity to capture the biological treatment as part of the on-site effluent treatment prior to discharge to S1; and
- the correction and amendment of Point Source Emission Points to Air to reflect the current arrangements at the Installation and relevant associated Directly Associated Activities (DAA's).

1.2. Installation Location

1.2.1. The Installation is located in Ebenezer, Bugle, St Austell, Cornwall, PL26 8RR. The Installation covers an area of approximately 2.2 hectares.

1.2.2. DCUK is not proposing to expand the Environmental Permit boundary as part of the variation application.

1.2.3. The Environmental Permit boundary is shown on the Site Location Plan (Drawing Reference DCUK.01.01-01) contained in Section 3 of this application submission.

1.3. The Applicant

1.3.1. Danish Crown UK Limited were incorporated in 1986 under company number 02021233.

1.3.2. Danish Crown UK Limited is part of a global Danish Crown Group which is one of the world's largest exporters and one of Europe's largest producers of pork. Danish Crown UK currently has 7 sites based across the UK. The Bugle site focuses on pork deboning, curing, processing and smoking.

1.4. Pre-Application Advice

1.4.1. Basic pre-application advice was sought from the EA in May 2024 – Pre-Application Reference EPR/DP3631RA/P001. This included obtaining a nature and heritage conservation screening report to identify any conservation sites, protected species or habitats that could be affected by the variation activities. This screening report is provided in the Environmental Risk Assessment (DCUK.01.01/ERA) submitted in Section 5 of this application submission.

2. LISTED ACTIVITIES

2.1. Current Activities

2.1.1. The Installation is currently subject to two Schedule 1 Activities under the Environmental Permitting (England and Wales) Regulations 2016 as amended ("EP Regulations") as detailed in Table 1 below.

Table 1: Permitted Schedule 1 Activities

Schedule 1 Activity	Description of Specified Activity	Limits of Specified Activity
Section 6.8 Part A(1)(d)(i)	Treating and processing materials intended for production of food products from animal raw material (other than milk) at plant with a finished product production capacity of more than 75 tonnes per day.	From receipt of raw materials to dispatch of finished product from the installation.
Section 5.4 Part A(1)(a)(ii)	Disposal of non-hazardous waste in a facility with a capacity exceeding 50 tonnes per day by physico-chemical treatment.	From production of effluent to the point of discharge to the sewer.

2.2. Proposed Activities

2.2.1. This variation application proposes the additional activity that of biological treatment of the generated effluent. Consequently, DCUK is proposing to add one additional Schedule 1 Activity as detailed in Table 2.

Table 2: Proposed Permitted Schedule 1 Activities

Schedule 1 Activity	Description of Specified Activity	Limits of Specified Activity
Section 5.4 Part A(1)(a)(i)	Disposal of non-hazardous waste in a facility with a capacity exceeding 50 tonnes per day by biological treatment.	From production of effluent to the point of discharge to the sewer.

2.2.2. Detailed descriptions of all changes proposed are provided in Section 4 of this document.

2.2.3. The documents in the current Permit in Table S2.1.1. Operating Techniques which reference the ETP are superseded by this variation application.

2.3. Discrepancies with Existing Permit

2.3.1. A varied and consolidated Permit (Variation EPR/DP3631RA/V003) was issued by the Environment Agency ("EA") on 27th August 2024. Following the issue of that Permit variation, discrepancies have subsequently been noted in relation to the description of Point Source Emissions to Air, Table S3.1 – Point Source Emissions to Air and as a consequence Table S1.1 Directly Associated Activities.

2.3.2. There is, however, no change to the Directly Associated Activities ("DAAs") as a result of the additional Schedule 1 activity.

2.3.3. The discrepancies are summarised below in Table 3.

Table 3: Point Source Emission to Comparison

Emission Point	Permit	Description:	Comment
A1	Smoke Chamber	Smoke Chamber Smokers (S 4 – 6)	Matches varied Permit
A2	Water boiler 1 x 0.5MWth LPG fired boiler	Water boiler 1 x 0.5MWth LPG fired boiler	Matches varied Permit
A3	Omitted	Water boiler 1 x 0.5MWth LPG fired boiler A2 & A3 are hot water system set, and are Wilo water boilers	Not on varied Permit A3 needs to be included in the Permit
A4	Smoke Chamber	Smoke Chamber Smokers (S1-3)	Matches varied Permit
A5	Oil fired roaster (incorrect)	Smoke Chamber Smokers (S7-10)	Discrepancy Permit states it is an oil-fired roaster, but this is incorrect and should be replaced by a Smoke Chamber.
A6	Smoke Chamber	Cookers (C1-4)	Matches varied Permit
A7	Boiler plant 1.2MWth gas oil boiler (diesel fired boiler)	Fulton Steam Boiler	Matches varied Permit
A8	Omitted	Air Handling Unit Decadesant Drying Burner using LPG	A8 needs to be included in the Permit

2.3.4. There are no additional point sources emissions to air as a result of the additional Listed activity relating to this Permit variation application.

Table 4: Current Directly Associated Activities

Activity Ref	Actvitiy	Description	Limits
AR3	Steam supply and heat generation	Medium Combustion plant: One 1.2 MWth diesel-fired boiler (A7), and one 0.5 MWth liquefied petroleum gas fired boiler (A2).	From receipt of diesel to release of combustion to air to production of steam and associated wastes removed from site.
AR4	Operation of ovens	One oil fired roaster (A5).	From receipt of fuel to release of products of combustion to air.
AR5	Operation of meat smoker chambers	Three meat smokers (A1, A4, and A6).	From receipt of fuel to release of products of combustion to air.
AR6	Raw material storage and handling	Storage and handling of raw materials at the installation.	From receipt of raw materials to dispatch of final product.
AR7	Use of refrigerants	Use of refrigerants in cooling, chilling and/or freezing systems at the installation.	From receipt of primals to dispatch of final product.
AR8	Storage and use of chemicals and oils	Storage and use of chemicals and oils	Storage and use of chemicals and oils
AR9	Waste storage and handling	Waste storage and handling	Waste storage and handling
AR10	Surface water drainage	Collection of uncontaminated site surface waters.	Handling and storage of site drainage until discharge to the site surface water system.

2.3.5. The following discrepancies have been noted relating to the currently permitted Directly Associated Activities as follows:

- Directly Associated Activity AR3– believe this to be missing A3 (a second wilo water boiler 0.5MWth LPG fired boiler).
- Directly Associated Activity AR4 – one oil fired roaster (A5) – believe this to be removed.
- Directly Associated Activity AR5 – operation of meat smoker chambers – believe this to be missing A5 and remove A6 reference.

3. MANAGEMENT TECHNIQUES

3.1. Overview of the Environmental Management System

3.1.1. DCUK operate their own Environmental Management System ("EMS") with the aim to obtain international standard ISO 14001 in the future.

3.1.2. The Environment, Health and Safety ("EH&S") Manager has overall responsibility for environmental matters at the Installation.

3.1.3. DCUK has established a documented management system which:

- ensures compliance with the Environmental Permit and other licences and consents held by DCUK;
- identifies, assesses and minimises the risks of pollution arising from the Installation's activities;
- comprises a range of written procedures that cover all aspects of the Installation's activities;
- identifies, sets, monitors, and reviews environmental objectives and key performance indicators; and
- includes a requirement to report annually on environmental performance, objectives, targets and future planned improvements.

3.2. Plan

3.2.1. The planning element of the management system includes:

- identification of environmental impacts and aspects associated with the Installation's activities, and assessing their significance; including an assessment of the potential environmental risks including those posed by the work of contractors;
- identification and evaluation of relevant legal and other relevant requirements including Permit requirements and Consent limits;
- identification of environmental objectives and targets that will be focussed on reducing the impact of the identified significant environmental aspects, in conjunction with financial planning and investment;
- a series of risk assessments to cover a range of issues, including site operations, maintenance, accidents, training and records; and
- details of how DCUK ensure that any relevant standards, guidance and codes of practice are met on an ongoing basis.

3.2.2. The outcomes of the above are:

- a comprehensive understanding of the potential and actual impacts of the permitted activities on the surrounding environment and people's health;
- the correct appropriate measures selected to manage environmental risks and prevent or minimise their effects so as not to cause pollution;
- a series of documented procedures covering all aspects of the Installation's activities; and
- a series of documented environmental objectives and targets, together with an action plan/development programme to ensure that these are met.

3.3. Implementation and Operation (Do)

3.3.1. This element includes:

- ensuring that management system roles and responsibilities are clearly defined and documented, and that site staff are made aware of these;
- ensuring that the Installation is operated by suitably competent staff who have received the necessary training in all aspects of the plant's operation, including where contractors are used, ensuring that they are suitably competent; in this regard:
    - the skills and competencies necessary for key posts are documented; these key posts include contractors, those responsible for liaising with contractors and those purchasing equipment and materials,
    - training requirements are identified by means of a documented training needs analysis,
    - documented training records are kept and updated as required,
    - training specifically addresses environmental awareness and environmental permit requirements, and
    - the requirement for ongoing/refresher training is identified;
- ensuring that there are site layout plans - including drainage plans - and that they are revised as required to reflect any changes at the Installation;
- ensuring that there are documented procedures covering internal and external communications;
- ensuring that there are procedures in place for staff and contractors to have access to the Installation's Permit and management system requirements; with regard to contractors, ensuring that suitable instructions are provided with regard to protecting the environment whilst working on site;
- the establishment of a documented planned preventative maintenance regime ("PPMR") to ensure that all plant and site infrastructure are kept in suitable condition and operating effectively; this PPMR details what maintenance, tests and inspections need to complete and when; this also details the measures required to ensure continuing compliance with the permit conditions during maintenance/shutdown. The PPMR also:
    - identifies known or predictable malfunctions associated with the operations and the procedures, spare parts, tools and expertise required to deal with them,
    - includes a record of spare parts held, or details on where they can be sourced from, together with an assessment of how long they would take to obtain,
    - includes a defined procedure for identifying, reviewing and prioritising items of plant for which a preventative regime is appropriate,

    - includes all “Critical Equipment List” i.e. equipment or plant whose failure could directly or indirectly lead to an impact on the environment or human health and ‘non-productive’ items,
    - ensure the necessary spare parts, tools, and competent staff are available prior to commencing maintenance;
- ensuring that there are documented procedures covering document control;
- ensuring that there are suitable documented record-keeping arrangements in place;
- ensuring that there are documented operational procedures and work instructions covering all aspects of the Installation’s operation;
- ensuring that there are documented procedures covering emissions monitoring undertaken at the Installation; these will specifically include details of the relevant standards/methods used, the equipment used, its maintenance and calibration requirements and the frequency required (i.e. continuous or periodic, and if periodic, the associated schedules);
- ensuring that there are documented procedures that incorporate environmental issues into the control of process/equipment/engineering change, capital approval and purchasing policy;
- ensuring that there are documented procedures to address non-conformities/non-compliances and the associated corrective and preventative action; these will detail the means by which any such non-conformities/non-compliances are reported to management and the means by which they are reported to the EA;
- ensuring that there is a documented procedure for dealing with complaints; this includes requirements to ensure that:
    - an appropriate person deals with the complaint,
    - the complaint is properly recorded,
    - the complaint is properly investigated,
    - any action necessary to deal with the cause of the complaint is recorded,
    - the impact of the activity causing the problem is minimised,
    - steps are taken to ensure that the problem is not repeated,
    - details of any justified complaints are reported to senior management,
    - that the complainant (or the EA, as appropriate) is responded to in writing,
    - if the complaint came via the EA, a suitable documented response is provided to the EA,
    - if the complaint has come from a neighbour or a member of the public, a suitable documented response is provided to the complainant, and, if the complaint is substantiated, a report is provided to the EA, and
    - the management system is amended accordingly to reflect any changes;
- ensuring that there are documented procedures covering emergency preparedness and response; these will cover such incidents as major plant failures, significant spillages of potentially polluting substances, loss of power etc.; these are incorporated into an Accident Management Plan (“AMP”);
- DCUK ensure that suitable measures are in place to communicate the AMP to all relevant employees, management and contractors who work at the site; the AMP details:

- the arrangements for response to an emergency, including defining specific responsibilities,
- the measures for dealing with the consequences of an incident,
- communicating with the EA and other relevant regulatory bodies,
- communicating with the Installation's neighbours and the local community,
- the measures for investigating incidents (and near-misses), including identifying suitable corrective action and following up implementation of that action,
- the measures for recording incidents (and near-misses),
- the measures for reporting incidents (and near misses) to Senior Management, and
- the measures for reporting incidents to the EA;

- ensuring that there are documented procedures for carrying out internal audits; these describe how to schedule, conduct, report and manage internal audits;
- ensuring that there is a documented contingency plan in place that ensures compliance is maintained with all Permit conditions and operating procedures during maintenance/shutdown at the Installation or elsewhere.

3.3.2. The outcome of the above is evidence that day-to-day activities are taking place in accordance with the requirements of the management system and the Installation's Permit, specifically:

- that control measures and procedures are an integral part of the business operation;
- that the management system is easy for staff to access, understand and use;
- that staff are suitably trained and competent to carry out procedures and control measures; and
- that the requirements of the management system are effectively communicated to management, staff and contractors.

3.4. Check

3.4.1. This element includes:

- ensuring that all regulatory requirements in relation to monitoring and measurement are complied with, specifically:
  - the requirements relating to inspection and testing required under the applicable environmental legislation and the Installation's Environmental Permit and the associated procedures and work instructions,
  - the requirements relating to inspection and testing required under the applicable health and safety legislation and the associated procedures and work instructions, and
  - the requirements relating to the control of all inspection, measuring and test equipment relating to environmental requirements;
- ongoing evaluation of compliance with environmental legal requirements, policy requirements and objectives and targets; this will include:
  - an annual review of environmental legal register,

- regular plant inspections, and
- internal audit procedures (as detailed below);

- ensuring that non-conformities/non-compliances are properly recorded, investigated and that the appropriate corrective action is taken by the due date;
- ensuring that the necessary reporting and record-keeping required under the various Permit and consents are complied with;
- ensuring that internal audits are carried out in accordance with the documented procedures and that any audit actions are followed up; and
- ensuring that the results of all audits (internal and external) are made available to Senior Management on a regular basis.

3.4.2. The outcomes of the above will be:

- that checks are carried out to ensure that the management system is being implemented as intended, i.e. as documented; and
- the necessary preventative and corrective actions are undertaken to minimise non-compliances.

3.5. Review (Act)

3.5.1. This element includes:

- an annual management review of the management system to ensure that it is appropriate, being implemented and kept up to date, e.g. that any supplementary plans have been included into the management system;
- A management review of the management system when:
  - there are changes on site (in activities and/or plant/equipment),
  - if there is an accident, complaint, or breach of permit conditions.
- an annual review of both individual and organisational training needs;
- ensuring that all changes are properly recorded, and, if there are any major changes, the EA is informed;
- an assessment of whether the Installation's objectives, and any targets, have been met and reported;
- a review of the Installation's objectives and targets, and, where appropriate, any revisions to these so as to effect continual improvement.

3.5.2. The outcomes of the above will be:

- the management system is kept up to date, and
- the management system is continually improved.

3.6. EMS Amendments Taking Account of the Variation Proposals

3.6.1. The EMS has been reviewed to take account of the variation ensuring it remains appropriate and effective. The principle changes are described below:

- update to the EMS documents to take account of any changes to Environmental Permit Conditions following the variation;
- the Environmental Risk Assessment ("ERA") (DCUK.01.01/ERA) used to inform the new risks and opportunities at the Installation;
- the environmental objectives and targets to take account of the proposed changes to ensure they remain appropriate, achievable but challenging;
- operational procedures reviewed to ensure they are aligned with the proposed changes detailed;
- the documented PPMR updated to include maintenance and inspection related to the new plant and equipment;
- emergency plans and procedures updated to take account of any additional risks;
- employees trained in the updated EMS and associated operational procedures, such as all relevant employees suitably trained in the new effluent treatment system by the Engineering Department. Roles assigned and training given with each relevant employee. Records held to show training has been completed and understood. Refresher training will be provided annually; and
- all changes to the EMS documented and communicated to all employees.

4. OPERATING TECHNIQUES

4.1. Technical Standards

4.1.1. **European Legislation** – The following European Legislation will be used to inform the variation application:

- the Industrial Emissions Directive ("IED") is intended to be a single legislative instrument to control pollution to air, water and land and set challenging industry standards. The established environmental principles and EU environmental law continues to have effect in UK law, therefore, the requirements of IED will therefore be considered relevant at this time; and
- the Best Available Techniques ("BAT") Reference Document ("BRef") for Waste Treatment (2018) will be considered as appropriate for EP Regulations Schedule 1 Activity associated with the effluent treatment proposals; and
- the Food, Drink and Milk Bref (2019) has also been considered.

4.1.2. **National Legislation** – the EA implement the requirements of the IED via the EP Regulations and have provided guidance documents to assist in the preparation of Environmental Permit applications and the ongoing management of permitted Installations which have been considered in this application. These includes:

- online EA guidance:
  - 'Risk assessments for your environmental permit;
  - 'Control and monitor emissions for your environmental permit;
  - 'Surface water pollution risk assessment for your environmental permit'; and
  - 'Develop a management system: environmental permits';
- Technical guidance for regulated sectors:
  - 'Non-hazardous and inert waste; appropriate measures for permitted facilities'; and
  - Sector Guidance Note S5.06: recovery and disposal of hazardous and non-hazardous waste.

4.2. Current Activities

Effluent Treatment and Drainage Arrangements

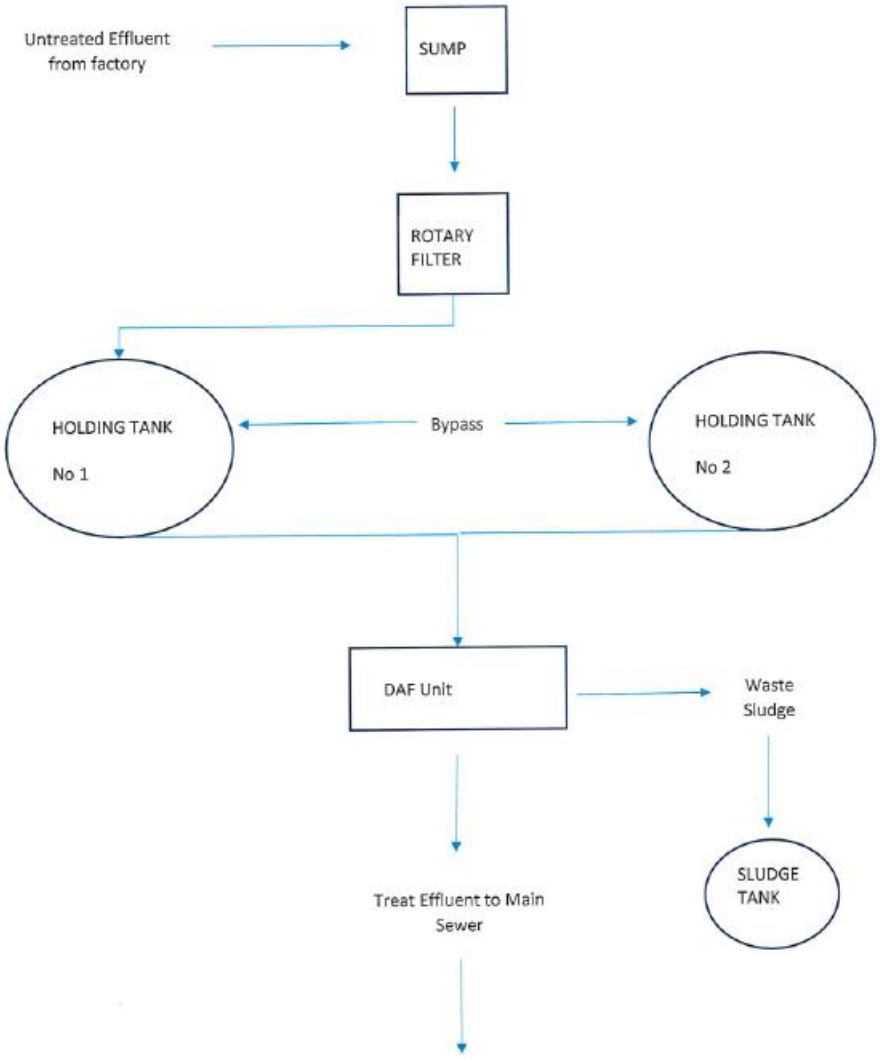
4.2.1. Effluent is produced at the Installation as a result of the following:

- butchery – blood drip loss and limited quantities of floor waste passing to the drainage system;
- curing includes dry curing and/or wet brine pumping of the product – brine salt and water mix;
- smoking system – pressure system (steam and hot water heating); and
- hygiene/cleaning – 24/7 hygiene function with various chemicals.

4.2.2. Historically, the existing Effluent Treatment Plant ("ETP") system involved only one dissolved air flotation ("DAF") unit (with a sump pit, holding balance tank) with outgoing effluent from the single DAF unit.

4.2.3. The effluent treatment flow chart prior to the variation is displayed in Figure 1.

Figure 1: Existing Effluent Treatment Plant ("ETP") Layout Prior to Variation



4.2.4. The Environmental Permit details one emission point to sewer at the Installation designated as S1. The location is shown on the Site Layout Plan (DCUK.01.01-01) submitted in Section 3 of this application.

4.3. Proposed Activities

Effluent Treatment and Drainage Arrangements

4.3.1. The location of the point source emission to sewer is proposed to remain in the same location with no proposed changes to the location of the discharge point.

4.3.2. Figure 2 below, illustrates the indicative layout of the proposed new effluent treatment system and the process flows are provided in Figure 3 and 4.

4.3.3. In 2008, a selector tank and aeration tank were added to the ETP along with a second DAF unit (Figure 3). In 2024, the ETP now also includes two surplus activated sludge tanks (Figure 4).

4.3.4. In accordance with CAR ID DP3631RA/0481808, this Permit variation is being submitted to capture the changes as part of the Environmental Permit to ensure it is reflective of current operations.

Figure 2: Proposed Effluent Treatment Layout

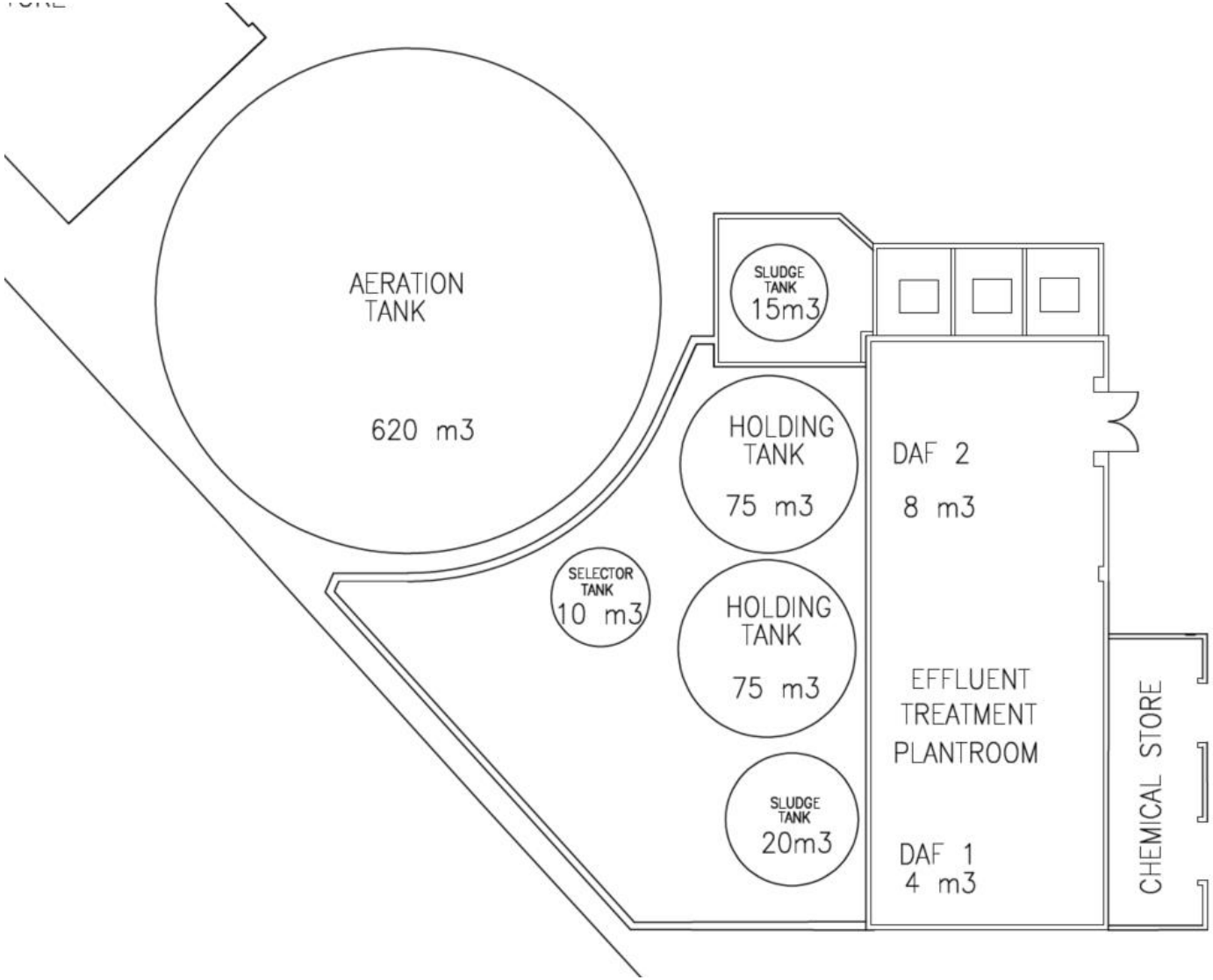


Figure 3: Proposed Effluent Treatment – Process Flow Diagram - 2008

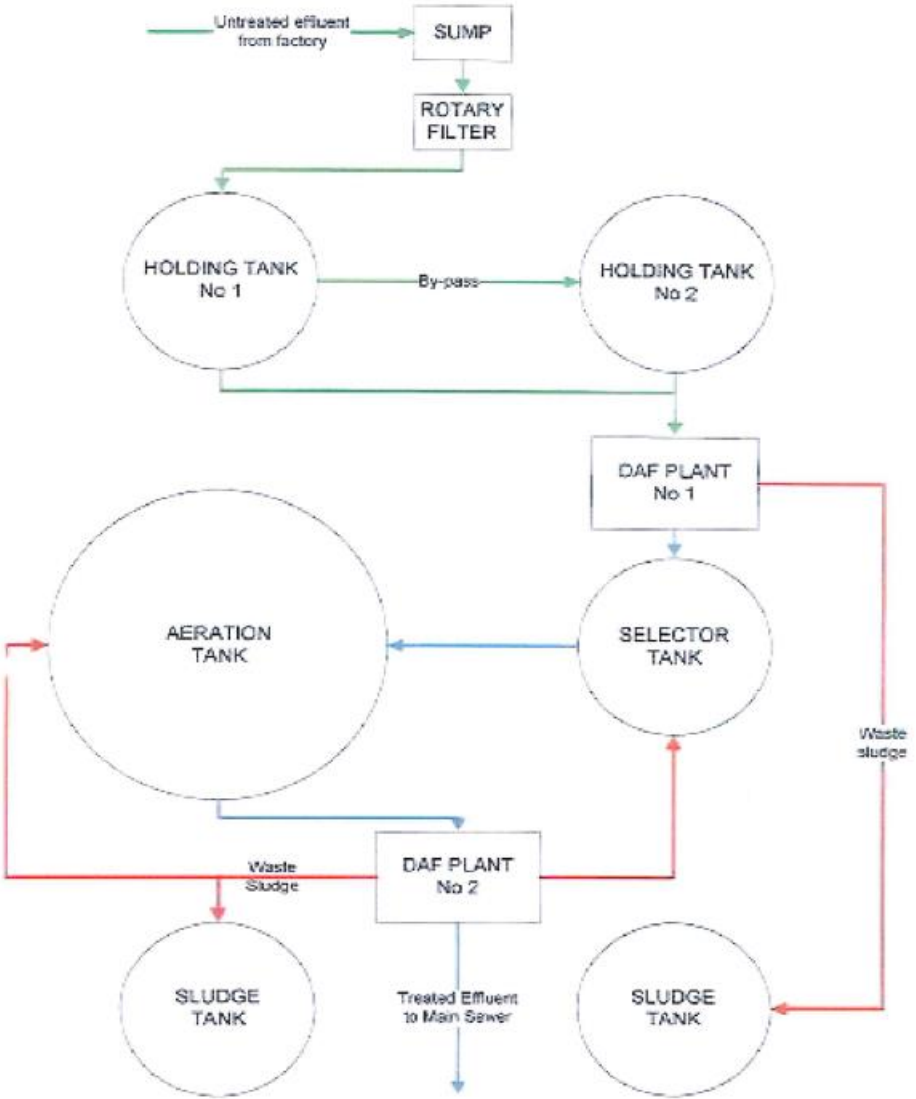
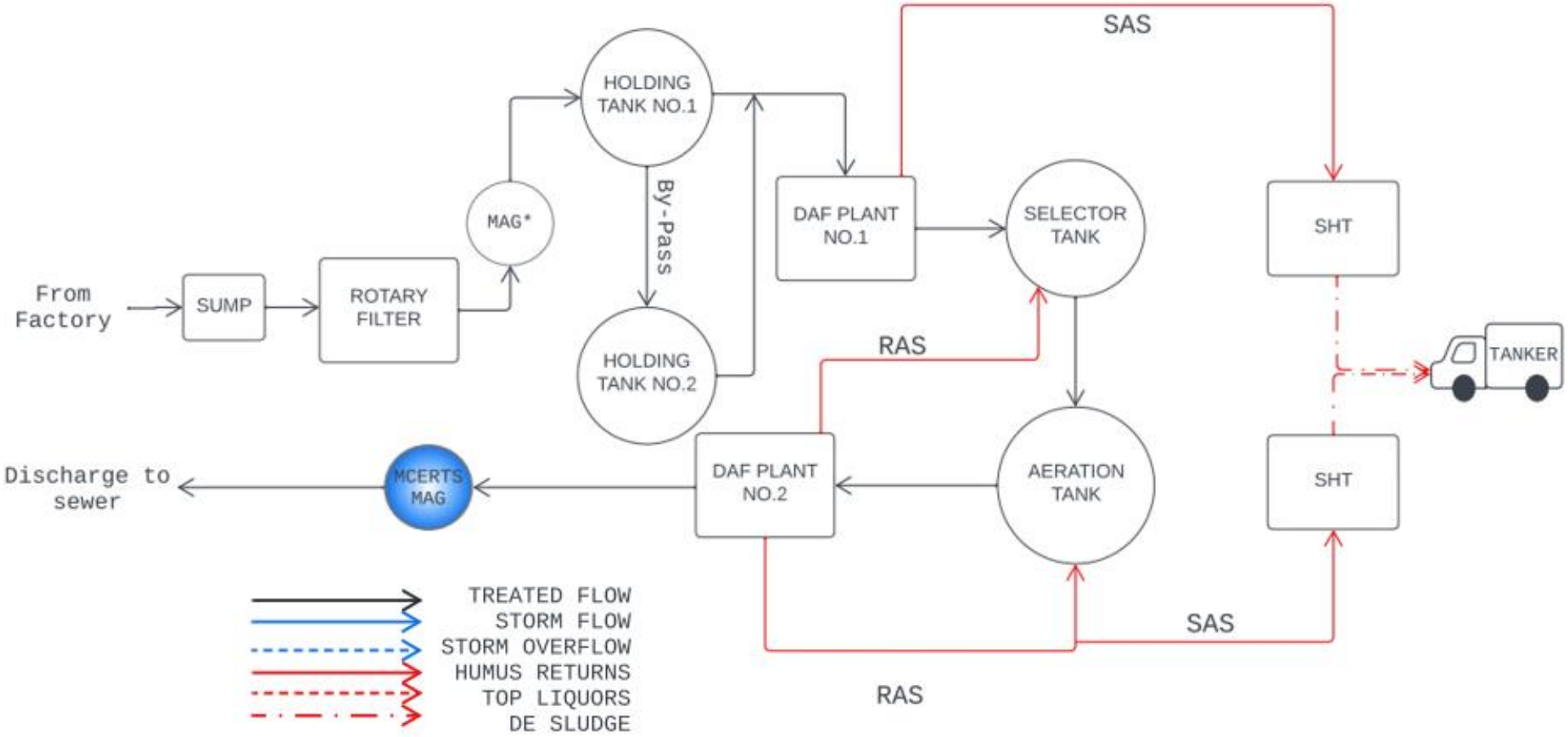


Figure 4: Proposed Effluent Treatment – Process Flow Diagram - 2024



Note to Figure: SHT – Solids Holding Tank. SAS – Surplus Activated Sludge. RAS – Return Activated Sludge.

5. EMISSIONS

5.1. Current Arrangements - Point Source Emissions to Air

5.1.1. There are eight point source emissions to air as summarised in Table 3 of this document.

5.1.2. However, as noted earlier in Section 2.3 of this document, following the issue of the varied and consolidated Permit in August 2024, discrepancies have been noted with regards to the existing current arrangements of Point Source Emissions to Air and these have been highlighted in Table 3 of this document.

5.2. Proposed Arrangements - Point Source Emissions to Air

5.2.1. There are no changes to the point source emissions to air as part of this variation application.

5.3. Point Source Emissions to Land

5.3.1. There are no point source emissions to land and no changes are proposed as part of this variation application.

5.4. Point Source Emissions to Surface Water

5.4.1. There are no changes to the point source emissions to surface water associated with this variation application.

5.5. Point Source Emissions to Sewer – Current Arrangements

5.5.1. Process effluent treated at the on-site ETP is currently discharged to foul sewer via emission point S1.

5.5.2. The Permit allows the treatment of process effluent with a capacity of more than 50 tonnes per day by physico-chemical treatment.

5.5.3. The discharge is subject to Southwest Water Trade Effluent Consent T0707 with the maximum volume of trade effluent to be discharged in any continuous period of 24 hours of 150m^3.

5.6. Point Source Emissions to Sewer – Proposed Arrangements

5.6.1. Process effluent treated at the on-site ETP will continue to discharge to foul sewer via emission point S1.

5.6.2. As part of this variation, DCUK will continue to treat process effluent by physico-chemical treatment but also include biological treatment.

5.6.3. There will be no changes to the discharge volume nor increase in hazardous substances being discharged. Consequently, a H1 assessment is not required as part of this variation application.

5.7. Fugitive Emissions to Air

5.7.1. All plant and equipment will be operated in accordance with manufacturer manuals and instructions and subject to routine maintenance and inspection to ensure they are operating within set parameters and at optimal performance levels.

5.7.2. Odour control measures have been implemented which are described in detail in Section 6.3 of this document.

5.8. Fugitive Emissions to Surface Water, Sewer and Groundwater

5.8.1. Fugitive releases to the groundwater will be prevented by conducting all operations in areas sealed with an impervious barrier to prevent a pathway for migration to ground and groundwater.

5.8.2. All process water is directed to the ETP prior to discharging to foul sewer. This eliminates the risk of fugitive emissions to surface water.

5.8.3. A number of control measures are implemented to prevent fugitive emissions to sewer.

5.8.4. Operator monitoring is undertaken which includes flow, levels, conductivity, polymer coagulant levels, pH, chemical oxygen demand ("COD"), caustic concentrations and temperature. The turbidity meter is also monitored, and automatic alarms are also present as part of the system.

5.8.5. All plant and equipment will be subject to regular maintenance and servicing as per the maintenance programme. This will ensure all plant is in good working order.

5.8.6. The ETP has a number of alarms including a general alarm system, monitoring system (emailing 24/7 site security, managers and a beacon sounder alarm within the engineering workshop), Over loading(tripping ("O/L") of sump electrical system and level control of all tanks.

5.8.7. Appropriate isolation system has been installed to prevent any uncontrolled releases to foul water. The ETP is capable of identifying, holding and preventing the release of any materials should equipment fail, and the effluent not being fully treated. There is excess capacity to ensure a buffer capacity is available.

5.8.8. There are also power/overflow failure prevention systems such as the sump, DAF2 and DAF2 have a pump to output and therefore, if there is a power failure, there is no discharge, and the overflow is captured in the plantroom. Process 1 and 2, selector tank and sludges 1 and 2 overflow into a bunded area. The sump pit also overflows and is contained in the plantroom.

5.8.9. Overfill protection is on bulk storage vessels and barriers and signage are in place to

prevent the risk of vehicle collision with storage vessels and bunding.

5.8.10. All potentially polluting liquids are appropriately bunded providing a minimum capacity of either 110% of the capacity of the largest storage vessel or 25% of the total capacity of all the storage vessels within the bund, whichever is greater.

5.8.11. External examinations of all storage vessels are undertaken by a qualified engineer on an annual basis and any actions undertaken in accordance with the engineer's recommendations. Additionally, any evidence of spillage/loss of containment, as well as the site infrastructure, including bunding and impermeable concrete surfacing, is inspected weekly. If remedial action is required, this will be reported immediately, and the issue rectified as soon as possible.

5.8.12. Any spillages at the Installation will be subject to the Danish Crown's robust spill response procedure. This will prevent any potentially polluting materials from entering the Installation's drainage network.

5.8.13. All relevant employees are suitably trained in spill response, such as the deployment of absorbent materials and drain covers. Spill kits are strategically located around the Installation with the contents regularly inspected and maintained.

6. GENERAL REQUIREMENTS

6.1. Complaint History

6.1.1. DCUK has confirmed that they have not received any substantiated nuisance complaints to date.

6.2. Emissions Management

6.2.1. The ERA (DCUK.01.01/ERA) has demonstrated that emissions of substances not controlled by emission limits (i.e. fugitive emissions) are not considered to be significant, consequently, an Emissions Management Plan is not required as part of this variation application.

6.3. Odour Management

6.3.1. A number of odour control measures have been implemented specifically related to the ETP. These are described in the ERA (DCUK.01.01/ERA) and summarised below:

- Holding tanks ("HT") levels can be reduced during elevated ambient temperatures to reduce the retention time and the possibility of decaying organic matter;
- dissolved oxygen levels can be monitored, and blower times increased to maintain sufficient dissolved oxygen levels within the tanks; and
- emptying of the sludge tank is undertaken three times per week to reduce build up. This is only undertaken during normal working hours.

6.3.2. An updated Odour Management Plan ("OMP") (DCUK.01.01/OMP) has been prepared which forms part of the EMS and has been written in accordance with the requirements of the EA's *'How to Comply with your Environmental Permit, Additional Guidance for: H4 Odour Management'.*

6.3.3. The OMP has been updated to take account of the proposed activities and is submitted in Section 6 of this variation application. The ERA has demonstrated that with strict adherence to the control measures set out in the OMP, the risk of odour emissions beyond the Installation EP boundary is not considered to be significant.

6.4. Noise Management

6.4.1. It is not considered that the changes proposed as part of this variation will result in noise nuisance being experienced by sensitive receptors in the surrounding area.

6.4.2. The ERA has demonstrated that with strict adherence to the control measures set out in the ERA, risk of noise emissions beyond the Installation EP boundary is not considered to be significant. Consequently, a Noise Management Plan is not required as part of this application.

6.5. Pest Management

6.5.1. In accordance with strict hygiene standards required for pork manufacture, a pest control system has been implemented at the Installation.

6.5.2. A summary of the pest control measures implemented at the Installation is provided below:

- regular cleaning and strict housekeeping standards. Infrastructure will be kept clear and be subject to housekeeping inspections and procedures.
- surfacing kept clear to ensure easy cleaning where necessary.
- daily site checks which include checks for the presence of pests and to ensure housekeeping standards are maintained.
- all tanks are sealed; and
- employment of an external contractor to implement and monitor a pest control programme at the Installation which includes monthly visits and follow up reports of any findings. These are discussed during management meetings for prompt close-out.

6.5.3. It is not considered that the changes proposed as part of this variation will lead to any significant increase in the attraction of pests to the Installation. The ERA demonstrates that with strict adherence to the control measures, the risk of pest nuisance is not considered to be significant. Consequently, a Pest Management Plan is not required as part of this variation application.

6.6. Fire Management

6.6.1. The proposed variation will not increase fire risk at the Installation.

6.6.2. DCUK will continue to follow their emergency procedures which includes how to effectively manage and report incidents and potential emergency situations including fire.

6.6.3. The fire risk management measures are summarised as follows:

- automatic fire detection system throughout the Installation.
- fire extinguishers and fire alarms are located in strategic locations throughout the Installation and are tested and maintained periodically.
- allocation and training of site incident commanders and support teams.
- preventative maintenance on all equipment to prevent any faults occurring which may lead to a fire; and
- unannounced fire evacuation drills undertaken once a year to ensure all staff are appropriately trained in the fire response, escape routes and assembly points.
- any potentially contaminated firewater will be contained on site and sent for disposal off-site at a licenced facility following analytical testing.

7. APPLICATION SITE CONDITION REPORT

7.1. The variation application does not propose any additional land to be incorporated, consequently, an updated Site Condition Report is not required as part of this application.

8. MONITORING

8.1. Monitoring of Emissions to Air

8.1.1. There are no changes to the point source emissions (i.e. process contributions) to air associated with this variation. Therefore, no additional air emissions monitoring is proposed.

8.2. Monitoring of Soil and Groundwater

8.2.1. Fugitive releases will be prevented by conducting all operations in areas sealed with an impervious barrier to prevent a pathway for migration to ground or groundwater. Consequently, no additional monitoring of soil and groundwater is proposed in addition to the periodic monitoring which shall be carried out every 5 years for groundwater and every 10 years for soil.

8.3. Monitoring of Surface Water

8.3.1. There are no changes to the point source emissions (i.e. process contributions) to surface water associated with this variation. Therefore, no additional surface water monitoring is proposed.

8.4. Monitoring of Foul Water – Current Arrangements

8.4.1. There are no current Permit requirements to monitor the point source emissions to sewer, designated as S1.

8.4.2. The existing trade effluent consent includes the following limits:

- pH – 6-10.
- temperature at point of discharge to sewer - <43°C.
- suspended solids at 105°C– 200 mg/l
- chemical oxygen demand – 1000 mg/l
- total oil and grease – 100 mg.

8.4.3. Operator monitoring is undertaken which includes flow, levels, conductivity, polymer Coagulant levels, pH, COD, caustic concentrations and temperature. The turbidity meter is also monitored, and automatic alarms are also present as part of the system.

8.4.4. Periodic monitoring is undertaken by Southwest Water ("SWW") to ensure that DCUK are adhering to their Trade Effluent Consent, a copy of the consent and latest SWW monitoring results showing the effluent is well within consented limits is contained in Appendix I.

8.5. Monitoring of Foul Water – Proposed Arrangements

8.5.1. Operator monitoring as described in Point 8.4.4. will continue to be undertaken.

8.5.2. The BAT-AELs for indirect discharges contained in the Waste Treatments Bref are predominately not applicable as the substance/parameters concerned are not relevant.

8.5.3. In the case of an indirect discharge to a receiving water body, the monitoring frequency may be reduced if the downstream wastewater treatment plant abates the pollutants concerned. Therefore, for the applicable cadmium and mercury parameters, DCUK propose a reduced monitoring requirement from once every month as stated in the BATc to annually. This also takes account that no increased addition of cadmium or mercury to the effluent stream as a result of the variation application.

8.5.4. Total suspended solids and chemical oxygen demand monitoring is not proposed as the Waste Treatments Bref states monitoring is only applicable for direct discharges to water. However, DCUK will continue to adhere to the limits in the trade effluent consent requirements.

8.5.5. Periodic monitoring is to be undertaken by DCUK to ensure that the discharge continues to adhere to the Trade Effluent Consent.

9. RESOURCE EFFICIENCY AND CLIMATE CHANGE

9.1. Overview

9.1.1. As part of the EMS, DCUK monitor the annual consumption of water, energy and raw materials, as well as the annual generation of residues and wastewater, with a frequency of at least once a year.

9.2. Energy Efficiency Measures

9.2.1. A number of energy efficiency measures have been implemented at the Installation as part of the variation to improve energy efficiency:

- purchase and use of efficient models, variable speed drives, motors and process control systems e.g. inverter drives for various controls.
- level control to ensure focus operational timing.
- minimising waste brine from processing needing to be treated in the ETP.
- blower timings – mode 'HAND' running constantly to ensure odour control and mode 'AUTO' running for 5 minutes and then off for 10 minutes (as well as DAF 1 running control additions).
- aeration times – depending on the incoming flow plant condition, the times have been altered from on/off to 300 on/ 300 off (seconds) and 300 on/ 600 off (current setting.
- all plant and equipment will be regularly inspected and will be covered by service / maintenance contracts.
- a record is kept for each piece of machinery / plant detailing the routine servicing and maintenance required.
- the site operates a policy of switching off systems and machinery when not in use.
- energy consumption monitoring and reporting.

9.3. Energy Consumption

9.3.1. Items installed as part of the new ETP include:

- Surface aerator – 45kW:
  - 5 minutes ON / 5 minutes OFF – 84 hours/week; and
  - 5 minutes ON / 10 minutes OFF – 56 hours/ week.
- Flocculator – 14kW:
  - 10-12 hours/day (70-84 hours/week)
- Continuous aerobic biotreatment system with activated sludge floatation – 66kW
  - 10-12 hours/day (70-84 hours/week).

9.3.2. Energy consumption monitoring enables DCUK to set realistic but challenging improvement targets to reduce energy consumption.

9.4. Climate Change Agreement

9.4.1. DCUK entered into a Climate Change Agreement ("CCA") on 1st November 2022. Evidence is provided in Appendix II of this document.

9.4.2. This CCA demonstrates DCUK's commitment to reducing energy consumption and associated carbon dioxide ("CO_2") emissions.

9.5. Raw Material Justification

9.5.1. The following raw material consumption per annum solely related to the ETP is provided in Table 5. The associated material safety data sheets ("MSDS") including the main hazards are provided in Appendix III.

Table 5: Types and Amounts of Raw Materials

Description of Raw Material	Maximum Amount (Litres)	Annual Throughput (Litres)	Bund Capacity (Litres and % of primary container)
SHWE30 Polymer	32 x 20 litre tubs	312 tubs = 1,040	These are stored in the chemical bunded store
Sodium Hydroxide 32%	3000 litre tanks	15 x IBC's = 15,000	These are all bunded
Sulphuric Acid 50%	5000 litre tanks	2 x IBC's = 2,000	These are all bunded
Ferric Chloride 40%	3,000 litre tanks	2 x IBC's = 2,000	These are all bunded
Pulsatec AF4 Antifoam	32 x 20 litre tubs	52 tubs = 1,040	These are stored in the chemical bunded store

9.5.2. All raw materials detailed in Table 5 are required for foam, pH, flocculation and coagulation control.

9.5.3. It is not possible to substitute materials with waste as part of the proposals, however, DCUK undertake an annual review of raw material usage and investigate the suitability of raw materials with an improved environmental profile.

9.5.4. Water use is minimised which in turn reduces production of wastewater. The following water minimisation methods are in place at the Installation:

- optimisation of water flow, use of control devices and valves.
- segregation of water streams – clean surface water is discharged to surface water rather than being routed to the ETP.
- cleaning in place.
- optimisation of chemical dosing and water use in cleaning in place.
- optimised design and construction of equipment and process areas; and
- cleaning of equipment as soon as possible.

9.6. System Efficiency Measures

9.6.1. The efficiency measures include the following:

- Automation –
  - electrical control system is designed for automatic start and stop. The start and stop signals for the flotation unit are provided by the level switches.
  - in order to avoid any manually control, an automatic start-and stop sequence for the process is installed. This system is required to realise an optimal purification of the wastewater with the process. The start level setting depends on flow capacity variations of the influent and available pit volume as well as pump characteristics. Flotation sludge and fat are automatically removed by the flotation units skimming system.
  - automatic drain valves are installed in the bottom sludge drains of the flotation unit. The unit must be stopped at low level to avoid running dry of the feed pump.
  - start sequence recirculation pump and scraper start, air valve opens. After a pre-set time (approx. 1 min.) the following components commence simultaneously - feed pump, installed auxiliaries as sludge pump. After the flow controller is activated, the dosing pumps start.
  - Stop sequence - the unit stops as soon as the low level in the influent pump pit is reached. All equipment will automatically shut down except for the recirculation pump and the skimmer, which shut down after a pre-set time of approx. 10 min.
  - Recirculation – aeration – pump pressure:
    - for aeration, 10-20% of the total wastewater flow is recycled by a recirculation pump. The air is added to the top of the mixing pipe. The recirculation pump raises the pressure to 5-7 bar. In the entrance of the mixing pipe, the air will be intensively mixed with water and air then primarily dissolves.

9.7. Waste Minimisation

9.7.1. As part of the initial concept and design of the improvement proposals, waste minimisation was considered.

9.7.2. Waste sludge is the by-product from the process. Incoming effluent strength results in DAF 1 settings being altered which affects the sludge volume per $1m^3$ passed into the AST. Settings are balanced to ensure the AST condition is considered.

9.7.3. Sludge production is directly impacted by the strength of the brine waste in the effluent. It increases the load to the AST- biomass resulting in watery sludge which is more difficult to control the AST sludge levels.

10. COMPLIANCE WITH BAT CONCLUSIONS

10.1. Appropriate BAT Conclusions – Waste Treatment BRef

10.1.1. It is considered that the techniques that will be in use at the Installation will constitute BAT will be appropriate and proportionate to the scale of the activities at the Installation and the risks that are posed to the environment by the activities.

10.1.2. The BAT requirements for the effluent treatment infrastructure improvements have been taken from the BRef for Waste Treatment (October 2018).

10.1.3. A demonstration of compliance with applicable BAT is provided in Table 6.

10.1.4. It is noted that these BAT Conclusions apply without prejudice to other relevant legislation, such as food safety.

Table 6: Waste Treatments BRef – BAT Conclusions

BAT Ref No.	BAT Requirement	BAT Compliance
General BAT Conclusions		
1	In order to improve the overall environmental performance, BAT is to implement and adhere to an EMS that incorporates all of the following features: I. commitment of the management, including senior management. II. definition, by the management, of an environmental policy that includes the continuous improvement of the environmental performance of the installation; III. planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment; IV. implementation of procedures; V. checking performance and taking corrective action; VI. review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness; VII. following the development of cleaner technologies; VIII. consideration for the environmental impacts from the eventual decommissioning of the plant at the stage of designing a new plant, and throughout its operating life; IX. application of sectoral benchmarking on a regular basis; X. waste stream management (see BAT 2); XI. an inventory of waste water and waste gas streams (see BAT 3); XII. residues management plan (see description in Section 6.6.5); XIII. accident management plan (see description in Section 6.6.5); XIV. odour management plan (see BAT 12); XV. noise and vibration management plan (see BAT 17).	EPTR Document - Section 3
2	In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques given below: a) set up and implement waste characterisation and pre-acceptance procedures; b) set up and implement waste acceptance procedures; c) set up and implement a waste tracking system and inventory; d) set up and implement an output quality management system; e) ensure waste segregation; f) ensure waste compatibility prior to mixing or blending of waste; and g) sort incoming solid waste.	The waste being treated is effluent resulting from the manufacturing process. Therefore, this BAT Conclusion is not relevant.

Table 6: Waste Treatments BRef – BAT Conclusions (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
General BAT Conclusions		
3	In order to facilitate the reduction of emissions to water and air, BAT is to establish and maintain an inventory of waste water and waste gas streams, as part of the EMS that incorporates all of the following features: i. information about the characterisation of the waste to be treated and the waste treatment processes ii. information about the characteristics of the waste water streams, such as (a) average values and variability of flow, pH, temperature and conductivity (b) average concentration and load values of relevant substances and their variability (e.g. COD/total organic carbon ("TOC"), nitrogen species, phosphorous, metals, priority substances/micropollutants (c) data on bio eliminability iii. information about the characteristics of the waste gas streams – n/a	EPTR Document – Section 4.3, Section 8.4 and 8.5
4	In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of the techniques given below. a) optimised storage location; b) adequate storage capacity; c) safe storage operation; and d) separate area for storage and handling of packaged hazardous waste – n/a	ERA Document (Document reference DCUK.01.01/ERA)
5	In order to reduce the environmental risk associated with the handling and transfer of waste, BAT is to set up and implement handling and transfer procedures.	EPTR Document - Section 3
6	For relevant emissions to water as identified by the inventory of waste water streams, BAT is to monitor key processes parameters (e.g. waste water flow, pH, temperature, conductivity, biological oxygen demand ("BOD")) at key locations (e.g. at the inlet and/or outlet of pretreatment, at the inlet to the final treatment, at the point where the emission leaves the installation).	EPTR Document - Section 5.7, 8.4 and 8.5

Table 6: Waste Treatments BRef – BAT Conclusions (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
General BAT Conclusions		
7	BAT is to monitor emissions to water with at least the frequency given below, 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.	EPTR Document - Section 8.4 and 8.5

Substance/ parameter	Standard(s)	Waste treatment process	Minimum monitoring frequency (1) (2)	Monitoring associated with
Adsorbable organically bound halogens (AOX) (3) (4)	EN ISO 9562	Treatment of water-based liquid waste	Once every day	BAT 20
Benzene, toluene, ethylbenzene, xylene (BTEX) (3) (4)	EN ISO 15680	Treatment of water-based liquid waste	Once every month	
Chemical oxygen demand (COD) (5) (6)	No EN standard available	All waste treatments except treatment of water-based liquid waste	Once every month	
		Treatment of water-based liquid waste	Once every day	
Free cyanide (CN^-) (3) (4)	Various EN standards available (i.e. EN ISO 14403-1 and -2)	Treatment of water-based liquid waste	Once every day	

Table 6: Waste Treatments BRef – BAT Conclusions (Cont.)

BAT Ref No.	BAT Requirement				BAT Compliance
General BAT Conclusions					
7 (Cont.)	Hydrocarbon oil index (HOI) (4)	EN ISO 9377-2	Mechanical treatment in shredders of metal waste	Once every month	EPTR Document - Section 8.4 and 8.5
			Treatment of WEEE containing VFCs and/or VHCs		
			Re-refining of waste oil		
			Physico-chemical treatment of waste with calorific value		
			Water washing of excavated contaminated soil		
			Treatment of water-based liquid waste	Once every day	
	Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Nickel (Ni), Lead (Pb), Zinc (Zn) (3) (4)	Various EN standards available (e.g. EN ISO 11885, EN ISO 17294-2, EN ISO 15586)	Mechanical treatment in shredders of metal waste	Once every month	
			Treatment of WEEE containing VFCs and/or VHCs		
			Mechanical biological treatment of waste		
			Re-refining of waste oil		
			Physico-chemical treatment of waste with calorific value		
			Physico-chemical treatment of solid and/or pasty waste		
			Regeneration of spent solvents		
			Water washing of excavated contaminated soil		
			Treatment of water-based liquid waste	Once every day	
	Manganese (Mn) (3) (4)		Treatment of water-based liquid waste	Once every day	
	Hexavalent chromium (Cr(VI)) (3) (4)	Various EN standards available (i.e. EN ISO 10304-3, EN ISO 23913)	Treatment of water-based liquid waste	Once every day	
	Mercury (Hg) (3) (4)	Various EN standards available (i.e. EN ISO 17852, EN ISO 12846)	Mechanical treatment in shredders of metal waste	Once every month	
			Treatment of WEEE containing VFCs and/or VHCs		

Table 6: Waste Treatments BRef – BAT Conclusions (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
General BAT Conclusions		
7 (Cont.)		EPTR Document - Section 8.4 and 8.5.

		Mechanical biological treatment of waste		
		Re-refining of waste oil		
		Physico-chemical treatment of waste with calorific value		
		Physico-chemical treatment of solid and/or pasty waste		
		Regeneration of spent solvents		
		Water washing of excavated contaminated soil		
		Treatment of water-based liquid waste	Once every day	
PFOA ([5])	No EN standard available	All waste treatments	Once every six months	
PFOS ([5])				
Phenol index ([6])	EN ISO 14402	Re-refining of waste oil	Once every month	
		Physico-chemical treatment of waste with calorific value		
		Treatment of water-based liquid waste	Once every day	
Total nitrogen (Total N) ([6])	EN 12260, EN ISO 11905-1	Biological treatment of waste	Once every month	
		Re-refining of waste oil		
		Treatment of water-based liquid waste	Once every day	
Total organic carbon (TOC) ([5])([6])	EN 1484	All waste treatments except treatment of water-based liquid waste	Once every month	
		Treatment of water-based liquid waste	Once every day	
Total phosphorus (Total P) ([6])	Various EN standards available (i.e. EN ISO 15681-1 and -2, EN ISO 6878, EN ISO 11885)	Biological treatment of waste	Once every month	
		Treatment of water-based liquid waste	Once every day	
Total suspended solids (TSS) ([6])	EN 872	All waste treatments except treatment of water-based liquid waste	Once every month	
		Treatment of water-based liquid waste	Once every day	

Table 6: Waste Treatments BRef – BAT Conclusions (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
General BAT Conclusions		
8	Channelled emissions to air	N/A (Effluent Treatment Plant)
9	Diffuse emissions of organic compounds (solvents)	N/A
10	BAT is to periodically monitor odour emissions	ERA Document (Document reference DCUK.01.01/ERA) and OMP Document (Document reference DCUK.01.01/OMP)
11	BAT is to monitor the annual consumption of water, energy and raw materials, as well as the annual generation of residues and waste water, with a frequency of at least once a year.	EPTR Document - Section 9
12	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	See OMP Document (Document reference DCUK.01.01/OMP)
13	In order to prevent or where that is not practicable, to reduce odour emissions, BAT is to use one or a combination of the techniques given below: a. minimising residence times b. using chemical treatment c. optimising aerobic treatment	EPTR Document - Section 6.3 ERA Document (Document reference DCUK.01.01/ERA)
14	In order to prevent or, where that is no practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques given below: i. minimising the number of potential diffuse emission sources ii. selection and use of high-integrity equipment iii. corrosion prevention iv. containment, collection and treatment of diffuse emissions v. dampening vi. maintenance vii. cleaning of waste treatment and storage areas viii. leak detection and repair (“LDAR”) programme.	EPTR Document - Section 6.2 ERA Document (Document reference DCUK.01.01/ERA)
15 & 16	Flaring – n/a	

Table 6: Waste Treatments BRef – BAT Conclusions (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
General BAT Conclusions		
17	In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement and regularly review a noise and vibration management plan, as part of the EMS.	EPTR Document - Section 6.4 ERA Document (Document reference DCUK.01.01/ERA)
18	In order to prevent or where that is not practicable, to reduce noise and vibration emissions, BAT is to use one or a combination of the techniques given below: a) appropriate location of equipment and buildings. b) operational measures. c) low-noise equipment. d) noise and vibration control equipment. e) noise attenuation.	
19	In order to minimise water consumption, to reduce the volume of waste water generated and to prevent or where that is not practicable to reduce emissions to soil and water, BAT is to use an appropriate combination: a) water management b) water recirculation c) impermeable surface d) techniques to reduce the likelihood and impacts of overflows and failures from tanks and vessels e) roofing of water storage and treatment areas f) segregation of water streams g) adequate drainage infrastructure h) design and maintenance provisions to allow detection and repair of leaks i) appropriate buffer storage capacity.	EPTR Document - Section 9

Table 6: Waste Treatments BRef – BAT Conclusions (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
General BAT Conclusions		
20	In order to reduce emissions to water, BAT is to treat waste water using an appropriate combination of techniques: **Preliminary and primary treatment** a. equalisation b. neutralisation c. physical separation **Physico-chemical treatment** d. adsorption e. distillation/rectification f. precipitation g. chemical oxidation h. chemical reduction i. evaporation j. ion exchange k. stripping **Biological treatment e.g.** l. activated sludge process m. membrane bioreactor **Nitrogen removal** n. nitrification/denitrification when treatment includes a biological treatment **Solids Removal** o. coagulation and flocculation p. sedimentation q. filtration r. floatation BAT AELs for direct discharges to receiving water – n/a.	EPTR Document - Section 4.3.

Table 6: Waste Treatments BRef – BAT Conclusions (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
General BAT Conclusions		
20	BAT Associated Emission Levels ("AELs") for indirect discharges to receiving water body: **Table 6.2: BAT-associated emission levels (BAT-AELs) for indirect discharges to a receiving water body** **Substance/Parameter** / **BAT-AEL ([1]) ([2])** / **Waste treatment process to which the BAT-AEL applies** Hydrocarbon oil index (HOI): 0.5–10 mg/l — • Mechanical treatment in shredders of metal waste • Treatment of WEEE containing VFCs and/or VHCs • Re-refining of waste oil • Physico-chemical treatment of waste with calorific value • Water washing of excavated contaminated soil • Treatment of water-based liquid waste Free cyanide (CN^-) ([3]): 0.02– 0.1 mg/l — • Treatment of water-based liquid waste Adsorbable organically bound halogens (AOX) ([3]): 0.2–1 mg/l — • Treatment of water-based liquid waste Metals and metalloids ([3]): Arsenic (expressed as As): 0.01–0.05 mg/l Cadmium (expressed as Cd): 0.01–0.05 mg/l Chromium (expressed as Cr): 0.01–0.15 mg/l Copper (expressed as Cu): 0.05–0.5 mg/l Lead (expressed as Pb): 0.05–0.1 mg/l ([4]) Nickel (expressed as Ni): 0.05–0.5 mg/l Mercury (expressed as Hg): 0.5–5 µg/l Zinc (expressed as Zn): 0.1–1 mg/l ([5]) — • Mechanical treatment in shredders of metal waste • Treatment of WEEE containing VFCs and/or VHCs • Mechanical biological treatment of waste • Re-refining of waste oil • Physico-chemical treatment of waste with calorific value • Physico-chemical treatment of solid and/or pasty waste • Regeneration of spent solvents • Water washing of excavated contaminated soil Metals and metalloids ([3]): Arsenic (expressed as As): 0.01–0.1 mg/l Cadmium (expressed as Cd): 0.01–0.1 mg/l Chromium (expressed as Cr): 0.01–0.3 mg/l Hexavalent chromium (expressed as Cr(VI)): 0.01–0.1 mg/l Copper (expressed as Cu): 0.05–0.5 mg/l Lead (expressed as Pb): 0.05–0.3 mg/l Nickel (expressed as Ni): 0.05–1 mg/l Mercury (expressed as Hg): 1–10 µg/l Zinc (expressed as Zn): 0.1–2 mg/l — • Treatment of water-based liquid waste ([1]) The averaging periods are defined in the General considerations. ([2]) The BAT-AELs may not apply if the downstream waste water treatment plant abates the pollutants concerned, provided this does not lead to a higher level of pollution in the environment. ([3]) The BAT-AELs only apply when the substance concerned is identified as relevant in the waste water inventory mentioned in BAT 3. ([4]) The upper end of the range is 0.3 mg/l for mechanical treatment in shredders of metal waste. ([5]) The upper end of the range is 2 mg/l for mechanical treatment in shredders of metal waste.	Previous Permit monitoring requirements prior to issue of the latest variation following the FDM Bref Permit review included Cd and Hg monitoring limits and DCUK annual reporting to the regulator has shown the BAT-AEL to be consistently met.

Table 6: Waste Treatments BRef – BAT Conclusions (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
General BAT Conclusions		
21	In order to prevent or limit the environmental consequences of accidents and incidents, BAT is to use all of the techniques given as part of the accident management plan: a. protection measures b. management of incidental/accidental emissions c. incident/accident registration and assessment system.	ERA Document (Document reference DCUK.01.01/ERA)
22	In order to use material efficiently, BAT is to substitute materials with waste.	EPTR Document - Section 9.7
23	In order to use energy efficiently, BAT is to use both techniques below: a. Energy efficiency plan b. Energy balance record	EPTR Document - Section 9.2 & 9.3
24	reuse of packaging – n/a	
BAT Conclusions for the Physico-chemical Treatment of Waste		
40	In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures.	N/A – effluent waste water produced on site – no waste input.
41	In order to reduce emissions of dust, organic compounds and ammonia ("NH_3") to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below: a. Adsorption b. Biofilter c. Fabric filter d. Wet scrubbing.	EPTR Document - Section 4.3, 5.2 & 5.6

Table 6: Waste Treatments BRef – BAT Conclusions (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
BAT Conclusions for the Treatment of Water-Based Liquid Waste		
52	In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures.	n/a – effluent waste water produced on site
53	In order to reduce emissions of HCl, NH_3 and organic compounds to air, BAT is to apply BAT 14d and use one or a combination of the techniques: a. Adsorption b. Biofilter c. Thermal oxidation d. Wet scrubbing.	EPTR Document - Section 4.3, 5.2 & 5.6

10.2. Appropriate BAT Conclusions – Food, Drink and Milk BRef

10.2.1. Compliance against BAT requirements within the Food, Drink and Milk BRef (2019) has also been assessed for all aspects of the proposed variation.

10.2.2. A demonstration of compliance with applicable BAT is provided in Table 7.

10.2.3. These BAT Conclusions apply without prejudice to other relevant legislation, such as food safety.

Table 7: Food, Drink and Milk BRef – BAT Conclusions (2019)

BAT Ref No.	BAT Requirement	BAT Compliance
General BAT Conclusions		
1	In order to improve the overall environmental performance, BAT is to elaborate and implement an environmental management system (EMS) that incorporates all of the following features: i. commitment, leadership, and accountability of the management, including senior management, for the implementation of an effective EMS; ii. an analysis that includes the determination of the organisation's context, the identification of the needs and expectations of interested parties, the identification of characteristics of the installation that are associated with possible risks for the environment (or human health) as well as of the applicable legal requirements relating to the environment; iii. development of an environmental policy that includes the continuous improvement of the environmental performance of the installation; iv. establishing objectives and performance indicators in relation to significant environmental aspects, including safeguarding compliance with applicable legal requirements; v. planning and implementing the necessary procedures and actions (including corrective and preventive actions where needed), to achieve the environmental objectives and avoid environmental risks; vi. determination of structures, roles and responsibilities in relation to environmental aspects and objectives and provision of the financial and human resources needed; vii. ensuring the necessary competence and awareness of staff whose work may affect the environmental performance of the installation (e.g. by providing information and training); viii. internal and external communication; ix. fostering employee involvement in good environmental management practices; x. establishing and maintaining a management manual and written procedures to control activities with significant environmental impact as well as relevant records; xi. effective operational planning and process control; xii. implementation of appropriate maintenance programmes; xiii. emergency preparedness and response protocols, including the prevention and/or mitigation of the adverse (environmental) impacts of emergency situations; xiv. when (re)designing a (new) installation or a part thereof, consideration of its environmental impacts throughout its life, which includes construction, maintenance, operation and decommissioning;	EPTR Document - Section 3

Table 7: Food, Drink and Milk BRef – BAT Conclusions (2019) (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
General BAT Conclusions		
1 (Cont.)	xv. implementation of a monitoring and measurement programme, if necessary, information can be found in the Reference Report on Monitoring of Emissions to Air and Water from IED Installations; xvi. application of sectoral benchmarking on a regular basis; xvii. periodic independent (as far as practicable) internal auditing and periodic independent external auditing in order to assess the environmental performance and to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained; xviii. evaluation of causes of nonconformities, implementation of corrective actions in response to nonconformities, review of the effectiveness of corrective actions, and determination of whether similar nonconformities exist or could potentially occur; xix. periodic review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness; xx. following and taking into account the development of cleaner techniques. Specifically for the food, drink and milk sector, BAT is to also incorporate the following features in the EMS: i. noise management plan (see BAT 13); ii. odour management plan (see BAT 15); iii. inventory of water, energy and raw materials consumption as well as of waste water and waste gas streams (see BAT 2); and iv. energy efficiency plan (see BAT 6a).	EPTR Document - Section 3
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 following features: I. Information about the food, drink and milk production processes, including: (a) simplified process flow sheets that show the origin of the emissions; (b) descriptions of process-integrated techniques and waste water/waste gas treatment techniques to prevent or reduce emissions, including their performance. II. Information about water consumption and usage (e.g. flow diagrams and water mass balances), and identification of actions to reduce water consumption and waste water volume (see BAT 7).	EPTR Document - Section 3

Table 7: Food, Drink and Milk BRef – BAT Conclusions (2019) (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
General BAT Conclusions		
2	III. Information about the quantity and characteristics of the waste water streams, such as: (a) average values and variability of flow, pH and temperature; (b) average concentration and load values of relevant pollutants/parameters (e.g. TOC or COD, nitrogen species, phosphorus, chloride, conductivity) and their variability. IV. Information about the characteristics of the waste gas streams, such as: (a) average values and variability of flow and temperature; (b) average concentration and load values of relevant pollutants/parameters (e.g. dust, TVOC, CO, NO_X, SO_X) and their variability; (c) presence of other substances that may affect the waste gas treatment system or plant safety (e.g. oxygen, water vapour, dust). V. Information about energy consumption and usage, the quantity of raw materials used, as well as the quantity and characteristics of residues generated, and identification of actions for continuous improvement of resource efficiency (see for example BAT 6 and BAT 10). VI. Identification and implementation of an appropriate monitoring strategy with the aim of increasing resource efficiency, taking into account energy, water and raw materials consumption. Monitoring can include direct measurements, calculations or recording with an appropriate frequency. The monitoring is broken down at the most appropriate level (e.g. at process or plant/installation level).	EPTR Document - Section 3, 4.3, 5.7, 8.5 and 9
Monitoring		
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).	EPTR Document - Section 5.7 and 8.5
4	BAT is to monitor emissions to water with at least the frequency given below 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.	Monitoring only applies in the case of direct discharge to a receiving water body.
5	Emissions to air monitoring – n/a	

Table 7: Food, Drink and Milk BRef – BAT Conclusions (2019) (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
Energy Efficiency		
6	In order to increase energy efficiency, BAT is to use BAT 6a and an appropriate combination of the common techniques listed in technique b below: a) Energy Efficiency Plan; and b) Use of common techniques – • burner regulation and control; • cogeneration; • energy-efficient motors; • heat recovery with heat exchangers and/or heat pumps (including mechanical vapour recompression); - lighting; • minimising blowdown from the boiler; • optimising steam distribution systems; • preheating feed water (including the use of economisers); • process control systems; • reducing compressed air system leaks; • reducing heat losses by insulation; • variable speed drives; • multiple-effect evaporation; • use of solar energy.	EPTR Document - Section 9
Water Consumption and Waste Water Discharge		
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 below. Common techniques: a) water recycling; b) optimisation of water flow; c) optimisation of water nozzles and hoses; d) segregation of water streams;	EPTR Document - Section 9

Table 7: Food, Drink and Milk BRef – BAT Conclusions (2019) (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
Water Consumption and Waste Water Discharge (Cont.)		
7	Techniques related to cleaning operations: e) dry cleaning; f) pipping system for pipes g) high-pressure cleaning h) optimisation of chemical dosing and water use in cleaning in place ("CIP") i) low pressure foam and/or gel cleaning j) optimised design and construction of equipment and process areas k) cleaning of equipment as soon as possible.	EPTR Document - Section 9
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 below: a) proper selection of cleaning chemicals and/or disinfectants b) reuse of cleaning chemicals in CIP c) dry cleaning d) optimised design and construction of equipment and process areas.	EPTR Document - Section 9
9	In order to prevent emissions of ozone-depleting substances and of substances with a high global warming potential from cooling and freezing, BAT is to use refrigerants without ozone depletion potential and with a low global warming potential.	n/a to variation application
10	In order to increase resource efficiency, BAT is to use one or a combination of the techniques given below. a) Anaerobic digestion; b) Use of residues; c) Separation of residues; d) Recovery and reuse of residues from the pasteuriser; e) Phosphorus recovery as struvite; and f) Use of waste water for land spreading.	EPTR Document - Section 9
Emissions to Water		
11	In order to prevent uncontrolled emissions to water, BAT is to provide an appropriate buffer storage capacity for waste water.	EPTR Document - Section 5.7

Table 7: Food, Drink and Milk BRef – BAT Conclusions (2019) (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
Emissions to Water (Cont.)		
12	In order to reduce emissions to water, BAT is to use an appropriate combination of the techniques given below. Preliminary, primary and general treatment: a) Equalisation; b) Neutralisation; c) Physical separation e.g. screens, sieves, grit separators, oil/fat separators, or primary settlement tanks. Aerobic and/or anaerobic treatment (secondary treatment) d) Aerobic and/or anaerobic treatment (secondary treatment), e.g. activated sludge process, aerobic lagoon, up flow anaerobic sludge blanket process, anaerobic contact process, membrane bioreactor. Nitrogen removal e) Nitrification and/or denitrification; f) Partial nitrification – anaerobic ammonium oxidation; Phosphorus recovery and/or removal g) Phosphorus recovery as struvite h) Precipitation i) Enhanced biological phosphorus removal Final solids removal j) Coagulation and flocculation k) Sedimentation l) Filtration (e.g. sand filtration, microfiltration, ultrafiltration) m) Flotation. BAT-associated emission levels (BAT-AELS) for direct emissions to a receiving water body – n/a	EPTR Document - Section 4.3.
Noise		
13	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 detailed – n/a	EPTR Document – Section 6.4 ERA Document (Document reference DCUK.01.01/ERA)

Table 7: Food, Drink and Milk BRef – BAT Conclusions (2019) (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
Noise		
14	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 below: a) Appropriate location of equipment and buildings; b) Operational measures: I. improved inspection and maintenance of equipment; II. closing of doors and windows of enclosed areas, if possible; III. equipment operation by experienced staff; IV. avoidance of noisy activities at night, if possible; V. provisions for noise control, e.g. during maintenance activities. c) Low-noise equipment: I. noise reducers; II. insulation of equipment; III. enclosure of noisy equipment; IV. soundproofing of buildings. d) Noise control equipment e) Noise abatement.	EPTR Document – Section 6.4 ERA Document (Document reference DCUK.01.01/ERA)
Odour		
15	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), that includes all of the following elements: • A protocol containing actions and timelines. • A protocol for conducting odour monitoring. It may be complemented by measurement/estimation of odour exposure or estimation of odour impact. • A protocol for response to identified odour incidents, e.g. complaints. • An odour prevention and reduction programme designed to identify the source(s); to measure/estimate odour exposure; to characterise the contributions of the sources; and to implement prevention and/or reduction measures.	EPTR Document – Section 6.3 ERA Document (Document reference DCUK.01.01/ERA)

Table 7: Food, Drink and Milk BRef – BAT Conclusions (2019) (Cont.)

BAT Ref No.	BAT Requirement	BAT Compliance
BAT Conclusions for Meat Processing		
Energy Efficiency		
	Indicative environmental performance level for specific energy consumption: **Unit** | Specific Energy Consumption (yearly average) MWh/tonne of raw materials | 0.25-0.26	0.17 6334MWh/37249 tonnes (see Regulation 61 notice responses previously submitted to EA)
Water Consumption and Waste Water Discharge		
	Indicative environmental performance level for specific waste water discharge: **Unit** | Specific Waste Water Discharge (yearly average) m^3/tonne of raw materials | 1.5-8.0	0.98 36873m^3 / 37249T = 0.98 (see Regulation 61 notice responses previously submitted to EA)

APPENDIX I
TRADE EFFLUENT CONSENT & SWW MONITORING RESULTS

SOUTH WEST WATER

Peninsula House, Rydon Lane, Exeter, EX2 7HR southwestwater.co.uk
0344 346 2020* Minicom 0800 169 9965 Fax 01392 423792

CONSENT NO. T0707
SITE IPID No: 265501
SX 03612 60093

South West Water Services Limited
Water Industry Act 1991
Consent to the discharge of trade effluent to the public foul water sewer
Variation

To:

Danish Crown UK Ltd
Ebeneezer
Bugle
St Austell
PL26 8RR

WHEREAS

On the 7th March 1988 a trade effluent notice was, in pursuance of the provisions of the Water Industry Act 1991, served by you on South West Water Services Limited (hereinafter called "The Sewerage Undertaker") in respect of the trade premises known previously as Tulip Ltd and now known as Danish Crown UK Ltd, Ebeneezer, Bugle, St Austell, PL26 8RR.

Whose registered address is situated at Danish Crown UK Ltd, 57 Stanley Road, Whitefield, Manchester M45 8GZ.

Under the provisions of the above mentioned Act the discharge of trade effluent in accordance with the said trade effluent notice would not be lawful without the consent of the Sewerage Undertaker.

PURSUANT TO Section 124 of the Water Industry Act 1991 the Company hereby direct that the conditions to which the Consent is subject are varied to the conditions set out below.

1. **Sewer Affected.** The public sewer into which the trade effluent may be discharged is the foul water sewer situated adjacent to Danish Crown UK Ltd at Ebeneezer.

2. **Point of Discharge.** The trade effluent shall only be discharged at the point indicated on the plan attached hereto, unless The Sewerage Undertaker has otherwise agreed in writing.

3. **Nature or Composition.** The trade effluent to be discharged shall consist solely of waste waters specified in the trade effluent notice served in respect of the premises: screened and treated washings from the curing and preparing of meat products.

4. **Maximum volume.** The maximum volume of trade effluent to be discharged in any continuous period of 24 hours shall not exceed 150 cubic metres.

5. **Maximum rate.** The highest rate at which the trade effluent may be discharged shall not exceed 10 cubic metres per hour.

6. **Change of Nature or Composition**. Prior written notice must be given to The Sewerage Undertaker of any proposed change in the process or the process materials or any other circumstance likely to alter the constituents of the trade effluent discharge

7. **Change of Owner or Occupier**. Written notice must be given without delay to The Sewerage Undertaker of any change in the name of the owner or occupier of the premises from which the trade effluent is discharged

8. **Matters to be eliminated prior to discharge to sewer**

   8.1. The trade effluent to be discharged shall not contain any special category effluent (as defined in Section 138 of the Water Industry Act 1991) in a concentration greater than background concentration (as defined in the Trade Effluents (Prescribed Processes and Substances) Regulations 1989) Appendix I.

   8.2. Where the trade effluent derives from a prescribed process mentioned in Schedule 2 to the Trade Effluents (Prescribed Processes and Substances) Regulations 1989, it shall not contain asbestos (as defined in the said Regulations) and chloroform in a concentration greater than the background concentration (as defined in the said Regulations)

   8.3. The trade effluent shall not contain any matter in contravention of Section 111 of the Water Industry Act, 1991

   8.4. The trade effluent shall not contain any matter in contravention of the Animal By-products Regulations, 2005

9. **Matters to be limited prior to discharge to sewer**

   9.1. The trade effluent to be discharged shall not contain any of the substances or properties listed in Appendix II in amounts or proportions other than those which comply with the limits there stated and shall not contain any substances or properties not listed in Appendix II except with the prior written permission of The Sewerage Undertaker and on such terms and conditions as are set out therein.

10. **Inspection Chamber**. An inspection chamber or manhole shall be provided and maintained in connection with each pipe through which the trade effluent is to be discharged into the public sewer, and such inspection chamber or manhole shall be so constructed and maintained as to enable duly authorised representatives of The Sewerage Undertaker to safely and readily obtain samples at any time, of the trade effluent so discharged. The inspection chamber shall be at the point marked "sample point" on the plan hereto unless The Sewerage Undertaker has agreed in

writing to a change of location.

11. **Quality and Volume measurement.**

11.1. Apparatus adequate for measuring and automatically recording the volume, rate and composition of trade effluent so discharged shall be provided with every such pipe and such measurement apparatus shall be maintained and tested by the occupier of the trade premises at their own cost and to the satisfaction of the Sewerage Undertaker.

11.2. If the measuring and recording apparatus ceases to record or is suspected of not measuring correctly, then the Sewerage Undertaker shall have the right to make estimates of the volume and composition of the trade effluent until such time as the said apparatus is again operating to the satisfaction of the Sewerage Undertaker.

11.3. The foregoing provisions of this condition shall be of no effect so long as there is provided and maintained to the satisfaction of the Sewerage Undertaker some other method approved by the Sewerage Undertaker of sampling the trade effluent or determining, measuring and recording the volume and composition of the trade effluent so discharged.

11.4. Records of the volume and composition of the trade effluent discharged into the sewer shall be kept available at all times for inspection by any authorised representative of The Sewerage Undertaker and copies of such records shall be sent to The Sewerage Undertaker on demand.

12. **Agreed Changes**. Changes for which agreement is sought in accordance with Condition 3 and 11 are deemed by The Sewerage Undertaker not to constitute a variation of consent under Section 124 of the Water Industry Act 1991

13. **Analytical Methods**. The method of analysis used to detemine the concentration of a constituent of any sample shall be that method currently used by The Sewerage Undertaker or its agent.

14. **Payment.**

14.1. Payment shall be made to the Sewerage Undertaker for the reception, treatment and disposal of the trade effluent discharged into the public foul water sewer in accordance with the Sewerage Undertaker's current Charging Scheme.

14.2. All sums payable to the Sewerage Undertaker under this condition shall become due and payable on demand.

Dated the 1st June 2015

Signed: .....

Trade Effluent Manager for and on behalf of South West Water Services Ltd

Address to which all communication should be sent:

Trade Effluent Department
South West Water Ltd
Lucknow Road
Castle Canyke
Bodmin
PL31 1EZ

Telephone: **01208 264 047**
Email: **Tradeeffluentwest@Southwestwater.co.uk**

Attachments:

1	Appendix I
2	Appendix II
3	Drainage Plan

APPENDIX I

Substances limited to Background Concentrations (limit of detection)

Mercury and its compounds
Cadmium and its compounds
Gamma hexachlorocyclohexane (HCH)
DDT
Pentachlorophenol and its compounds
Hexachlorobenzene (HCB)
Hexachlorobutadiene (HCBD)
Aldrin
Dieldrin
Endrin
Tetrachloromethane (Carbon Tetrachloride)
Polychlorinated Biphenyls
Dichlorvos
1,2-Dichloroethane
Trichlorobenzene
Atrazine
Simazine
Tributyltin compounds
Triphenyltin compounds
Trifluralin
Fenitrothion
Azinphos-methyl
Malathion
Endosulphan
Chloroform
Asbestos

APPENDIX II

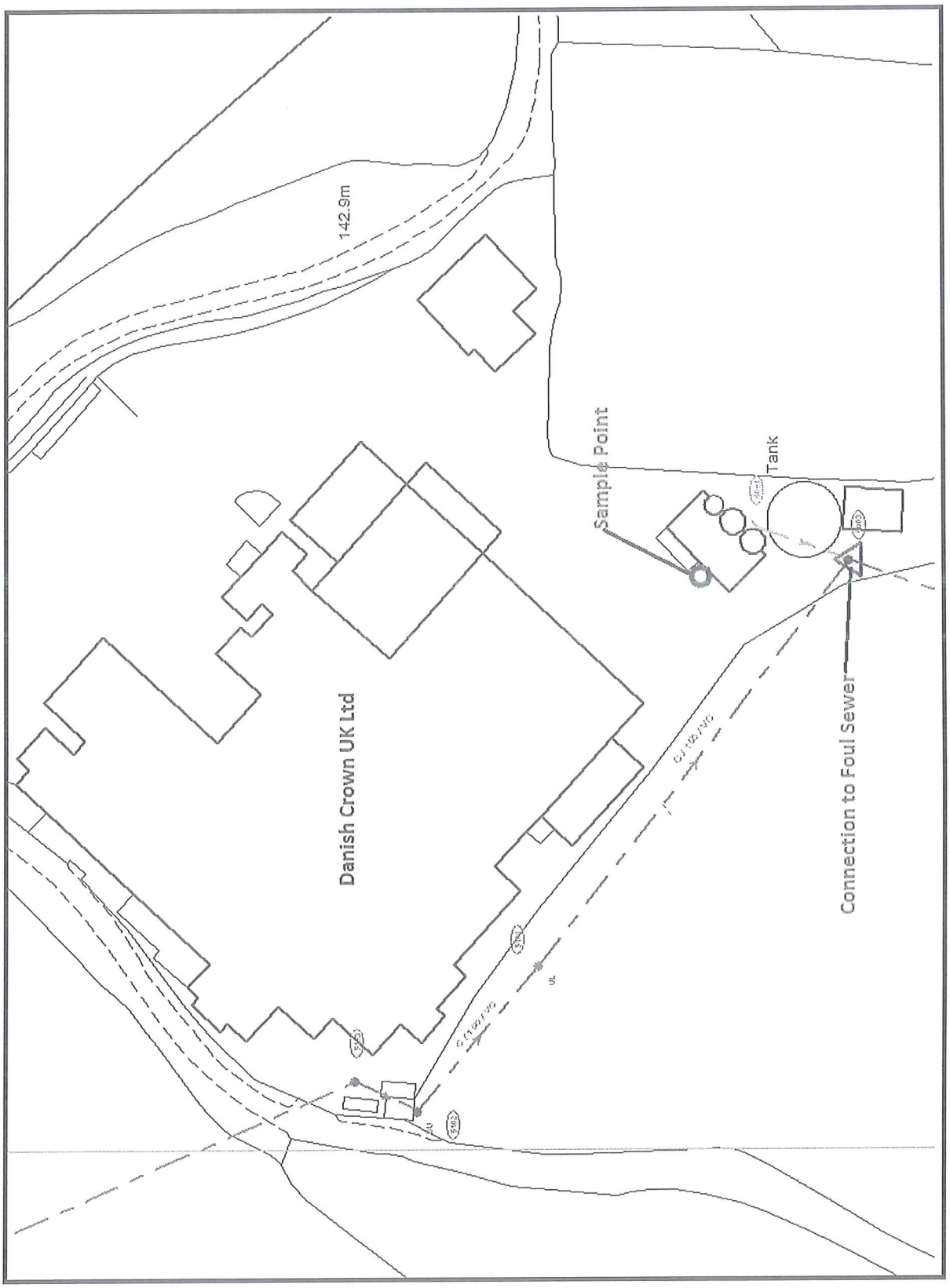
The following constituents shall be in the range

pH	6-10
Temperature at point of discharge to sewer	<43 °C

Concentrations of the following constituents shall not exceed:-

Chemical Oxygen Demand (COD)	1000	milligrams per litre
Suspended Solids at 105°C	200	milligrams per litre
Total Oil and Grease	100	milligrams

Site Drainage Plan



APPENDIX II
EVIDENCE OF CLIMATE CHANGE AGREEMENT

HM Revenue & Customs

Climate Change Levy Relief supporting analysis

About this form

This form is designed to be filled in on screen. You must answer all the questions except those marked 'optional'. You can't save the form but once you've completed it you'll be able to print a copy and post it.

You should use this form to give us details to support your certificate of entitlement to relief from the main rates of Climate Change Levy (CCL).

Once completed, the form will automatically work out the total percentage relief to use on the form PP11 'Climate Change Levy supplier certificate'

What to do next

When you have filled in this form you should fill in form PP11 'Climate Change Levy supplier certificate' and send it to your energy supplier. Do not send a copy of the PP11 'Climate Change Levy supplier certificate' to us but keep a copy for your records). For more information about the PP11 follow the link below.

Climate Change Levy supplier certificate

Your rights and obligations

'Your Charter' explains what you can expect from us and what we expect from you. For more information follow the charter link in the footer.

About you

Full name

Martyn Robinson

Position within the business

Finance Director

Telephone number

0161 351 2835

Do you have an email address?

- (●) Yes
- ( ) No

Email address

marob@danishcrown.com

About your qualifying business

Name of your qualifying business

Danish Crown UK Ltd

Do you have a VAT Registration Number?

- (•) Yes
- ( ) No

VAT Registration Number

407805555

Site address

Is this address in the UK?

- (•) Yes
- ( ) No

Line 1

Bugle

Line 2

Ebenezer

Line 3 (optional)

St Austell

Postcode

PL26 8RR

Details of relief claimed

Which commodity do you want to claim relief on?

- ( ) Gas
- (•) Electricity
- ( ) LPG
- ( ) Solid fuel

Which unit of measurement have you used?

- (•) Kilowatt hours (kwh)
- ( ) Gigawatt hours (gwh)
- ( ) Kilograms (kg)
- ( ) Megawatt hours (mwh)
- ( ) Therms (thm)
- ( ) Litres (l)
- ( ) Hectolitres (hl)
- ( ) Tonnes (t)

Total percentage relief from CCL applicable to taxable commodity

92 %

92 %

Date from which relief applies

01 11 2022

Date from which relief applies

- ◯ Before 1 April 2019
- ◯ Between 1 April 2019 and 31 March 2020
- ◯ Between 1 April 2020 and 31 March 2021
- ◯ Between 1 April 2021 and 31 March 2022
- ◉ On or after 1 April 2022

What is the reason for submitting this form?

- ◯ New certificate
- ◉ Change of supplier
- ◯ Five-year deadline
- ◯ Annual review
- ◯ Amendment

Taxable commodities on which relief is claimed (on or after 1 April 2022)

Taxable commodities

		Quantity	
Total quantity of taxable commodity supplied to the site	a	6,357,922	?
Community heating scheme	b		?
Transport	c		?
Commodity producer	d		?
Not used for fuel	e		?
Export or onward supply	f		?
Electricity producers for generating stations with a capacity greater than 2MW	g		?
Supply for CHPs please remember to give your CHPQA scheme reference number below this table	h		?
Mineralogical and/or metallurgial processes	i		?
Reduced rate please remember to give your CCA unique facility number below this table	j	6,357,922	?
Total claimable for reduced rate	k	5,849,288.24	?
Total quantity of relief claimable	l	**5,849,288.24**	?

Climate change agreement unique facility number

FDF1/F001159

Declaration

☑ I confirm that the information I have given is correct

Signature

Date

DD MM YYYY

29 11 2022

HMRC Use Only

Date of receipt DD MM YYYY

Unique reference number

What to do now

Fill in form PP11 'Climate change Levy supplier certificate' and send it to your energy supplier (do not send a copy of the PP11 'Climate Change Levy supplier certificate' to us but keep a copy for your records).

You must review the correctness of PP11 supplier certificates no later than the earlier of:

- the 60th day following the anniversary of the date on which the PP11 supplier certificate was delivered to the supplier
- the 60th day after the customer has burned (or in the case of electricity consumed) the last of the taxable commodity supplied to which the PP11 supplier certificate relates

More information on the review of relief entitlement is within Excise Notice CCL1/3 ‘reliefs and special treatments for taxable commodities’.

Please sign and date the form in the fields provided on the printed output and send the completed form to us but keep a copy for your records.

HM Revenue and Customs
Excise Processing Teams
BX9 1GL
United Kingdom

HM Revenue & Customs

Climate Change Levy supplier certificate

About this form

This form is designed to be filled in on screen. You must answer all the questions except those marked 'optional'. You can't save the form but once you've completed it you'll be able to print a copy and post it.

Keep a copy for your own record.

Do not send a copy of this certificate to HM Revenue and Customs (HMRC). Please send it directly to your supplier.

When to use this form

Use this form to claim relief against the main rates of Climate Change Levy (CCL). Your supplier is legally obliged to receive this certificate before administering any relief. You need to complete a separate form for each taxable commodity.

Do not use this form to claim the VAT reduced rate.

If you need further help or advice go to

GOV.UK

or phone VAT general enquiries on 0300 200 3700.

Fill the form in online then print it off to sign and date the declaration.

Your rights and obligations

'Your Charter' explains what you can expect from us and what we expect from you. For more information, go to

Your Charter

Qualifying business and relief claimed

Name of qualifying business

Danish Crown UK Limited

Address of qualifying business

Is this address in the UK?

- (●) Yes
- ( ) No

Line 1

Bugle

Line 2

Ebenezer

Line 3 (optional)

St Austell

Postcode

PL26 8RR

You must complete a separate certificate for each supplier and commodity on which you wish to claim relief.

Account reference number

C173687

Identify one commodity on which relief is claimed

- ◯ Gas
- ◉ Electricity
- ◯ LPG
- ◯ Solid fuel

Electricity meter supply number

00 845 H03 22 0003 0347 281

Date from which relief is to be applied

01 | 11 | 2022

Percentage of supplies eligible for relief from CCL

92 %

Energy supplier's name

Drax

Declaration

If you do not give complete and accurate information on this certificate you may receive a financial penalty. If HMRC impose a penalty you have the right to appeal.

Full name of responsible person within the business

Martyn Robinson

Phone number

0161 351 2835

☑ I confirm that the information I have given on this form is complete and correct

Signature

Date

DD MM YYYY

2	9		1	1		2	0	2	2

What to do now

Please sign and date the completed form, then send it to your supplier.

APPENDIX III
MATERIAL SAFETY DATA SHEETS

1.0 IDENTIFICATION Trufloc® SULPHURIC ACID 50%

Recommended use of the chemical and restrictions on use

The preparation is used for the treatment of industrial waste water (effluent).

Supplier's details	Atana Ltd, Hydrus House, Dromintee Road, Hilltop Industrial Estate, Bardon Hill, Coalville, Leicestershire, LE67 1TX Tel +44 (0) 1530 830020 Fax +44 (0) 1530 832310 If you have queries regarding this MSDS please email andrew.dodds@atana.co.uk
Emergency phone number	8am – 4pm weekdays emergency telephone number 01530830020 - Head Office. 24 hour emergency telephone number 07782354001 – Atana Ltd, David Garton

2.0 HAZARD IDENTIFICATION

GHS label elements including precautionary statements

DANGER

Skin Corr. 1A H314: Causes severe skin burns and skin damage.

3.0 COMPOSITION/INFORMATION ON INGREDIENTS

Name	Concentration	CAS#	EINECS#	DSD classification	CLP Classification
Sulphuric acid	50%	7664-93-9	231-639-5	Skin. Corr 1A; H314	C; R35

4.0 FIRST AID MEASURES

Inhalation	Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
Ingestion	Drink plenty of water and provide fresh air. Call for a doctor immediately. Do not induce vomiting; call for medical help immediately.

Skin contact	Immediately rinse with water. Seek immediate medical advice.
Eye contact	Rinse opened eye for several minutes under running water. Then consult a doctor.
Doctor's information	Danger of pulmonary oedema.

5.0 FIRE-FIGHTING MEASURES

Suitable extinguishing media	Fire-extinguishing powder.
Fire and explosion hazards	Not known.
Special protective equipment for of fire-fighting	Wear self-contained respiratory protective device.
Other information	Cool endangered receptacles with water spray.

6.0 ACCIDENTAL RELEASE MEASURES

Personal precautions	Wear protective equipment. Keep unprotected persons away.
Environmental precautions	Do not allow to enter sewers/ surface or ground water.
Methods for cleaning up	Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13. Ensure adequate ventilation.

7.0 HANDLING AND STORAGE

Handling	Keep receptacles tightly sealed. When diluting always pour product into water and not vice versa.
Storage conditions	Provide acid-resistant floor. Do not store together with alkalis (caustic solutions). Store away from water. Keep container tightly sealed.

8.0 CONTROLS/PERSONAL PROTECTION EXPOSURE

Occupational exposure limits	The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
Exposure controls	Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing

Atana Limited
Hydrus House, Dromintee Road, Hilltop Industrial Estate, Bardon Hill, Coalville, Leicestershire, LE67 1TX
Tel: +44 (0) 1530 830020 Fax: +44 (0) 1530 832310 Email: enquiries@atana.co.uk
Registered in England No. 04345865

Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Hand protection: PVC gloves.
Eye protection: tightly sealed goggles.

9.0 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colourless fluid with a pungent odour.
Melting point / range	Undetermined.
Boiling point / range	120 ºC
Setting temperature / range	-20 ºC
Flash point	Not applicable.
Self-igniting	Product is not self-igniting.
Danger of explosion	Product does not present an explosion hazard.
Density @ 20º C	1.398 g/cm³
Solubility in / miscibility with water	Fully miscible.

10.0 STABILITY AND REACTIVITY

Thermal decomposition / conditions to avoid	No decomposition if used according to specifications.
Possibility of hazardous reactions	Reacts with various metals. Heating occurs when water is added. When diluting, always add acid to water, never vice versa. Reacts with water. Reacts with strong alkali.
Hazardous decomposition products	No dangerous decomposition products known.

11.0 TOXICOLOGICAL INFORMATION

Toxicity	Acute toxicity: · LD/LC50 values relevant for classification: 7664-93-9 sulphuric acid Oral LD50 2140 mg/kg (rat) Inhalative LC50 (0.5 h) 347 ppm (rat)

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LC50/4 h 510 mg/l (rat)

Primary irritant effect:
on the skin: Strong caustic effect on skin and mucous membranes.
on the eye: Strong caustic effect.

Sensitization: No sensitizing effects known.

Additional toxicological information:
The product shows the following dangers according to the calculation method of the General EU
Classification Guidelines for Preparations as issued in the latest version:
Corrosive
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12.0 ECOLOGICAL INFORMATION

Ecotoxicity

Acquatic toxicity:
7664-93-9 sulphuric acid
EC 50 (24u) 29 mg/l (daphnia)
LC 50 (24u) 29 mg/l (daphnia magna)
LC 50 (96 u) =>500 mg/l (Brachydanio rerio)

General notes: Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water. Do not allow product to reach ground water, water course or sewage system.

Results of PBT and vPvB assessment: PBT: Not applicable, vPvB: Not applicable.

Bioaccumulative potential

Not worth-mentioning accumulating in organisms.

13.0 DISPOSAL CONSIDERATIONS

Disposal methods

Waste treatment methods: Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Uncleaned packaging: Disposal must be made according to official regulations.
Recommended cleansing agents: Water, if necessary together with cleansing agents.

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14.0 TRANSPORT INFORMATION

ADR	UN-Number: 2796 Packaging group: II Hazard label 8 UN proper shipping name: 2796 SULPHURIC ACID Tunnel restriction code E

15.0 REGULATORY INFORMATION

Labelling	Please see Section 2.0.
16.0 Risk and safety phrases	C; Corrosive H314: Causes severe skin burns and eye damage. R35 Causes severe burns. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S30 Never add water to this product. S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Date of amendment	Reason for amendment
January 2013	Annual SDS review and update.
August 2015	Email change and review

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1.0 IDENTIFICATION

Trufloc® FERRIC CHLORIDE > = 10%

Recommended use of the chemical and restrictions on use

The preparation is used for the treatment of industrial waste water (effluent).

Supplier's details

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If you have queries regarding this MSDS please email andrew.dodds@atana.co.uk

Emergency phone number

8am – 4pm weekdays emergency telephone number 01530830020 - Head Office.

24 hour emergency telephone number 07782354001 – Atana Ltd, David Garton

2.0 HAZARD IDENTIFICATION

GHS label elements including precautionary statements

DANGER

H314: Causes severe skin burns and eye damage (Category 1B skin corrosion / irritation)

H335: May cause respiratory irritation (Category 3 specific target organ toxicity – single exposure)

3.0 COMPOSITION/INFORMATION ON INGREDIENTS

Name	Concentration	CAS#	EINECS#	DSD classification	CLP Classification
Iron trichloride	> = 10%	7705-08-0	231-729-4	C (corrosive); R34, Xi	H314, H335

(irritant); R37

4.0 FIRST AID MEASURES

Inhalation

P261: Avoid breathing dust / fume / gas / mist / vapours / spray.

P271: Use only outdoors or in a well-ventilated area.

P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Remove to fresh air. If symptoms call a physician. If breathing is irregular or stopped, administer artificial respiration. If unconscious place in recovery position.

Ingestion

P312: Call a POISON CENTER or doctor / physician if you feel unwell.

Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

Skin contact

Take off all contaminated clothing immediately. Wash off any contamination immediately with soap and water.

Eye contact

Rinse immediately with plenty of water, also under the eyelids for at least 5 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.

5.0 FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use existing measures that are appropriate to local circumstances and the surrounding environment.

DO NOT USE high volume water jet.

In the event of fire, wear self-contained breathing apparatus. Wear personal protective equipment. Incomplete combustion may form toxic pyrolysis products.

6.0 ACCIDENTAL RELEASE MEASURES

Personal precautions

Please see section 8.0.

Environmental precautions

Do not flush into surface water or sanitary sewer system.

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Methods and materials for containment and cleaning up	Use mechanical handling equipment. Keep in suitable, closed containers for disposal. Absorb with liquid-binding material (sand, diatomite, closed containers for disposal.

7.0 HANDLING AND STORAGE

Precautions for safe handling	Keep container tightly closed. Avoid formation of aerosol. Do not breathe vapours or spray mist. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity. Keep away from food, drink and animal feeding stuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of the workday. Take off all contaminated clothing immediately. Provide adequate ventilation. Avoid contact with the skin and eyes. Do not breathe vapours or spray mist.
Conditions for safe storage, including any incompatibilities	P403 + P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. Keep only in the original container. Keep tightly closed in a dry and cool place. Keep away from heat.

8.0 CONTROLS/PERSONAL PROTECTION EXPOSURE

Control parameters	EH40 WEL, time weighted average (TWA); as Fe 1 mg/m³. EH40 WEL, short term exposure limit (STEL); as Fe 2 mg/m³.
Individual protection measures, such as PPE	Respiratory protective equipment: exposure is required if the exposure limit is exceeded (e.g. OEL). When aerosol or mist is formed use suitable respiratory protection. Hand protection: glove material has to be impermeable and resistant to the product / the substance / the preparation. Eye protection: goggles or a face-shield giving complete protection to eyes.

9.0 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Oily, dark brown liquid.

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Odour	Characteristic.
pH	- 1 to - 2 (very acidic).
Melting point / range	ca. – 10 °C.
Boiling point / boiling range	280 °C.
Viscosity, kinematic	7.5 mm2/s (25 °C).

10.0 STABILITY AND REACTIVITY

Stability	Stable.
Conditions to avoid	0 °C.
Incompatible materials	Acids, alkalis, copper, silver, zinc, hydrogen peroxide, hypochlorites, iron and mild steel.

11.0 TOXICOLOGICAL INFORMATION

Acute toxicity	LD50: 900 mg/kg (rat) Inhalation: irritating to respiratory system. Prolonged or repeated contact with vapour may cause chronic bronchitis and corrosive damages. Skin: corrosive. Eyes: corrosive effects.
Sensitization	No sensitizing effect known.

12.0 ECOLOGICAL INFORMATION

Toxicity	Toxic to algae.
General	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

13.0 DISPOSAL CONSIDERATIONS

Disposal methods	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

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Disposal together with normal waste is allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.

Empty contaminated packaging thoroughly. They can be recycled after thorough and proper cleaning. Packaging that cannot be cleaned are to be disposed in the same manner as the product. No waste code according to the EWC can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

14.0 TRANSPORT INFORMATION

UN 2582.

ADR name: FERRIC CHLORIDE SOLUTION.

ADR class: 8.

ADR packaging group: III.

15.0 REGULATORY INFORMATION

Labelling

See section 2.0 please.

16.0 Risk and safety phrases

R34 Causes burns.

R35 Causes severe burns.

R37 Irritating to respiratory system.

Date of amendment	Reason for amendment
June 2012	Update MSDS to reflect both DSD and CLP classifications.
January 2013	Annual SDS review and update January 2013.
August 2015	Email change and review

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SAFETY DATA SHEET

SECTION 1. Identification of the Substance/Preparation and the Company/Undertaking

1.1 Product identifier
Commercial product name: **Pulsatec AF4**

1.2 Relevant identified uses of the substance or mixture and uses advised against
Industrial
Use of substance/preparation: foam control agent

1.3 Details of supplier of the safety data sheet
Pulsar Water Technology Ltd
Connisbeare Cottage
Snapper
Barnstaple
EX32 7JY

1.4 Emergency telephone number: + 44 (0) 7836 293238

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture
Classification according to Regulation EC 1272/2008 (CLP)
This product is not classified as hazardous under Directive EC 1272/2008 (CLP)
2.2 Labelling elements
EU H208
Contains 5-Chloro-2-Methyl-2H-Isothiazol-3-one/2-Methyl-2H-Isothiazol-3-one (CMIT/MIT) may produce an allergic reaction.
2.3 Other hazards
No data available.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Not applicable.
3.2 Mixtures
An emulsion of polydimethyl siloxane.

Component	**EINECS No.**	**H Phrase**	**Concentration**
Alcohol ethoxylate	500-017-8	H400, H411	<2%

Classification (REGULATION (EC) No 1272/2008)

Acute aquatic toxicity, Category 1	H400: Very toxic to aquatic life.
Chronic aquatic toxicity, Category 2	H411: Toxic to aquatic life with long lasting effects.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures
General information:
In case of accident or if you feel unwell seek medical advice (show label or SDS where possible)
After Inhalation: Provide fresh air. Seek medical attention in case of complaints
After contact with skin: Remove contaminated clothing. Wash thoroughly with soap and water.
After contact with eyes: Rinse thoroughly with water. If irritation persists, seek medical advice.
After swallowing: Do not induce vomiting. Drink milk. If a significant quantity has been ingested, seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed
Any relevant information can be found in parts of this section.

4.3 Indication of any immediate medical attention and special treatment
No data available.

SECTION 5: FIRE FIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media:
Carbon dioxide, foam, dry chemical powder, water spray.
5.2 Special hazards arising from substance or mixture
In a fire this product will release oxides of carbon.
5.3 Advice for fire fighters
Cool tanks and containers exposed to fire with water. Cover spills, which are not burning, with foam or sand.
Special protective equipment for fire fighters:
Use respiration and eye protection in case of smoke.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
If material is released indicate risk of slipping. Do not walk through spilled material.
6.2 Environmental precautions
Prevent liquid entering a sewer or water course.
6.3 Methods and material for containment and clean up
Absorb spilled liquid with sand or earth. Transfer to suitable clearly marked containers for disposal in accordance with national and local regulations.
6.4 Reference to other sections
Relevant information in other sections have to be considered. This applies in particular for information given on personal protective equipment (section 8) and on disposal (section 13).

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling
Handle in accordance with good industrial hygiene practices. Avoid contact with eyes and skin. Wash hands thoroughly after contact.
Observe general rules for fire prevention.
7.2 Conditions for safe storage, including any incompatibilities
Store between 5°C and 30°C. Extremes of temperature may adversely affect the viscosity and stability of this product.
7.3 Specific end use
No data available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
Maximum airborne concentrations at the workplace:
Not applicable.
8.2 Exposure controls
Personal protective equipment
General protective and hygiene measures
Observe standard industrial hygiene practices for handling chemical substances. Keep away from food stuffs.
Respiratory protection
Respiratory protection is unnecessary providing the concentration of mists and fumes are adequately controlled.
Protection of hands
Wear Nitrile gloves
Eye protection
Wear protective eye goggles or visor.
Body protection
Wear light weight protective clothing

SECTION 9: TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

General information

Appearance:	White emulsion
Odour:	Mild, characteristic
S.G.:	1.00 @ 20 ºC
Boiling Point:	100°C
Flash Point:	> 150°C
Auto-flammability:	Not applicable
Explosive properties:	Not applicable
Oxidising properties:	Not applicable
Solubility in water:	Readily dispersible
Viscosity:	300 cPs @ 20º C (typically)
Partition coefficient, n-octanol water:	Not determined

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
If stored and handled in accordance with standard industrial practices no hazardous reactions are known.
10.2 Chemical stability
Stable under the conditions of normal industrial practices.
10.3 Possibility of hazardous reactions
None known.
10.4 Conditions to avoid
Not known
10.5 Incompatible materials
Avoid strong oxidising agents.
10.6 Hazardous decomposition products
Oxides of carbon.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
EYES: Unlikely to cause more than transient stinging or redness if accidental eye contact occurs.
SKIN: Unlikely to cause harm to the skin on brief or occasional contact.
INHALATION: At normal ambient temperatures this product will be unlikely to present an inhalation hazard because of its low volatility.
INGESTION: This product has a low systemic toxicity.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
Fish toxicity: LC50 (96hr) > 200 mg/l Golden Orfe (Leuciscus idus) determined on PDMS
12.2 Persistence and biodegradability
This product is resistant to biodegradation
12.3 Bio-accumulative potential
This product is not expected to bioaccumulate.
12.4 Mobility in soil
Product disperses in water to form an emulsion.
12.5 Results of PBT and vPvB assessment
No data available
12.6 Other adverse effects
Siloxanes are removed from water by sedimentation or binding to sewage sludge.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Dispose of via an authorised waste disposal contractor in accordance with local regulations. Incineration may be carried out under controlled conditions providing the local regulations for emissions are met.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number
R.I.D. / A.D.R. class: Not regulated for transport
I.A.T.A. class: Not regulated for transport
I.M.D.G. class: Not regulated for transport
14.2 UN proper shipping name
Not regulated for transport
14.3 Transport hazard class(es)
Not regulated for transport
14.4 Packing group
Not regulated for transport
14.5 Environmental hazards
Not hazardous to the environment
14.6 Special precautions for user
Relevant information in other sections have to be considered
14.7 Transport in bulk according to Annex II of MARPOL73/78 and IBC Code
Bulk transport in tankers is not intended.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
National and local regulations must be observed.
For information on labelling please refer to section 2 of this document.
Relevant regulations:
Regulation EC 1272/2008 (CLP)
SI 2002/2677: COSHH Regulations 2002
SI 1999/3242: Management of Health & Safety at Work Regulations 1999
Health & Safety at Work Act 1974
SI 1993/1643: Environmental Protection Act 1993 & Subsidiary Regulations.
Other national and local measures relating to the workplace, pollution control, environmental protection and waste control.
15.2 Chemical safety assessment
A chemical safety assessment according to (EC) regulation 1907/2006 (REACH) has not been carried out for this product.
15.3 Other international regulations
Details of international registration status:
Listed on or in accordance with the following inventories:
EINECS – Europe
ECL - Korea
ENCS - Japan
AICS - Australia
IECSC - China
DSL - Canada
PICCS - Philippines
TSCA - USA

SECTION 16: OTHER INFORMATION

16.1 Material

The details in this document are based on the state of our knowledge at the time of revision. They do not constitute an assurance of the described product properties in terms of statutory warranty requirements.

The providing of this document to a recipient does not relieve the recipient of his or her responsibility toward compliance with all laws and stipulations applicable to the product. This applies in particular to the further sale or distribution of the product or substances or items containing the product, in other jurisdictions and with regard to the protection of third-party intellectual property rights. If the described product is processed or mixed with other substances or materials, the details stated in this document cannot be conferred to the resultant new product unless this has been expressly mentioned. If the product is repackaged, the recipient is obligated to additionally provide the required safety-related information.

1.0 IDENTIFICATION Trufloc® SHWE10

Recommended use of the chemical and restrictions on use

The preparation is used for the treatment of industrial waste water (effluent).

Supplier's details	Atana Ltd, Hydrus House, Dromintee Road, Hilltop Industrial Estate, Bardon Hill, Coalville, Leicestershire, LE67 1TX Tel +44 (0) 1530 830020 Fax +44 (0) 1530 832310 If you have queries regarding this MSDS please email andrew.dodds@atana.co.uk
Emergency phone number	8am – 4pm weekdays emergency telephone number 01530830020 - Head Office. 24 hour emergency telephone number 07782354001 – Atana Ltd, David Garton

2.0 HAZARD IDENTIFICATION

GHS label elements including precautionary statements	This product is not classed as hazardous in accordance with Regulation EC No 1272/2008.
Other hazards	Spills will produce extremely slippery surfaces in case of contact with water.

3.0 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical description

Amphoteric acrylamide copolymer in aqueous dispersion.

Name	Concentration	CAS#	EINECS#	CLP Classification

4.0 FIRST AID MEASURES

Inhalation	In case of trouble go to the open air.
Ingestion	Do not induce vomiting without medical advice. If conscious washout mouth and give one glass of water to drink. Get medical assistance.
Skin contact	Remove the maximum amount of product by using absorbent paper and then rinse with plenty of water. In case of persistent irritation get medical advice.
Eye contact	Rinse thoroughly with plenty of water, also under eyelids, at least for 15 minutes. Get medical assistance. It is necessary to have a safety shower in the work area.
Protection equipment	Beware of possible existing spills of product.
Most important symptoms and effects, both acute and delayed	Inhalation: None expected. Ingestion: Gastrointestinal discomfort. Repeated ingestion of the

	product is considered highly unlikely route of exposure if working in adequate sanitary and hygiene conditions. Skin contact: None expected. Eyes contact: It causes itching and redness.
Indication of any immediate medical attention and special treatment needed.	Treat symptomatically. The main product ingredients are water, cationic polymer (soluble in water) and salt.

5.0 FIRE-FIGHTING MEASURES

Suitable extinguishing media	Water, water spray, dry powder, carbon dioxide (CO2), foam.
Unsuitable extinguishing media	None.
Special hazards arising from the substance or mixture	Under fire conditions thermal decomposition may produce: HCl, NH3, nitrogen oxides (NOx), carbon oxides (COx) and sulfur oxides (SOx).
Advise for fire-fighters	In case of fire wear self-breathing apparatus and protective suit.

6.0 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Do not step on the spill and avoid contact with water. The affected area, in contact with water, will become extremely slippery.
Environmental precautions	Avoid the ground to be contaminated, natural water courses and wastewater drainage. If contamination occurs inform the corresponding authorities immediately.
Methods and materials for containment and cleaning up	For small spills use inert absorbent materials and remove with a shovel; then flush the affected area with pressured water. For large spills contain them with absorbent material and pump out the product to adequate containers; then flush the affected area with pressured water.

7.0 HANDLING AND STORAGE

Precautions for safe handling	We recommend handling the product in a well-ventilated area. Ensure you have a safety shower and eye wash fountain available. Keep absorbent material as a precaution against spills. Use normal personal hygiene and housekeeping measures when handling any chemical product.
Conditions for safe storage, including any incompatibilities	Maximum temperature: 40 ºC. Maximum temperature: 35 ºC.

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Minimum temperature: -5 ºC.
Recommended temperature range: 10 - 30 ºC.
Avoid extreme temperatures (below "Minimum temperature" and above "Maximum temperature"). Keep in a covered place, with the drum well closed and within the "Recommended temperature range". On long storage periods at low temperatures (see "Critical temperature range") the product may undergo an emulsion degradation process. If this occurs we recommend mixing the product and moving it to a warmer storage zone. Direct sunlight may provoke slight product coloration and / or coloured spots on its surface, which does not mean any degradation.

8.0 CONTROLS/PERSONAL PROTECTION EXPOSURE

Control parameters	This product (preparation) does not contain any ingredient with a professional exposure limit and / or biological exposure indices (TLV, BEI) established.
Collective protection	Natural ventilation is adequate in open areas. Provide mechanical ventilation in confined spaces.
Hygiene measures	Wash hands and body areas exposed to the product before drinking, eating, using the facilities and at the end of the work period. Take off contaminated clothing and wash before reuse.
Eye protection	Safety glasses with side-shields.
Hands skin protection	Use latex gloves or natural rubber gloves.
Body skin protection	Use a chemical resistant apron or full protective equipment depending on the handling level and contact risks with the product and its dissolutions.
Respiratory protection	Not necessary under normal conditions provided there is good ventilation.
Additional protection	A safety shower and eyewash should always be provided in the area where the product is handled.
Environmental exposure controls	Avoid letting spills contaminate the ground, surface water and / or the sewer system.

9.0 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White milky liquid.
Odour	Salty odour.
Odour threshold	Perceptible only if you are very close to the product.

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pH	2.5 – 4.5
Boiling point	100 ° C approx.
Melting point / range	- 10 ° C approx.
Flash point	Not applicable. Water-based product.
Inflammability	Non inflammable.
Explosive properties	Not applicable. Water-based product.
Autoignition temperature	> 200 ° C
Decomposition temperature	> 150 ° C
Explosive limits	Not applicable. Water-based product.
Oxidizing properties	Not applicable. Water-based product.
Relative density	1.2 g/cm3.
Vapour pressure @ 20 ° C	Not evaluated.
Vapour density	Not evaluated.
Evaporation speed	Not evaluated.
n-octanol / water partition coefficient	Not evaluated.
Viscosity	< 2000 cp
Solubility(ies)	Water soluble. Solutions for concentrations above 3% become very viscous. Product solubility limit depend on dissolution conditions (concentration, pH, temperature, preparation system - agitation).

10.0 STABILITY AND REACTIVITY

Reactivity	There may be a risk of water contamination of the product during handling and use. Water or water-based products, will dissolve partially and imperfectly the product, and may cause it to be very difficult to use in the application (gel formation, clogged pipes and pumps).
Chemical stability	Product is stable. Some slightly separation may occur. It doesn't mean the product is damaged; you can easily recover it to its original state by agitation. Condensation can form gel particles on the surface of the product which may aquire a yellow tone in contact with light.
Possibility of hazardous reactions	No risk of explosion of polymerization or inflammation on contact with air, even at high temperatures (< 100 ° C) and in the presence of ignition sources.
Conditions to avoid	None for safety reasons.
Incompatible materials	Strong bases may provoke ammonia vapours.
Hazardous composition products	None under normal conditions.
Additional information	As a general rule we recommend avoiding the contact with strong chemical reagents, such as acids, bases, reductors and oxidizers.

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11.0 TOXICOLOGICAL INFORMATION

Acute toxicity	Oral: Rats, LD50 > 7500 mg/Kg - Data for a very similar product.
Acute toxicity	Dermal: Rabbit, LD50: Not available.
Acute toxicity	Inhalation: The product is not expected to be toxic by inhalation.
Skin corrosion / irritation	Rabbits (Draize test): Not irritant - Data for a very similar product.
Sever eye injuries / irritation	Rabbits (Draize test): Not irritant - Data for a very similar product.
Respiratory or skin sensitization	This product is not expected to be sensitizating.
Carcinogenicity	No information available.
Germ cell mutagenicity	No information available.
Reproductive toxicity	No information available.
Specific target organ toxicity (STOT) single exposure	No information available.
Specific target organ toxicity (STOT) repeated exposure	No information available.
Aspiration hazard	No aspiration hazard is expected in normal use.
Information on likely routes of exposure	Skin and / or eye contact. Prolonged eye contact may cause temporary irritation. Flush eyes immediately.
Symptoms related to the physical, chemical and toxicological characteristics	No symptoms expected if the product is properly handled.
Delayed and immediate effects as well as chronic effects from short and long-term exposure	No effects whatsoever related to exposure to the product are known.
Interactive effects	No information available.
Mixtures: toxicological information	No information available.
Information regarding mixing ingredients (substances)	No additional hazard is expected owing to the blend of the constituent ingredients of this product.
Additional information	Through our experience and according to the information available, the product is not harmful to health if handled correctly according to the recommendations given.

12.0 ECOLOGICAL INFORMATION

Aquatic ecotoxicity	Acute toxicity (LC50, fish): CL50 (96h, Danio rerio): 1 - 10 mg/li. Data for a representative polymer. Acute aquatic toxicity (LC50, crustacea): EC50 (48 h, Daphnia magna): 10 - 100 mg/li. Data for a representative polymer. Acute aquatic toxicity (LC50, algae): Algal inhibition tests are not appropriate. The flocculating characteristics of the product interfere directly in the test medium preventing homogenous distribution

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	which invalidates the test. Other: The aquatic toxicity is highly mitigated by the presence of dissolved organic carbon in the water.
Persistence and degradability	Abiotic degradation: Hydrolysis > 70% (28 days, pH 6 - 8, OECD 111). It is equivalent to a rapid biodegradability in accordance with Directive 67/548/CE, Annex VI. Data for a representative polymer. *Other data.* In aqueous solution this product may be eliminated by flocculation and precipitation. It is easily removed from the aqueous media in presence of suspended matter. This product does not contain halogen organic compounds.
Mobility	It may be easily removed by an abiotic process of adsorption.
Results of PBT y vPvB assessment	The product does not bioaccumulate.
Other adverse effects	None to mention.

13.0 DISPOSAL CONSIDERATIONS

Waste from residues / unused product	If this product must be disposed as a waste the final user must do it accordingly with the European, national and local regulations. Use only authorised companies.
Used / empty containers	Empty containers and residual product must no be washed out with water, this would provoke an inappropriate dissolution of the product and it would increase the amount of waste to dispose.

14.0 TRANSPORT INFORMATION

Not regulated for transport.

15.0 REGULATORY INFORMATION

Labelling	Not regulated.
16.0 HAZARD AND RISK phrases	Not applicable.

Date of amendment	Reason for amendment
January 2013	Annual SDS review and update.
July 2015	SDS review and update.

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SUBSTANCE/PREPARATION SAFETY DATA SHEET

1.0 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the substance or preparation

SODIUM HYDROXIDE 32

1.2 Use of the substance/preparation

The preparation is used for the treatment of industrial waste water (effluent).

1.3 Company/Undertaking Information

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If you have queries regarding this MSDS please email victoria.cartwright@atana.co.uk

1.4 Emergency telephone

24 hour emergency telephone number 0778 2354001 – Atana, Ltd David Garton

2.0 HAZARDS IDENTIFICATION

This product is classified in accordance with Directive 1999/45/CE or Regulation (EC) No 1272/2008.

R35 Causes severe burns

S20 Do not eat or drink. S23 Do not breathe gas/fumes/vapours/spray. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37/39 Wear suitable protective clothing, gloves and eye/face protection. S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S60 This material and its container must be disposed

H314 Causes severe skin burns and eye damage (Skin Corr. 1A)

PREVENTION

P260: Do not breathe fume / mist / vapours / spray. P264: Wash SKIN thoroughly after handling. P280: Wear protective gloves / protective clothing / eye protection / face protection.

RESPONSE

P301+330+331: IF SWALLOWED, rinse mouth. Do NOT induce vomiting. P303+361+353: IF ON SKIN (or hair): remove / take off immediately all contaminated clothing. Rinse skin with

of as hazardous waste.	water / shower. P363: Wash contaminated clothing before reuse. P304+340: IF INHALED, remove victim to fresh air and keep at rest in a position comfortable for breathing. P310: Immediately call a poison centre or doctor / physician. P321: For first aid instructions please see the SDS. P305+351+338: IF IN EYES, rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. STORAGE P405: Store locked up. DISPOSAL P501: Dispose of contents / container in accordance with national regulation. H290 May be corrosive to metals (Met. Corr. 1) PREVENTION P234: Keep only in original container. RESPONSE P390: Absorb spillage to prevent material damage. STORAGE P406: Store in corrosive resistant/container with a resistant inner liner.

3.0 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 General description

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Sodium hydroxide (NaOH), also known as lye and caustic soda, is a caustic metallic base.

3.2 Hazardous ingredients (please see Section 15.0 for more details)

International chemical identification	Content in preparation	Hazard information	
Sodium Hydroxide	32%	**CAS number**	1310-73-2
		EINECS	215-185-5

4.0 FIRST AID MEASURES

Inhalation In case of unconsciousness place patient stably in side position for transportation.

Ingestion Drink plenty of water and provide fresh air. Call for doctor immediately.

Skin contact Immediately wash with water and soap and rinse thoroughly.

Eye contact Rinse opened eye for several minutes under running water. Consult a doctor.

5.0 FIRE-FIGHTING MEASURES

Suitable extinguishing media CO_2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special protective equipment for fire-fighters Wear self-contained respiratory protective device.

6.0 ACCIDENTAL RELEASE MEASURES

Personal precautions Wear protective equipment. Keep unprotected pensions away.

Environmental precautions Dilute with plenty of water. Do not allow to enter sewers / surface or ground water.

Methods and materials for cleaning up Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Use neutralizing agent. Dispose of contaminated material as waste according to item 13. Ensure adequate ventilation.

7.0 HANDLING AND STORAGE

7.1 Handling Keep receptacles tightly sealed. Ensure good ventilation / exhaustion at the workplace. Prevent formation of aerosols.

7.2 Storage Keep container tightly sealed.

7.3 Specific use(s)

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The substance is used for the treatment of industrial waste water (effluent).

8.0 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 EH40 / 2005 Workplace exposure limits

1310-73-2: Short-term value: 2 mg / m²

8.2 Exposure controls

8.2.1 Occupational exposure controls

General protective and hygienic precautions	The usual precautionary measures are to be adhered to when handling chemicals. Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and the end of work. Avoid contact with eyes and skin.
Respiratory equipment	In case of brief exposure or low pollution use respiratory filter device. In case of intensive of longer exposure use self-contained respiratory protective device.
Hand protection	The glove material has to be impermeable and resistant to the product / the substance / the preparation. Due to missing tests no recommendation to the glove material can be given for the product / the substance / the preparation / the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation. Material of gloves - The selection of the gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application. The exact break trough time (penetration time of the glove material) has to be found out by the manufacturer of the protective gloves and has to be observed.
Eye protection	Tightly sealed goggles.

8.2.2 Environmental exposure controls

Avoid spills to contaminate the underground, surface water streams and sewer system.

9.0 PHYSICAL AND CHEMICAL PROPERTIES

9.1 General information

Appearance	Fluid
Odour	Characteristic.

9.2 Important health, safety and environmental information

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	pH	> 13
	Boiling point/boiling range	100º C
	Flash point	Not applicable
	Explosive properties	Product does not present an explosion hazard.
	Specific gravity (density)	1.3616 g/cm³
	Solubility in / Miscibility with water	Fully miscible
	Vapour pressure at 20º C	23 hPa
	Solvent content	Organic 0.0%, Water 68%
10.0	**STABILITY AND REACTIVITY**	
10.1	**Conditions to avoid**	No further relevant information available.
10.2	**Materials to avoid**	No further relevant information available.
10.3	**Hazardous decomposition products**	No dangerous decomposition products known.
10.4	**Possibility of hazardous reactions**	No dangerous reactions known.
11.0	**TOXICOLOGICAL INFORMATION**	
	Acute toxicity	LD/LC 1310-73-2 Oral LD50 2000 mg/kg (rat)
	Primary irritant effect	Skin: strong caustic effect on skin and mucous membranes. Eye: strong caustic effect. Sensitization: no sensitizing effects known.
12.0	**ECOLOGICAL INFORMATION**	
12.1	**Aquatic toxicity**	1310-73-2 EC 50 (48u) 40.4 mg/l (daphnia) LC 50 (96u) 35-189 mg/l (fish)
12.2	**Persistence and degradability**	No further relevant information available.
12.3	**Bioaccumulative potential**	No further relevant information available.
12.4	**Mobility in soil**	No further relevant information available.
12.5	**General**	Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water. Must not reach sewage water or drainage ditch undiluted or unneutralised.

13.0 DISPOSAL CONSIDERATIONS

If this product must be disposed as a waste the final user must do it accordingly with the European, national and local regulations. Use only authorised companies.

14.0 TRANSPORT INFORMATION (ADR 2009)

UN number	1824
UK road class / ADR class	8
Proper shipping name	1824 SODIUM HYDROXIDE SOLUTION
UK road packing group / ADR packing	III
Tunnel restriction code	E

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15.0 REGULATORY INFORMATION

Labelling	Please see section 2.0.
16.0 Risk and safety phrases	Please see section 2.0.

Date of amendment	**Reason for amendment**
Jan 2012	Update using CLP information.
January 2013	Annual SDS review and update.
August 2015	Email change and review

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