Schedule 6 - Notification

This page outlines the information that the Operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the PPC Regulations.

Part A

Permit Number	**P0413/12A**
Name of Operator	**Granville Eco Park**
Location of Installation	**Granville Industrial Estate, Dungannon, Co Tyrone, BT70 1NJ.**
Time and date of the detection	**18th June 2024**

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and Time of the event	**18th June 2024**
Reference or description of the location of the event	**Granville Eco Park Site- Odour Management System Outlet (A6)**
Description of where any release into the environment took place	**On the 18th and 19th June 2024, an odour survey was conducted throughout the site. From the samples and analysis completed, elevated readings have been reported in the interim report. The report indicates that the ELV may have been breached on the outlet of the Odour Management System, with a reading of 7327Oue/m³. However, within the report the methodology has not included measurement of uncertainty which is required for emissions reporting.**
Substances(s) potentially released	**Odorous air emission**
Best estimate of the quantity or rate of release of substances	**7327Oue/m³**
Measures taken, or intended to be taken, to stop any emission	**Investigative work is being completed to confirm results from the report. Further investigation to be completed on OMS to review operational effectiveness and analysis of activated carbon to determine timeline of maintenance works.**
Description of the failure or accident.	**OMS sample from outlet stack. Potentially odorous air emission.**

GRANVILLE ECOPARK LIMITED	GRANVILLE ECOPARK LTD	Document: E13
		Version: 4
	Schedule 6 Notification	Author [redacted]
		Reviewed By: [redacted]
		Date: 03/01/2022

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	**A6**
Parameter(s)	**Odour Units/ m^3**
Limit	700
Measured value and uncertainty	7327 (no uncertainty within results)
Date and time of monitoring	18th June 2024
Measures taken, or intended to be taken, to stop the emission	Investigation into results and review of OMS.

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	**Odorous air emission from A6- No significant or adverse environmental effect.**
Substances(s) detected	**Odour Units from sample from A6**
Concentrations of substances detected	**7327Oue/m^3**
Date of monitoring/sampling	**18th June 2024**

Part B to be supplied as soon as practicable

Any more accurate information on the matters for notification under Part A.	**N/A**
Measures taken, or intended to be taken, to prevent a recurrence of the incident	**Please review the Odour actions proposal issued on the 18th July 2024**
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	**As above, this is addressed in the proposal issued to the NIA on the 18th of July 2024**
The dates of any unauthorised emissions from the installation in the preceding 24 months.	**As per public register**

Name*	[redacted]
Post	Environmental & Sustainability Manager
Signature	[redacted]
Date	18/07/2024

* authorised to sign on behalf of GECO Ltd

Odour Management Plan

Site details

Granville Ecopark,

Granville Industrial Estate

Granville Road

Dungannon

BT70 1NJ

Permit Number: P0413/12A

Variation Notice Number: P0412/12A/V2

This document is intended for use in Granville EcoPark (BioCapital NI Site) in accordance with their permit. This OMP forms part of the Integrated Management System (IMS) and will be adhered to by all staff and visitors. Staff and visitors will receive training in the contents of this OMP taking into consideration their position and the potential affect their actions may have in the site's operation.

Document owner

Document author: Site Manager

Version number: v8 July 2024

List of revisions

Version	Changes Made	By:	Date:
1	Created.	[redacted]	04/02/2014
2	Responsibility Added.	[redacted]	12/06/2014
3	Reviewed – Job Titles and hyperlinks updated.	[redacted]	07/03/2018
4	Reviewed – odour sources, control measures and complaint procedure updated.	[redacted]	05/01/2022
5 DRAFT	Extensively reviewed in line with Agency Guidance, in reflection of internal audit & CAR action requirements.	[redacted]	17/06/2022
5 DRAFT 2	Reviewed & comments proposed.	[redacted]	27/08/2018
5 DRAFT 3	Comments & amendments made.	[redacted]	05/08/2022
5 DRAFT 4	Final review.	[redacted]	05/08/2022
5 DRAFT 5	Reviewed – minor comments in relation to background and permit number added.	[redacted]	08/08/2022
5 DRAFT 6	Updated with comments. Reviewed. Issued.	[redacted]	11/08/2022
6 DRAFT	Reviewed and updated following consultation with NIEA for submission for CAR.	[redacted]	05/04/2022
6	Follow on from draft 6 (not published yet) Dosing Station added to section 10.2 as requested by NIEA following permit variation.	[redacted]	25//10/2023
7	Updated to reflect increased mitigation measures considering NIEA enforcement action.	[redacted]	2203/2024
8	Granville template changed to NIEA template following NIEA request.	[redacted]	05/07/2024

Contents

Table of Contents

1. Introduction

Objectives

To define the methods and principals that will be adopted to ensure that odours are minimised and effectively controlled so that annoyance is not caused outside of the site boundary of Granville Ecopark. To ensure compliance with Permit condition 4.4 Odour which states that 'Emissions from the activities shall be free from odour at levels likely to cause annoyance outside the site, as perceived by the Authorised Officer of the Chief Inspector, unless the Operator has used appropriate measures, including, but not limited to those specified in any approved odour management plan to prevent or where that is not practicable to minimise odour'.

Scope

This Odour Management plan applies to the Anaerobic Digestion process and all activities which take place within the GECO site boundary which produce odours or have the potential to produce an odour.

1.1 Site description

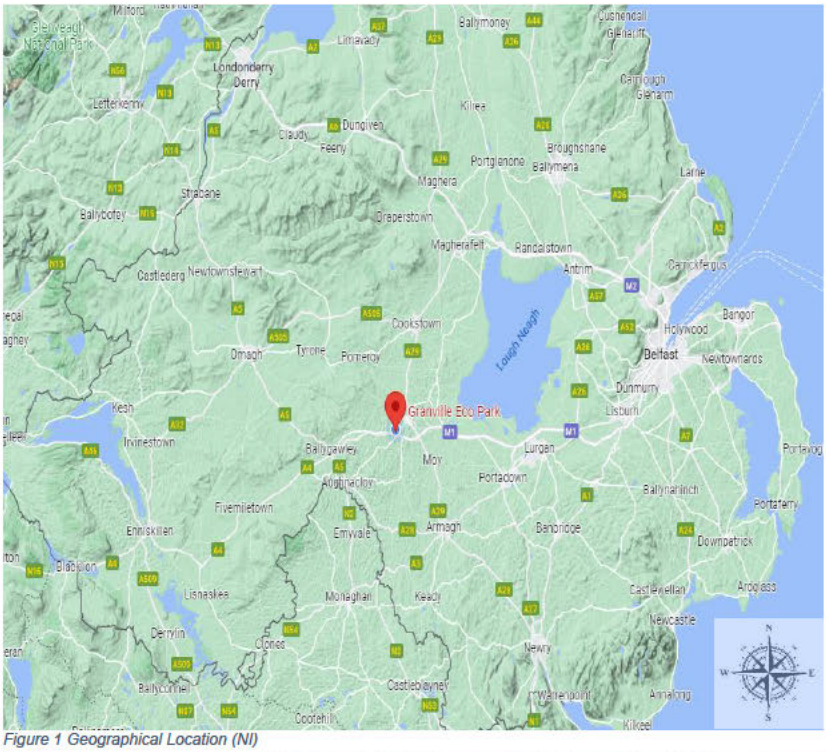


Figure 1 Geographical Location (NI)

Figure 2 GECO location in Granville Industrial Estate

Granville Ecopark is an Anaerobic Digestion facility designed to recycle and recover 90,000 tonnes per annum of non-hazardous, organic solid and liquid waste. Microorganisms break down the biodegradable material within the feedstock, in the absence of oxygen, to produce a digestate (PAS110 accredited) and biogas. The biogas produced is captured and used as a renewable source to power four combined heat & power (CHP) engines and supply biomethane upgrade plant for the creation of electricity, heat and biomethane.

The Anaerobic Digestion (AD) Facility is located at Granville Industrial Estate, Dungannon, County Tyrone, BT70 1NJ. The site is 43 miles southwest of Belfast at the western end of the M1 Motorway and approximately 2 miles southwest of Dungannon. The setting of the industrial estate is in a predominantly rural area, although the industrial estate itself is well developed with a variety of large industrial activities (predominantly agri-food related). Granville Ecopark is manned on a 24/7 basis. Waste is accepted Monday – Friday 07:00 - 19:00, Saturday 07:00 – 16:00.

1.2 Maintenance and review of the OMP

The Plant Manager and/or TCP have overall responsibility for this Odour Management Plan. The Technically Competent Person (TCP) will hold a valid COTC certificate. A TCP will be present on site for at least 20% of the weekly operating schedule. The attendance of the TCP will be recorded in Daily Site Diary. It is the responsibility of the TCP and Management Team to monitor site operations to ensure compliance with this procedural plan including:

- have day-to-day control of the facility or activity, including the manner and rate of operation make sure that permit conditions are complied with,
- decide who holds important staff positions and have incompetent staff removed, if required,
- provide advice for investment and financial decisions that affect the facility's performance or how the activity is carried out,
- make sure activities are controlled in an emergency.

All employees are responsible for ensuring this procedure is adhered to and odour control measures are enacted.
Plant Supervisor is responsible for ensuring correlating inspection and assessment forms are completed within the reporting period. Plant Manager/TCP and Supervisor are responsible for ensuring actions are transferred to the team and completed. This is monitored by SHEQ Team.

Training compliance for the Odour Management Plan is managed by the SHEQ Team and training responsibilities are to be undertaken by the Plant Manager. The Plant Manager/TCP and/or SHEQ Team can deliver training as they are suitably competent in environmental awareness. Environmental training is to take place at least yearly, a refresher will be delivered if there are changes to the relevant documentation, or sooner if the OMP is updated. A competence check is required to be passed following this training.

The SHEQ Team and Plant Manager will maintain the Odour Management Plan document within the IMS document folders and will keep a physical copy in the operations office to be replaced by new versions when updated.
This document is reviewed on a yearly basis in line with the Environmental Management System requirement. Should any processes or site activities change within this timeframe the document will be reviewed in advance to ensure all odour related aspects have been considered and adequate control measures implemented.

1.3 Relevant sector guidance on which this OMP is based

Various items of legislation and guidance were used in the referencing and creation of this document. Relevant guidance taken into account include:

- Environment Agency Odour Management Plan Template V2 05/05/2021
- Environment Agency H4 Odour Management Additional Guidance.
- EA Appropriate Measures for Biological Wastes Treatment
- Waste Treatment BREF BAT Conclusions

Internal associated Documents also referenced include:

- SR21 GECO Working Register
- SR12 Complaints Register
- E2 Daily Site Environmental Inspection form
- E3 Daily Odour Assessment Form
- E4 Odour Complaint Investigation Form
- E5 Daily OCU inspections form
- E6 Odour Complaint Form
- E13 Schedule 6 Notification
- HSP1 Reporting Procedure
- EP06 Waste Pre-Acceptance
- EP07 Waste Acceptance
- EP08 Waste Rejection
- EP9 Environmental Monitoring Procedure

2. Receptors

2.1. Receptor Lists

Table 2.1. Receptor list – High receptors

**** Sensitivity to odour** (Low (e.g. footpath/road); Medium (e.g. industrial / commercial workplace); High (e.g. housing / pub / hotel etc.)*

Receptor reference	Land use e.g. house, school, hospital, commercial	Direction from site (North, South, East, West)	Approximate distance to site boundary (m)	**Sensitivity to odour** Low (e.g. footpath/road) Medium (e.g. industrial / commercial workplace) High (e.g. housing / pub / hotel etc.)
1	Residential Property	N	352	H
2	Residential Property	N	446	H
3	Residential Property	NE	468	H
4	Residential Property	NE	545	H
5	Residential Property	NE	754	H
6	Residential Property	NE	723	H
7	Residential Property	NE	845	H
8	Residential Property Estate	SE	838	H
9	Residential Property(ies)	SE	662	H
10	Group of 3 Residential Properties	E	670	H
11	Residential Property (ies)	E	777	H
12	Residential Property	SE	575	H
13	Residential Property	S	585	H
14	Residential Property	NW	255	H
15	Residential Property	NW	657	H
16	Residential Property	W	1007	H

Figure 3 High Sensitivity Receptors

Table 2.1.1 Receptor list – Medium receptors

Receptor reference	Land use e.g. house, school, hospital, commercial	Direction from site (North, South, East, West)	Approximate distance to site boundary (m)	Sensitivity to odour Low (e.g. footpath/road) Medium (e.g. industrial / commercial workplace) High (e.g. housing / pub / hotel etc.)
1	BMI Trailers	NW	72	M
2	Linergy	SE	51	M
3	McCloskey	SW	103	M
4	Westland Horticulture	S	156	M
5	Linden	SE	186	M
6	United Feeds	SE	297	M
7	Circuit Net	SE	395	M
8	Dunbia	SE	446	M
9	Dunbia	SE	415	M
10	Dungannon Farmer's Market	SE	750	M
11	Local grocery store	SE	757	M
12	Fruit Farm	NW	779	M
13	Axon Power & Terex	SW	575	M
14	Portafill International	SW	719	M
15	Northern Cryogenics	N	192	M
16	GM Commercials	W	145	M

Figure 4 Medium Sensitivity Receptors

Table 2.1.2 Receptor list – Low receptors

Receptor reference	Land use e.g. house, school, hospital, commercial	Direction from site (North, South, East, West)	**Sensitivity to odour** Low (e.g. footpath/road) Medium (e.g. industrial / commercial workplace) High (e.g. housing / pub / hotel etc.)
1	Granville Road	S	L
2	Eskragh Road	NE	L
3	Killybraken Road	SE	L
4	Ballygawley Road	N	L

Figure 5 Low Sensitivity Receptors

The extent to which odour is detectable downwind and the intensity and character of such odour is dependent upon the following factors:

- The nature and magnitude of odorous emissions released from the source.
- Wind direction and wind speed; and
- Atmospheric turbulence (vertical and horizontal) which controls the level of dilution and dispersion odours undergo as they travel downwind. All of these factors can exhibit substantial variation over time

2.2. Wind rose and source of weather data

Figure 2.2. - Wind rose

Independent external consultant Irwin Carr Consulting compiled this data as part of an external odour assessment completed 07 May 2021. This data will be replaced with more recent annual data upon release of the data from the Met Office UK and/ or upon completion of a further assessment by a third-party company.
Wind data allow to predict the overall potential impact of emissions if any are being emitted by the facility.

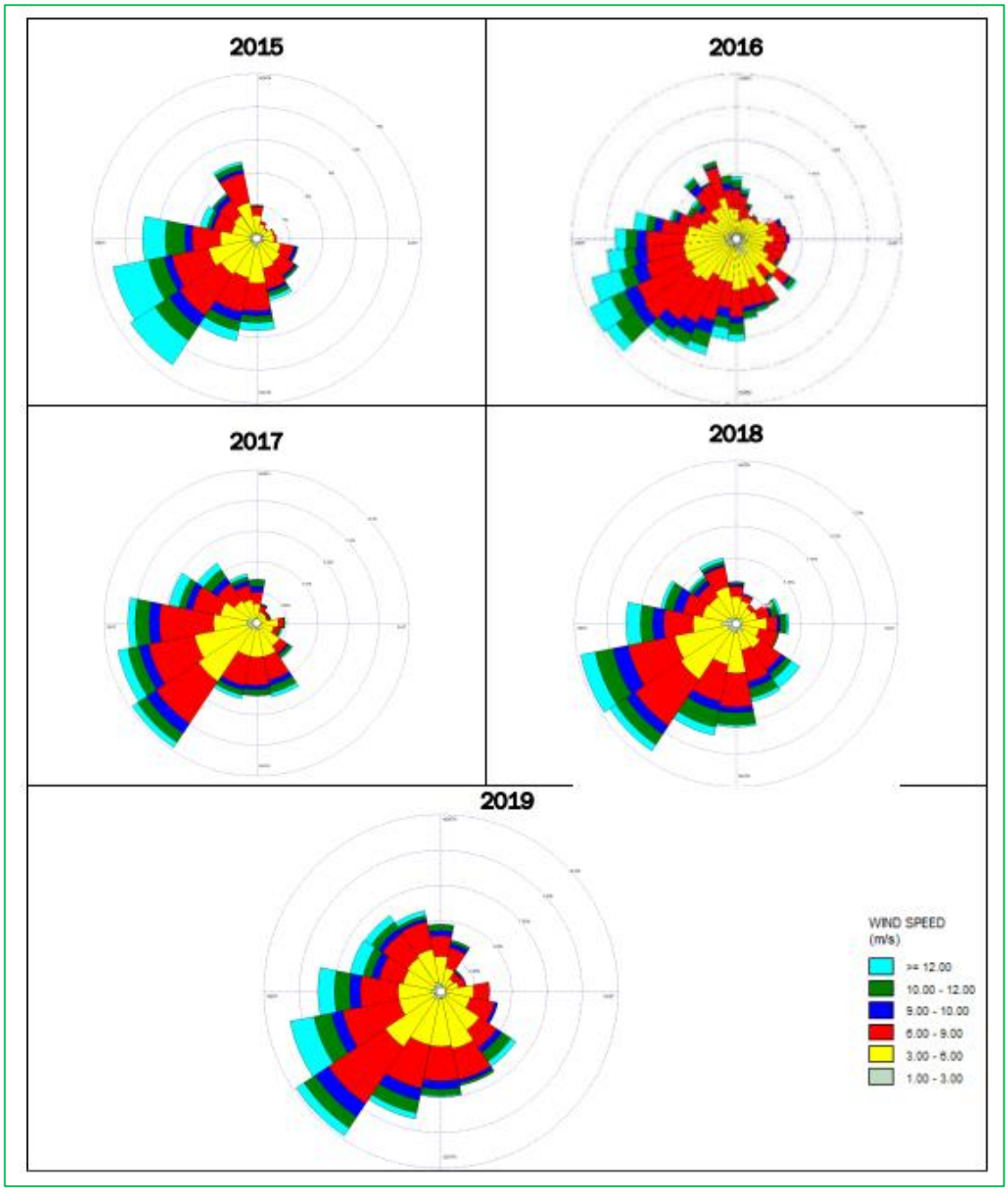


Figure 6 Irwin Carr Consulting Wind Rose Map 2021

The likelihood and potential of exposure to odour release at nearby sensitive receptors will be determined by the prevailing meteorological conditions and the distance and direction of the receptors in relation to the plant. However, the Anaerobic Digestion plant has specifically been designed and will be proactively managed in order to prevent/reduce the release, impact and emission of odour to these receptors.

Site weather Station
Granville Ecopark obtains historical weather data and current weather conditions via use of an onsite weather station. This weather station provides data for:

- Temperature / Wind Speed / Wind Direction
- Rainfall / Humidity / Solar Radiation / UV

Portable weather station
Personnel completing internal & external odour assessments use a portable handheld anemometer meter to record relevant data at each testing point.
The methodology for completing an odour assessment using the handheld weather station is outlined within EP9 Environmental Monitoring and is contained within internal training module: Toolbox Talk Completing an Odour Assessment.

Records for this data are noted on the relevant form: E3 Odour Assessment Form.
The handheld anemometer used is Kestrel 3500. This metre records the following data:

- Altitude / Barometric Pressure
- Dew Point
- Heat Stress Index / Relative Humidity / Temperature
- Wind Chill / Wind Speed

3. Sources of odour and site processes

The AD Facility accepts up to 90,000 tonnes per annum of non-hazardous, organic solid and liquid wastes comprising of animal by-products and commercial, household food & garden wastes as well as biowastes. The aim of the AD facility is to use the organic by-products to produce biogas and digestate, with the latter (in fibre form) being used as a soil conditioner and the biogas utilised to generate electricity (for on-site use and as a provider into the grid system).

The site is controlled by an odour abatement system which has been installed and commissioned by Simdean Odour Control Systems. The system includes a two-stage chemical scrubber treatment followed a carbon polish step.
The scrubbers consist of a cylindrical tower with a sump at the base of the tower. Within the tower, the packing forming the mass transfer surface is located. Two packed bed scrubbers are used to remove pollutants from contaminated air prior to exhausting such air to the atmosphere. Above the scrubber packing a droplet eliminator section is installed which removes any droplets carried over from the packed bed. The extended base section of the scrubber is utilized as a collection tank for the scrubbing solution and also provides connection for the recirculation pump, level controls and flow, pH and ORP sensors.

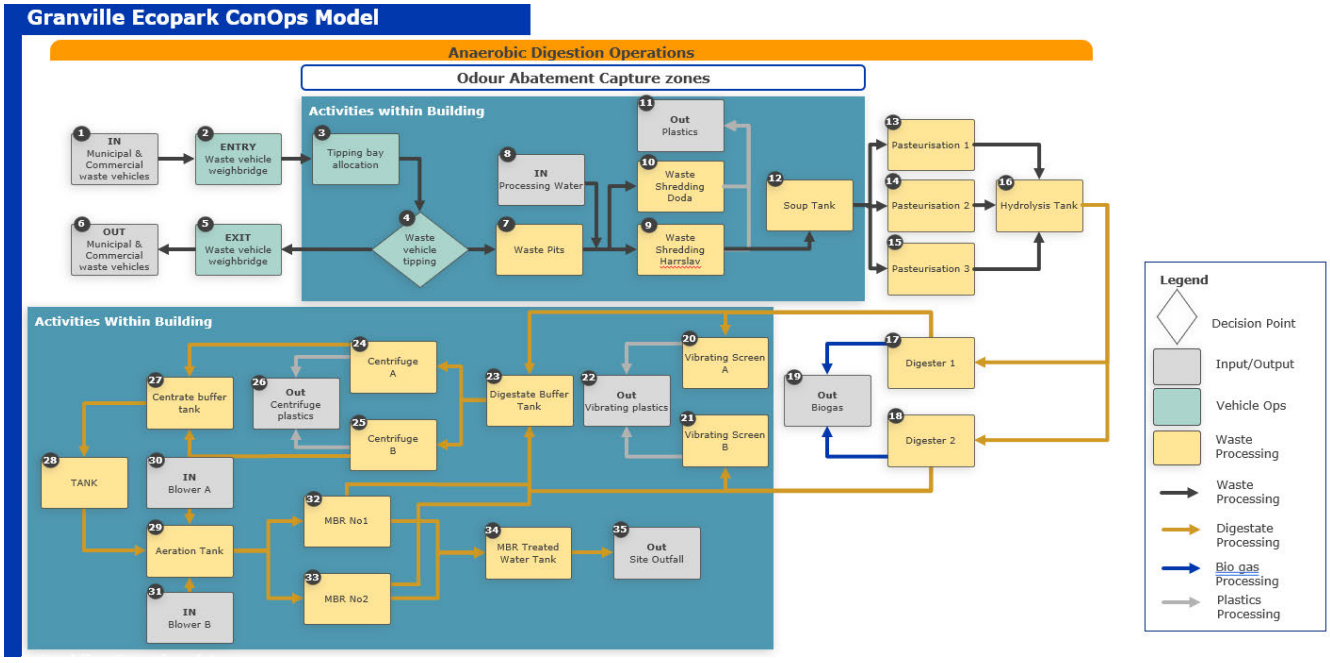


Figure 7 GECO Odour Abatement Catchment Process

The full scope of the site is maintained under 24/7 CCTV system including all operational areas. This system is available to view by Site Management for site management, security and incident investigation purposes. CCTV is also available to aid weighbridge inspections on vehicles and incoming loads. CCTV is present at various areas of the site with locations recorded within the GECO IMS. Knowledge of locations of CCTV will be kept limited to ensure no possibility of security breach. Access to CCTV must be requested directly from BioCapital and GECO Site Management. Those requesting information must provide full reasoning behind the request, time of the requested surveillance and specific location, requests will then be granted/denied at the discretion of management.

Site monitor site housekeeping and cleanliness under EP17 Housekeeping procedure. The cleaning regime includes x2 daily inspections (AM & PM) reflecting shift work patterns. Cleaning requirements as per acceptable methods i.e. power hosing. No chemical use is permitted for cleaning purposes excluding wheel and boot wash. Inspections will be split into zones depending on area/process within the zone. Operatives are responsible for the completion of their inspection and the inspections will be signed off per shift schedule by the Site Supervisor and/or Team leader to monitor daily issues and to ensure these are reported. Daily forms are completed and saved as hard copies within the operations office. TCP/Site Manager are responsible for monitoring the effectiveness of this procedure.

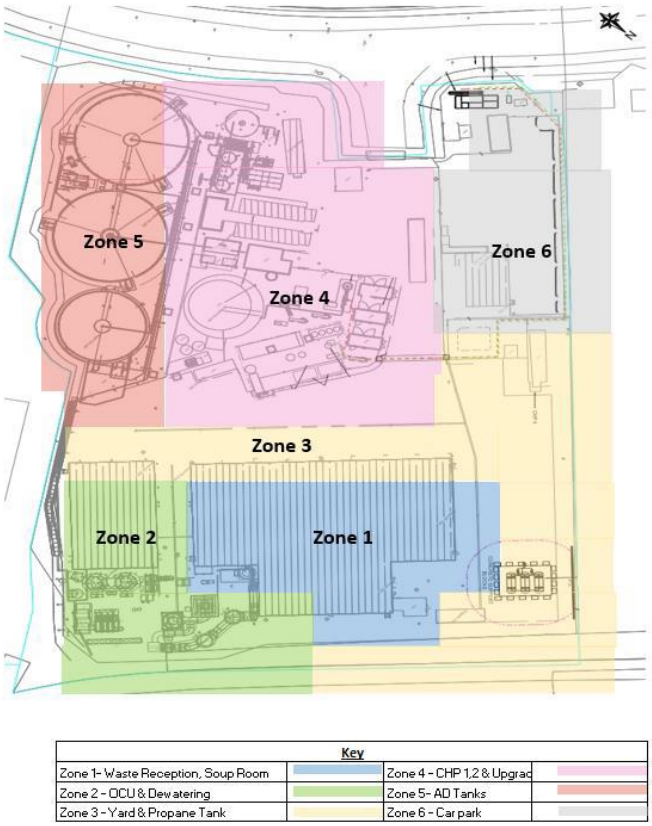


Figure 8 Housekeeping Procedure - daily inspection zones

Manufacturers specifications are held on site within the internal IMS system. These specifications are available for all equipment registered on the site. These specifications are available upon request from Site Management and/or the SHEQ Team. A full list of the available manuals is present within the appendix.

3.1 Odorous materials entering and leaving site

Waste acceptance is agreed and confirmed via approved producers through EP08 Pre-Acceptance procedure & EP09 Waste Compliance agreement form. Solid and semi-sold food waste are accepted in accordance with the site permit. All waste streams are assessed, and the site only accepts food waste that is permitted by the site permit. As detailed in the Waste Acceptance procedure, site carryout feedstock analysis within a compliance agreement. Prior to any feedstock being accepted at the facility, the Commercial Manager or designated person will ensure the customer/waste collector provides the following information for the types of waste which they will deliver to the plant:

- The type of process producing the waste.
- The specific process from which the waste derives.
- The quantity of waste.
- Verification of waste type including analysis of the waste (where appropriate).
- The form the waste takes (solid, liquid, sludge etc); &
- Hazards associated with the waste.

This information will be submitted using the E8 – Waste Pre-Acceptance Form.

Food waste is accepted Monday – Friday 07:00 - 19:00, Saturday 07:00 – 16:00. Food waste deliveries are pre-planned by B9 commercial team and are received on site via HGV transportation. Acceptance is approved after weighbridge inspection and receival of appropriate documentation as per the waste acceptance procedure. Food waste transportation is via sealed HGV vehicles. All HGV vehicles are required to ensure food waste remains sealed until they have entered the waste reception area. The waste reception area is fully enclosed as is part of the odour abatement system. From this point food waste will remain within the process and will be controlled by the odour abatement system. Approved suppliers

are made aware of these requirements upon the completion of the Waste Compliance agreement and drivers are made aware of these environmental site requirements as part of the driver's handbook.

All HGV vehicles MUST wheel wash prior to leaving the site, (wheel wash station present within the waste reception area). All vehicles including HGVs must leave the site via the weighbridge. The Weighbridge Operator records the final weight of the vehicle. Delivery dockets and radio are returned to the site office. Once completed the weighbridge operator opens the gate to allow the vehicle to exit.

All waste must meet the classification and quality criteria of E9 Waste Compliance Agreement. In the event that the waste received at the weighbridge does not meet the acceptance criteria, the non-conforming waste shall be rejected and where possible returned to the supplier/transferred to an appropriate waste disposal facility as per EP08 Waste Rejection Procedure.

All operational areas of the site sit in impermeable surfacing with sealed drainage. All surfacing in operational areas is up to standard which meets indicative Best Available Techniques (BAT).

An inspection programme is delivered by the team on site, these include regular visual inspections of the integrity of the surfacing.

A site diary will be on site and will include the following:

- Details of all visitors to the site including name, address, time in / out.
- Accidents, injuries or incidents involving staff or visitors.
- Maintenance, modification, damage and breakdown to any plant or machinery.
- Inspections of site infrastructure, damage to site infrastructure.
- Weather station reports; &
- Incidents and /or observations

.

Odour Release Point	Odour Source	Initial risk rating: Severity/ Likelihood /Risk; High/medium / Low			Odour Rating	Control Measures in place	Final Rating *Final rating includes an interpretation of the likelihood of risk and its impact assuming all mitigation and controls are deployed & maintained
Pre-Acceptance Waste	Food Waste (Solid)	H	M	M	Source: Food Waste which is out of specification	EP6 Waste Pre-Acceptance procedure enforced along with E8 Waste Pre-Acceptance form to understand any potential effects of the waste on the process. The site accepts food waste as permitted by the site permit and that decided upon and detailed in their waste compliance agreement. Unplanned or bespoke abnormal loads will not be accepted. Delivery of loads is arranged by the commercial department at B9 at least 1week in advance. This plan is shared with the weighbridge team at GECO who can then prepare for panned loads. Office Manager/Weighbridge team will discuss planned loads during the daily GECO standup meeting to ensure they do not conflict with any onsite works etc and/or to ensure the site is not overloaded. B9 and GECO will also communicate the day before planned loads arrival to site to ensure the expected delivery is still suitable and to avoid the queuing of trailers external to the site boundary and weighbridge entrance.	L
					Receptor: Humans – Industrial Units and Residential Units		
					Pathway: Airbourne		

						When Loads arrive at site, before they enter site, they are met by the weighbridge operator and issued with a radio. Drivers are then radioed when they can enter site. Loads remain covered at this stage. EP8 Waste Rejection Procedure to be enforced if material is not compliant. Waste loads to be checked by the Weighbridge against the Waste Compliance agreement prior to site acceptance. In the case of a solid/semi-solid waste that has been offloaded in the waste reception bins is deemed as unsuitable during visual inspection, then offloading shall be stopped as per Waste Acceptance Procedure [EP07]. If the waste inspected does not meet with site acceptance criteria the non-compliant material is removed via grab crane, is allocated as non-compliant material within a specified quarantine bin (within the odour abatement area) and is disposed of appropriately and promptly as required. In some cases, waste may be inspected further. Samples can be taken where the identity of waste types cannot be established. Whereby waste is determined as a EWC code which is not permitted as per Schedule 3 of GECO IPPC Permit then a Waste Rejection Note (E10) must be completed by the Plant Manager or Commercial Manager. A copy of this will be provided to the waste vehicle driver and the supplier.	
Incoming Waste	Food Waste (Solid)	H	M	M	Source: Food Waste which is out of specification	*EP7 Waste Acceptance* and EP8 Waste Rejection procedure enforced to ensure waste characteristics are representative of Waste Pre-Acceptance check. Drivers are instructed as part of the induction process to not uncover or prepare for tipping outside of the site gates or within the yard area. Trailer preparations are only permitted to take place within the reception area. Approved suppliers are made aware of these requirements upon the completion of the Waste Compliance agreement and drivers are made aware of these environmental site requirements as part of the driver's handbook. The driver's handbook is communicated to all drivers prior to attendance to site. All drivers must complete HS9 Driver Handbook induction on first entry to site and annually thereafter. The Driver Handbook clearly outlines the procedures to be followed in each instance with health, safety & environmental precautions highlighted. HS9 Driver Handbook is updated to reflect any corrective action requirements following incidents, change to procedures or improvements. Driver Handbook is also reviewed periodically in line with management system requirements.	*L*
					Receptor: Humans – Industrial Units and Residential Units		
					Pathway: Airbourne		

						Waste is only accepted if it conforms to the description in the documentation supplied by the producer and holder and is within the permit limits as outlined in Schedule 3. Procedure for this is outlined within *EP6 Waste Acceptance*. Waste schedule in place - co-ordinated by Commercial Manager to ensure waste acceptance does not exceed capabilities of process time. HSP1 Reporting Procedure and HS28 Warning Card System in place to ensure compliance with systems of work. A maximum total of 350T food waste per day is permitted on site. The maximum retention time for food waste on site is maximum 24hours within the waste reception bins before being processed within the system. Waste streams are controlled via weighbridge system including weights and types of all loads received. All food waste deliveries are also communicated with the Site Supervisor via radio as a last check to ensure bin levels are acceptable. Waste reception bins are monitored constantly via CCTV and visual inspection alongside feedstock monitoring through the SCADA system to ensure the site process and feed are controlled appropriately.	
Reception Hall: **Bins 1 & 2**	Food Waste (Solid)	H	H	M	Source: Loss of containment e.g. OAS Failure or Roller Shutter Door Failure	Incoming waste is tipped within Bay 1 & Bay 2 directly into bins. External roller doors must always remain closed when waste is not being tipped, this will be controlled by the operatives controlling waste movement within the waste reception area. Tipping can only take place when the OCU is operational with negative pressure inside the reception building has been restored. Both doors must be closed 'Clear as you go' policy in place – bay must be cleared and washed down following tipping to ensure waste is contained.	M
					Receptor: Humans – Industrial Units and Residential Units	Roller doors are fitted immediately adjacent to enclose the bins within the reception hall. These must be closed following waste unloading.	

					Pathway: Airbourne	Odour Abatement System in place within the Reception Building to treat any emissions from bins. This is monitored internally on a fortnightly basis to ensure operational effectiveness & on 6-monthly basis to ensure permit limit compliance by external competent contractor. Negative pressure testing completed annually to ensure integrity of building and effectiveness of odour abatement system. All roller doors are serviced as part of planned maintenance programme to ensure integrity and effectiveness.	
						Bins 1 & 2 are fitted with overhead jet washer nozzles. These are activated post tipping to clean out the trailer. Wheels are washed down and sprayed with disinfectant prior to exiting the reception hall.	
Reception Hall – Compactor Skips.	Plastics (Solid)	M	L	L	Source: Food Waste residue remaining on plastic waste	Compactor skips are placed within Waste Reception building Bay 3 & 4 which is under the control of the odour abatement system. Compactor skips are removed from site daily. These are enclosed as to avoid potential spillage, direct sunlight and reduction of airflow which reduces evaporation rates and hence odour releases.	L
					Receptor: Humans – Industrial Units and Residential Units	Empty compactor skips which are unloaded upon return are washed down to remove any potential residual build up within or around the skips. Only empty washed down skips are permitted to remain within the designated holding area.	
					Pathway: Airbourne	RAMS51 Compactor Changeover in place – all relevant operators and drivers trained and signed off adherence. Odour outlined as potential risk with control measures and incorporated into safe system of work. Routine maintenance carried out on de-packaging equipment to maintain effective organic removal reducing odour potential of plastic reject removed from waste.	

						Maximum Quantity Onsite at any given day: 30T/day Maximum Time Held Onsite: 48hours Compactor or skip failure: There are two compactors and two skips onsite at any one time in the event of a failure the process could be adjusted to allow for the operation of one compactor. Availability of a number of approved contracted drivers to move skips in instances where the contracted driver is unavailable.	
Reception Hall – Open Top Skips	Grit & Plastics (Solid)	M	L	L	Source: Loss of containment e.g. OAS Failure or Roller Shutter Door Failure Receptor: Humans – Industrial Units and Residential Units Pathway: Airbourne **High**	Open top skips are stored within the Waste Reception building bay 5 which is under the control of the odour abatement system. These are emptied on a weekly basis. Upon removal from bay these skips are covered for transportation similarly to compactor skips. Maximum Quantity Onsite at any given day: 15T/day Maximum Time Held Onsite: 24hours Alternative contractor available from approved contractor list in the event current contractor is unable to attend.	L
Soup Room – Grit Removal	Grit & Soup	M	L	L	Source: Loss of containment e.g. OAS Failure or Roller Shutter Door Failure	Grit is removed from the process via plant located in the Soup Room. This building is under the control of the odour abatement system. Grit is stored within the dolav immediately below the plant which is emptied or a secondary dolav moved in place approximately every 45 minutes.	L

Plant & Tank	(Solid)				Receptor: Humans – Industrial Units and Residential Units	Routine maintenance carried out on de-gritting equipment to maintain effective removal and washing of grit reject reducing odour potential. Internal tank inspection & cleaning completed annually.	
					Pathway: Airbourne	Inspected daily by an Operator to ensure compliance against E2 Daily Site Environmental Inspection Form.	
						Maximum Quantity Onsite at any given day: Refer to Open Top Skips Maximum Time Held Onsite: Refer to Open Top Skips Grit plant can be isolated and removed from operational process in instance of plant failure.	
Dewatering Building – Solid Cake.	Solid Digestate	M	L	L	Source: Loss of containment e.g. OAS Failure or Roller Shutter Door Failure	Solid cake is deposited from the process into a trailer directly. A CCTV camera is positioned directly above the trailer which is linked to the control room. This is periodically reviewed and when at full capacity arrangement with external contractor for removal.	L
					Receptor: Humans – Industrial Units and Residential Units	Separated Fibre compliant under PAS110 protocol. Stability and VFA below thresholds met under end of waste protocol minimising odour potential from material. Dewatering building is under control of the odour abatement system.	
					Pathway: Airbourne	Dewatering building is inspected daily by an Operator to ensure compliance against E2 Daily Site Environmental Inspection Form. Maximum Quantity Onsite at any given day: 18T/day	
						Maximum Time Held Onsite: 24hours	

Chemical Storage Areas	Various chemicals (Liquid)	M	L	L	Source: Loss of containment e.g. IBC Burst Receptor: Humans – Industrial Units Pathway: Airbourne	In the event of a chemical spillage, drainage is in place which contains all liquid into a separated tank. This tank is checked daily. Limited chemicals are held on site at any one time – designated employee job responsibility to control and monitor quantities. Inspected daily by an Operator to ensure compliance against E2 Daily Site Environmental Inspection Form. Maximum Quantity Onsite at any given day: 14m³/day Maximum Time Held Onsite: N/A Alternative contractor available from approved contractor list in the event current contractor is unable to attend. Dewatering equipment can be isolated and removed from operation in instance of plant failure. Tank Leakage: In the event of tank leakage, the tank will be drained, and chemicals removed from this area. Refer to EP02 Spillage Response Procedure	L
Hydrolysis Area – Liquid Digestate Filling Point	Digestate (Liquid)	H	M	M	Source: Failure or leakage from pipework Receptor: Humans – Industrial Units and Residential Units	*Risk Assessment & Method Statement 50 – Liquid Digestate Loading* in place for operators and drivers involved in task. All external drivers are inducted and trained in this safe system of work as part of induction process. Drivers are provided with copy of safe system of work within HS9 Driver Induction Handbook. This system considers environmental related risks including odour release and spillages. Pipework is fitted with bleed valve attachment which ensures the pipework is drained completely and excess digestate does not remain in pipe which could increase likelihood of spillage or odour release.	*L*

					Pathway: Airbourne	Drivers are asked to store pipework upwards upon completion of filling to prevent spillage in the event of valve failure. Tankers which do not have this valve attachment as standard are provided with an attachment to use. Internal tank inspection & cleaning completed as per planned timeline. Tank integrity tested annual as per leak detection testing by external competent contractor. Maximum Quantity Onsite at any given day: 1000m³/day Maximum Time Held Onsite: N/A Pipework failure or leakage: Alternative digestate filling point can be used in event of pipe failure. Multiple isolation points on pipework.	
AD Tanks - Foaming	Food Stuff (Liquid)	H	H	H	Source: Foam leakage from PRV's in the event of a foaming incident at the AD tanks	AD Tanks are enclosed as to prevent any potential odour escape. Operators complete a visual check of the tanks daily using E2 Daily Site Environmental Inspection form. Any defects are reported immediately and actioned using SR21 – GECO Working Register. Leak detection testing is completed on an annual basis to ensure tank integrity.	M
					Receptor: Humans – Industrial Units and Residential Units	Internal tank inspection & cleaning completed as per planned timeline. Foaming Process Control Procedure in place to address any signs of foaming reducing impacts of digestate release from AD Tanks.	
					Pathway: Airbourne	Maximum Quantity Onsite at any given day: 11,500m³/day Maximum Time Held Onsite: N/A Foaming Incident: QP25 AD Foaming Process Control	

Site Drainage	Any spillages of substances onsite & excess run-off. (Liquid)	M	L	L	Source: Stagnant material in blocked drain ways Receptor: Humans – Industrial Units and Residential Units Pathway: Airbourne	Site drainage is visually checked on daily basis by operator and recorded using E2 Daily Site Environmental Inspection form. Any defects or issues are reported to management and added to SR21 GECO Working Register to ensure corrective action is taken. All drainage is contained within the site boundary and bund. Drain Blockage: In the event of drainage blockage specialist external contractor will be organised to complete jetting of drains. Where required cameras will be employed to identify any blockages.	L
Pasteurisation Area	Food stuff (Liquid)	H	M	M	Source: Failure of the OAS or the fan which draws from the Pasteurisation Tanks to the OAS Receptor: Humans – Industrial Units and Residential Units Pathway: Airbourne	Pasteurisation tanks are linked to Odour Abatement System. Area is bunded with adequate drainage in the event of a spillage or leak. Tank integrity is annually tested by completion of Leak Detection Testing. Tanks are checked daily as part of E2 Daily Site Environmental Inspection this includes inlet and outlet pipework and condensate traps. Each tank is fitted with vacuum release valves to ensure there is no risk of implosion, allowing movement of air into the tank only. Maximum Quantity Onsite at any given day: Refer to AD Tanks Maximum Time Held Onsite: Refer to AD Tanks	L

Vibrating Screen	Plastics Digestate (Solid and Liquid)	H	H	M	Source: Blocked Screen or Pipework resulting in excess PAS110 Material remaining at the screen. Receptor: Humans – Industrial Units and Residential Units Pathway: Airbourne	Liquid is tested as per PAS110 protocol which ensures residual biogas potential is within agreed limits. Vibrating screen deck and screw press remove digestate leaving dry plastic reject from system. Maximum Quantity Onsite at any given day: 2T/day Maximum Time Held Onsite: N/A	M
Gas Balloon, PRV, CHP's & Flare	Gas	H	M	M	Source: Failure of the Balloon, PRV, CHP or Flare which isn't responded to in a timely manor following an alarm, scada reading etc. Receptor: Humans – Industrial Units and Residential Units	PRV's onsite are designed for emergency usage only to protect the asset and prevent unsafe instances which pose the risk of significant damage. PRV releases are investigated to mitigate usage and prevent recurrences. PRV Inspected daily by an Operator to ensure compliance against E2 Daily Site Environmental Inspection Form. Flare is utilised to appropriately manage gas volumes in instances of maintenance or emergency situations. Flare monitoring carried out if operating time exceeds 10% of capacity.	L

					Pathway: Airbourne	CHP Exhaust emissions tested annually as per permit requirements monitoring NOx, SO_2, CO and VOCs. Balloon is inspected annually by external competent contractor. Maximum Quantity Onsite at any given day: 10,965m³/day Maximum Time Held Onsite: N/A	
						Pressure instrumentation linked to SCADA in event of detection of change to sound alarm. Process can be adjusted accordingly. Biogas CHP (x3) capacity of 1500m³/hr, Flare capacity of 1500m³/hr and Puregas Upgrade unit capacity of 3000m³/hr provides site options to manage biogas production volumes in times of maintenance and emergencies, avoiding PRV releases. Flare usage can also be limited due to Puregas Upgrade capacity. Asset trip signals alarm notification via SCADA system to Plant Operators.	
Operations – General Waste Area	Mixed General Waste, Cardboard & Recycling (Solid)	L	L	L	Source: Bin containing organic or odorous material which has not been enclosed.	External contractor employed to complete general waste removal on periodic basis. Contractors used for waste removal are recorded within SR09 – Internal Waste Summary Register. Bins used are enclosed – employees are encouraged to report any overflow, spillages, or integrity issues in line with HSP1 Reporting Procedure.	L
					Receptor: Humans – Industrial Units and Residential Units	Maximum Quantity Onsite at any given day: 3.3m³/day Maximum Time Held Onsite: 1 week	
					Pathway: Airbourne		

Vehicle Movement	Food stuff and excess run-off on yard. (Liquid)	H	M	M	Source: Wheels not washed down tracking odorous material into the yard and failure to routinely clean the yard	Vehicle wheels are washed down before leaving the Reception Building as per EP02 Waste Acceptance Procedure. Operator is specifically assigned yard duty role which involves ensuring traffic routes are clean to reduce potential vehicle contamination and clean up any spillages as quickly as possible.	L
					Receptor: Humans – Industrial Units and Residential Units	Maximum Quantity Onsite at any given day: <1m³/day Maximum Time Held Onsite: N/A	
					Pathway: Airbourne	Periodic Site Clean down completed and daily environmental walk completed.	
						Availability of approved contractors from approved contractors list.	
Unplanned job tasks or reactive maintenance.	Depends on job task.	H	M	M	Source: Failure to assess and control odours when undertaking unplanned tasks or reactive maintenance.	*HSP6 Risk Assessment & Method Statement Procedure* outlines the requirement to consider environmental risks including odour potential or risks which could cause odour. Control measures are required to be implemented which lower this risk to an acceptable rating. Environmental risks are also outlined for consideration within Permit to Work which must be appropriately controlled in the instance of every abnormal & contractor job tasks.	*L*
					Receptor: Humans – Industrial Units and Residential Units	HSP02 Contractor Management requires environmental risks and control measures to be considered as part of the pre-planning stage.	
					Pathway: Airbourne	Notification to NIEA & consultation: In the instance that odour release is likely to cause nuisance and cannot be adequately controlled for a period of repair works or abnormal job tasks the NIEA will be notified and consultation with local businesses and residents.	

BNEF **Gas to Grid**	Gas & Odorant	H	M	M	Source: Gas leak or plant failure Receptor: Humans – Industrial Units and Residential Units Pathway: Airbourne	New flare is designed for 2,500m3/hr of Biogas or 1,200m3/hr Biomethane or 325biogas/1200biomethane simultaneously External gas sounder fitted to BNEF unit. Emergency stop fitted to BNEF. Trip signals received to SCADA system. Flare has been hardwired to BNEF in case of communication failure. Odorant has been installed on a bund and odorant spill kit in place. Propane tanks surrounded by 1m of non-flint gravel to increase surface area around tanks to capture any potential leaks. New double seal manholes in surrounding area. Notification to NIEA & consultation: In the instance that odour release is likely to cause nuisance and cannot be adequately controlled for a period of repair works or abnormal job tasks the NIEA will be notified and consultation with local businesses and residents.	L

3.2 Odorous materials

Table 3.2 Odorous materials

Odorous and potentially odorous material (any solid, liquid or gas)	Odour potential High Risk / Medium Risk / Low Risk	Maximum quantity on site at any given day (tonnes per day or litres per day)	Maximum time held on site (hours or days)	Location of odorous materials on site	Additional comments
EWC 02: Wastes from Agriculture, Horticulture, Aquaculture, Forestry, Hunting and Fishing, Food Preparation and Processing	Range medium to high	A total of 350 tonnes feedstock waste will be held on site at any given time	Max 24h in Reception Building	AD feedstock: Reception Hall	Single source waste with contracts in place (including waste characterization & rejection criteria). Several waste contracts in place to ensure adequate AD operation Waste can be liquid (transported in tankers) or solid (transported in trucks)
EWC 03: Wastes from Wood Processing and the Production of Panels and Furniture, Pulp, Paper and Cardboard	Range medium to high	A total of 350 tonnes feedstock waste will be held on site at any given time	Max 24h in Reception Building	AD feedstock: Reception Hall	Single source waste with contracts in place (including waste characterization & rejection criteria). Several waste contracts in place to ensure adequate AD operation Liquid waste (transported in tankers) or solid (transported in trucks)
EWC 04: Wastes from the Leather, Fur and Textile Industries	Range low to high	A total of 350 tonnes feedstock waste will be held on site at any given time	Max 24h in Reception Building	AD feedstock: Reception Hall	Single source waste with contracts in place (including waste characterization & rejection criteria). Several waste contracts in place to ensure adequate AD operation Liquid waste (transported in tankers)

EWC 15: Waste Packaging; Absorbents, Wiping Cloths, Filter Materials and Protective Clothing not otherwise specified	Low	A total of 350 tonnes feedstock waste will be held on site at any given time	Max 24h in Reception Building	AD feedstock: Reception Hall	Single source waste with contracts in place (including waste characterization & rejection criteria). Several waste contracts in place to ensure adequate AD operation Solid waste (transported in trucks)
EWC 19 02: wastes from /chemical treatments of waste (including dechromatatfon, decyanldatlon, neutralisation)	Range medium to high	A total of 350 tonnes feedstock waste will be held on site at any given time	AD feedstock: Reception Hall	AD feedstock: Reception Hall	Single source waste with contracts in place (including waste characterization & rejection criteria). Several waste contracts in place to ensure adequate AD operation Waste can be liquid (transported in tankers) or solid (transported in trucks)
EWC 20: Municipal Wastes (Household waste and similar commercial, industrial and institutional wastes) including separately collected fractions	Range low to high	A total of 350 tonnes feedstock waste will be held on site at any given time	AD feedstock: Reception Hall	AD feedstock: Reception Hall	Single source waste with contracts in place (including waste characterization & rejection criteria). Several waste contracts in place to ensure adequate AD operation Waste can be liquid (transported in tankers) or solid (transported in trucks)
Digestate (main digesters	Low	10,000^3 max.	Retention time approx. <40 days	Digesters	Liquid (transported in tankers)
Grit removed from soup room	Range low to medium	Currently not running on site.		On site until removal	Solid (transported in skips or dolavs)
PAS 110 digestate liquid fraction	Low	Approx. 2000-3000m^3	Retention time < 50 days	Tanks	Liquid (transported in tankers)

PAS 110 digestate solid fraction	Low	60m^3	<24hours	Tanks	Solid (transported in trucks or trailers)
Activated carbon	Low	16-20T	<14days	Storage Area	Solid (transported in tonne bags over pallets) This will only be on site as a result of a carbon change
Spent Activated carbon	Medium to high	16-20T	<20days	Storage Area	Solid (transported in tonne bags over pallets) This will only be on site for a short duration before disposal.
Chemicals	Low	0-20,000l	<1y	COSHH Area	Liquid (25l, 250l, 1000l containers/IBC)
Grit removed from tanks	Range low to medium	15T	<24h	On site until removal	Solid (transported in skips or dolavs)
Solids removed with the vi-brating screen	Range medium to high	15T	<24h	On site until removal	Solid (stored in dolavs from operation and then transferred to 40-yard roro
Hazardous waste (used oils)	Low	0-2,000l	<30days (minimum ton to be removed)	COSHH Area	Liquid (Liquid (25l, 250l, 1000l containers/IBC)
Greases and oils	Low	0-2000l	shelf life of the product	COSHH Area	Liquid (transported in IBCs) solid (stored in pallets/containers)

3.3 Overview of odorous processes and emissions

3.3 – Site plan showing odorous process locations / odorous emissions / storage

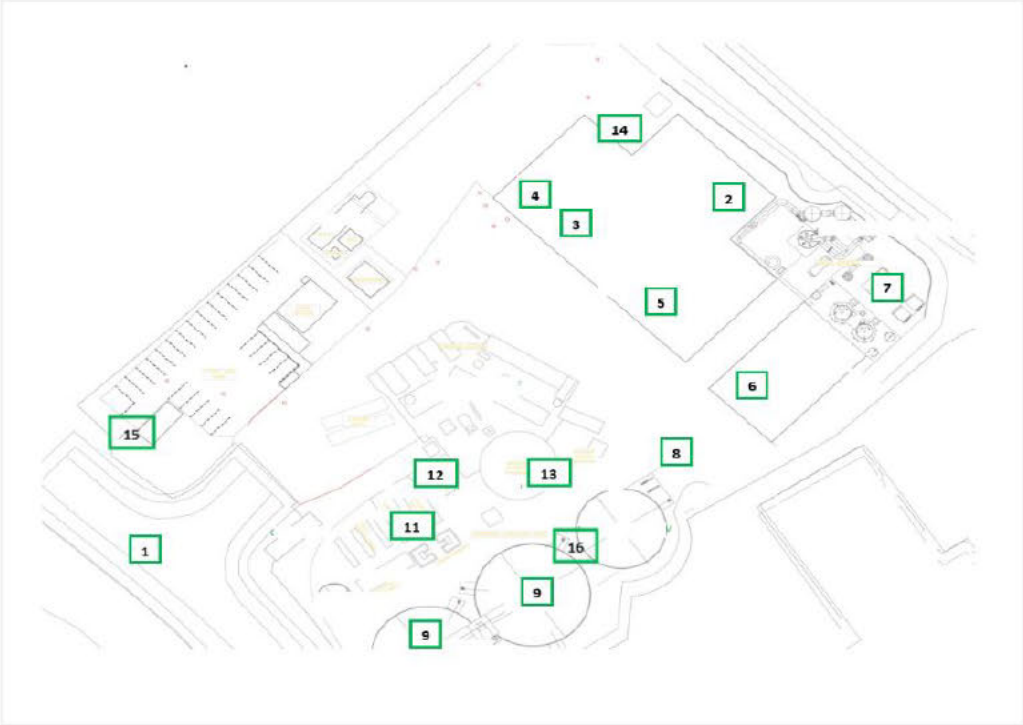


Figure 9 Odorous process locations

Reference	Building Name/ Location	Odour Control	Odour Potential	Monitoring Frequency
1	Incoming Waste (outdoors, external to site)	Initial acceptance points for waste. Food waste to remain covered until permitted entry to the site and within the waste reception area.	L	24/7 monitoring by Weighbridge. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.

2	Reception Hall: Bins 1 & 2	Tipping points for food waste. Area is covered by odour abatement system. Tipping controlled by site operative. Both waste reception doors must be closed prior to tipping to ensure negative pressure. Doors to be closed at all times when not accepting tipping HGV vehicles.	H	Constant monitoring via CCTV, SCADA system and waste reception operative and included in daily site tagging walkover. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.
3	Reception Hall – Compactor Skips.	Food waste processing area. Area is covered by odour abatement system.	H	Constant monitoring via CCTV system and waste reception operative and included in daily site tagging walkover. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.
4	Reception Hall – Open Top Skips	Nonorganic waste storage area. Area is covered by odour abatement system. Skip level to be controlled at all times and waste emptied and removed appropriately on a regular basis.	H	Constant monitoring via CCTV system and waste reception operative and included in daily site tagging walkover. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.
5	Soup Room	Liquid food waste process area. Tanks are enclosed, no risk of spillage. Area is covered by odour abatement system.	H	Constant monitoring via CCTV, SCADA system and included in daily site tagging walkover. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.
6	Dewatering Building – Solid Cake	Solid Cake production area is only active when plant is producing solid cake. Area is enclosed. Area is covered by odour abatement system.	L	Constant monitoring via CCTV, SCADA system and included in daily site tagging walkover. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.
7	Chemical Storage Areas	External chemical area. Area is restricted. All chemicals are stored within enclosed storage IBCs. No open chemical storage permitted within in the area.	H	Daily monitoring via CCTV and daily site tagging walkover. Monthly monitoring via SHEQ Inspections. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.

8	Liquid Digestate Filling Point	Area is external, area is not covered by the odour abatement system. Filling collections are from pipe to tanker, no risk of spillage. Area is covered by internal site bund.	H	Constant monitoring via CCTV, SCADA system and included in daily site tagging walkover. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.
9	AD Tanks - Foam	Tanks are fully enclosed, surrounding area is external, area is not covered by the odour abatement system. In the case of an abnormal spillage, the area is covered by internal site bund and Emergency Spillage Response plan is in place.	H	Constant monitoring via CCTV, SCADA system and included in daily site tagging walkover. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.
10	Pasteurisation Area	Area is external, area is not covered by the odour abatement system. Limited risk of spillage. Area is covered by internal site bund.	M	Constant monitoring via CCTV, SCADA system and included in daily site tagging walkover. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.
11	Vibrating Screen	Following improvement works, area will be covered by abatement system. Dolav monitored regularly and changed every hour. Waste emptied and removed appropriately on a regular basis.	H	Constant monitoring via CCTV, SCADA system and included in daily site tagging walkover. Hourly dolav changes. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.
12	Site Drainage	Internal drainage system, low risk of odour.	L	Daily site tagging walkover. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.
13	Gas Balloon, PRV, CHP's & Flare	Emission points to be used in emergency circumstances only. Area is external, area is not covered by the odour abatement system. Area is covered by internal site bund.	H	Constant monitoring via CCTV, SCADA system and included in daily site tagging walkover. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.

14	Operations – General Waste Area	Waste stored in appropriate bins until collection. Low emission point. Bins monitored regularly and waste emptied and removed appropriately on a regular basis.	L	Daily Site Supervisor check. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.
15	BNEF & Gas to Grid	Area not covered by odour abatement system, however emissions from area should be limited. Gas production straight to grid. Alert system in place in the case of a leak, odorant also present in system for alert to leak.	M	Monitoring via CCTV, SCADA system when in use and included in daily site tagging walkover. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.
16	De-gritting unit	Following improvement works, area will be covered by abatement system. Dolav monitored regularly and changed every hour. Waste emptied and removed appropriately on a regular basis.	H	Constant monitoring via CCTV, SCADA system and included in daily site tagging walkover. Hourly dolav changes. Included in Daily Internal Odour Assessment Form (E3). Hard copied completed and held on site in operations office.

The site achieves optimal process by processing the incoming food waste through the DE packaging units in a consistent manner. The DE packaging process separates the food waste and packaging to create a soup that is subsequently pumped from tank to tank and sent through a set of predetermined stages to optimise the product for gas generation.
Each stage has sufficient storage capacity to hold a set amount within the confined of the equipment that can then be pushed forward via pumps on a routine basis.

From the DE packaging phase, the product is pumped into the soup tank, which is a first stage storage, this tank then feeds the pasteurisation phase, whereby the product is held at 70 degrees for one hour on a batch basis, following this the product is sent to the second stage storage which is the hydrolysis tank, from here the digesters are feed every hour. This feed rate, along with temperature control and pH, are what are used to ensure the product is optimised for biogas generation.

3.3.2 – Odour Control System

The odour abatement system installed and commissioned by Simdean Odour Control Systems includes a two-stage chemical scrubber treatment followed a carbon polish step.

Two packed bed scrubbers are used to remove pollutants from contaminated air prior to exhausting such air to the atmosphere. The cylindrical tower consists of a sump at the base where the scrubbing solution is pumped form the base to the top of the packed section via the recirculation pipework system, where it is distributed evenly over the top of the packed bed in the eliminator section. The contaminated airstream is introduced into the scrubber through the air inlet above the scrubber sump and circulates vertically under counter current flow for effective treatment.

The first scrubber utilises sulphuric acid to maintain a low pH to treat any ammonia emissions within the air stream. Following this the air flow passes through the second scrubber which utilises Sodium Hypochlorite to remove mercaptans and H_2S within the airstream. Lastly, the air flow passes through a Carbon Adsorber which holds a total of 33m³ of activated carbon removing any final odorous compounds within the air stream. The treated air exhaust is then emitted through the stack at a height of 30metres.

Figure 10 Odour Control System Scope Map

Various stages within the process are covered by GECO's odour abatement system including Waste Reception area, Soup Room and the Dewatering area. The odour abatement system undergoes regular onsite checks as mentioned in Section 4. Control measures as well as bi-annual checks from a competent 3rd party. GECO are committed to ensuring the odour abatement system is at optimum working performance and will aim to test the efficiency of the system annually as a proactive measure to ensure this performance.

Ventilation System

The ventilation of process vessels and buildings is integrated with the odour control system to ensure that emissions of malodorous air from the GECO plant are prevented. An air-lock system is present in the waste reception area. The doors of the reception building airlock, and the area becomes completely enclosed, this building can contain up to 3 lorries at a time.

In addition to the door control, two ventilation fans force fresh air into the reception bays. Backdraft louvres in the inner wall ensure that air can only flow from the reception hall into the open bin area. Duty/standby forced draft fans fitted downstream in the odour duct system ensure that more air is drawn from the bin area than is provided by the ventilation fans previously described. By establishing a pressure gradient from the inlet to the building and into subsequent rooms, it is possible to ensure that odorous air will only travel in the desired direction.

Sulphuric Acid Scrubbing

The first stage of the odour control process uses sulphuric acid as the scrubbing medium. The sulphuric acid is used to remove ammonia and amines along with some soluble volatile organic compounds, (VOC's). This stage prevents ammonia from passing to the caustic/hypochlorite scrubbing stage therefore avoiding secondary odour formation.

Ammonia scrubber tower

For the recirculation pump, the pump can be set to run in either auto or manual. In the auto mode the pump inverter will keep the speed of the pump to provide a flowrate of scrubber liquor through the scrubber which is set by the Flow SP (Set point Value). This can be altered by touching the area to the right of the Flow SP label and inputting a new value into the keypad which "pops" up on touching the value.

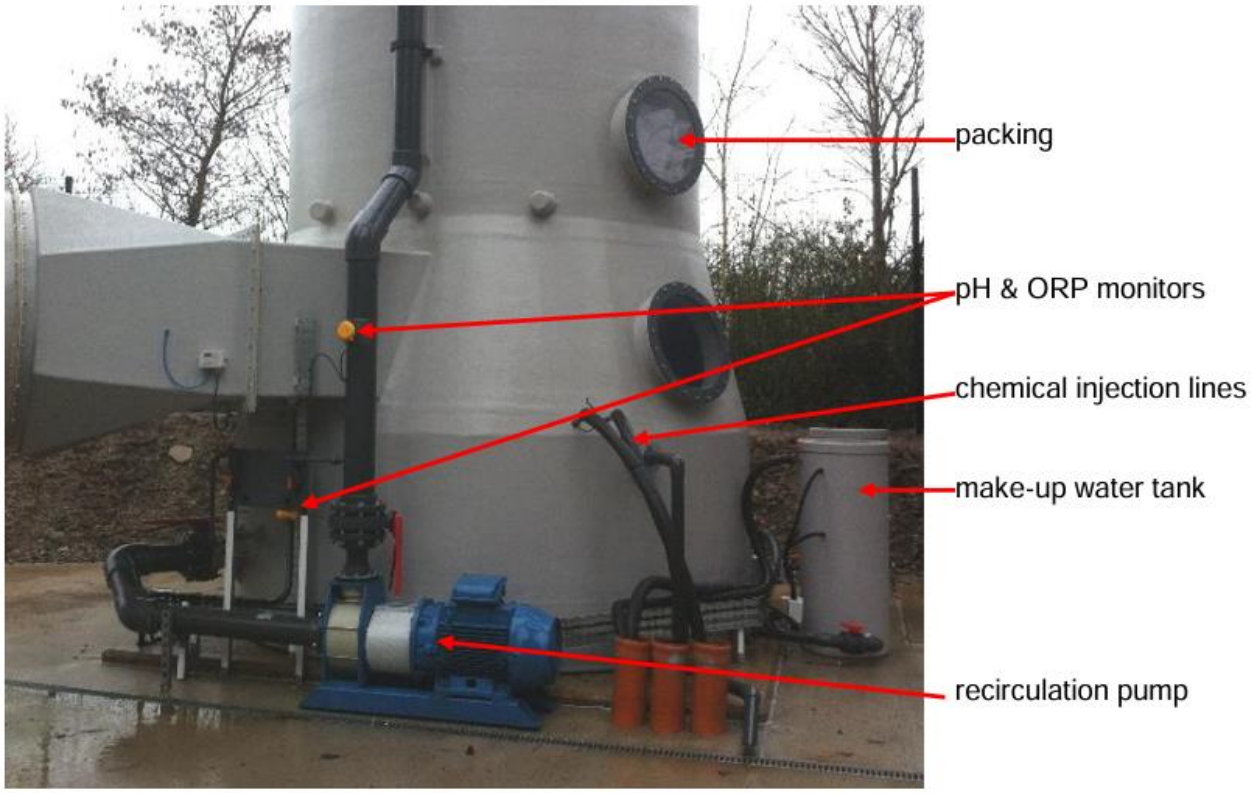
The normal range for the ammonia scrubber is approx. 30 -45 m3/h in manual mode the speed of the pump is set by Manual SP value. This is set in Hz for the pump behind the faulted reset button are two buttons as per the ones shown for the exhaust fan screen These are either start and stop or running and stopped depending upon the state of the system.

The dosing pumps are controlled through the pH set points (lower and upper) these are set as per the flow SP. The low SP is set to 3.5 and the upper SP is set to 4 The blowdown pump for the scrubber can be set to run in either auto or manual mode. If the system is run in manual mode, ensure that the pump is not left running for long periods as it will empty the scrubber bund. In automatic mode the period and frequency of blowdown can be set us using the timing buttons alongside the on /off switches.

Hypo Scrubber tower

Caustic/Hypochlorite Scrubbing is the second stage of the odour control process is also an oxidation stage. This scrubbing stage includes disinfection. The caustic/hypochlorite solution kills bacteria and oxidises the other remaining compounds. It is this stage that the removal of acidic contaminants such as hydrogen sulphide and will occur.

Operation is as per the Ammonia scrubber, but the dosing of sodium hypochlorite is controlled using oxidation reduction probe (ORP) values. At commissioning the values for the ORP were set as 450 low SP and 500 as high SP. For the caustic dosing the values were set at low SP 9 and high SP at 9.5



A chemically resistant recycling pump draws scrubber liquor from the base of the tower and pumps it via the external pipe to the top of the tower. Here it is sprayed onto the packing material which fills the tower and is visible in the upper porthole.

The packing increases the surface area wetted by the alkali solution, thus improving the contact with the malodorous air.

The air flow is counter to the liquid, i.e. it enters the tower at the bottom and exits from the top. Air flow is passed through a demister located at the top of each scrubber in order to avoid too much water being carried over. The pH and ORP of the liquor in the base of the tower is monitored by instruments which receive flow from the riser pipe.

Caustic Soda and/or Sodium Hypochlorite are added directly to the liquor via the lagged lines visible in the photo. A smaller pump not visible here periodically draws some liquor from the base of the tower and pumps it to the Aeration Vessel for treatment.

This so-called blowdown disposes of neutralisation salts arising from the reaction between the acid compound in the air and the alkali liquor. (the reverse occurs in the acid tower) Service water is added to the liquor via the make-up water vessel to replenish liquor lost through evaporation and blowdown. Softened water is used on the caustic scrubber as the high pH precipitates the calcium carbonate present in potable mains water.

Carbon Polishing

The Carbon Adsorber is the third stage of this system, an air stream passes through a packed bed of activated carbon that has been impregnated with potassium permanganate to improve its treatment capabilities. Any residual VOC's and inorganic materials will be removed by direct adsorption into the carbon. This process will eventually consume the carbon in the adsorber, and it will need to be removed and replenished.

The adsorber is fitted with 3 sniffer tubes which penetrate different distances into the carbon bed. The tubes are brought down to ground level where they can be tested periodically by the operators. Approximately 16 tonnes of carbon is installed in the adsorber.

The carbon adsorber is fitted with a bypass that can be operated manually. The Exhaust Stack is the outlet of the odour control system for the treated air to be released into the atmosphere. The exhaust stack is 35m high.

4. Control measures and process monitoring

The table below demonstrates the monitoring schedule for the monitoring of potential odour sources.

Ref.	Frequency	Ref.	Action	Responsibility	Record Storage
1.	**Continuous**	**A.**	**SCADA Monitoring of Process Parameters and Plant Operation**	Plant Operative	SCADA system- Plant Log
2.	**Daily**	**A.**	**Completion of Daily Site Environmental Inspection form. (E2)**	Plant Operative	Environmental File within Operation's Office **OR** Z Drive > Environmental Records > Odour
		B.	**Completion of Internal Odour Assessment Form (E3)** Including all potential odour sources mentioned in section 3.3. Refer to section 2.2 for method	Plant Operative	Environmental File within Operation's Office **OR** Z Drive > Environmental Records > Odour
		C.	**Completion of External Odour Assessment Form. (E3)** Including all sensitivity sensors (refer to section 3)	Plant Supervisor or Senior Plant Operative – shift start.	Environmental File within Operation's Office **OR** Z Drive > Environmental Records > Odour
		D.	**Environmental Observations & Reporting.** 24/7 online reporting online facility open to all employees.	All employees, contractors & visitors.	ECO ONLINE REPORTING PORTAL.
		E.	**Measurement of scrubber operating parameters (Q102) then recorded on plant log (Q12).**	Plant Operative	Lab template within Operation's Office **OR** Z Drive > Operations Regulatory> Performance > Plant Log
3.	**Weekly**	**A.**	**Review at Weekly Ops Meeting**	SHEQ Team & Plant Manager	SharePoint & Operation Noticeboard.
4.	**Fortnightly**	**A.**	**Air quality monitoring at inlet and outlet of the odour abatement system.** ***Ammonia and H2S quarterly testing requirement also carried out.***	Plant Operative	E11 Environmental Records
5.	**Monthly**	**A.**	**Review at HSE Monthly Meeting.**	SHEQ Team & Plant Manager	Z Drive > H&S Records > H&S Meetings. Operation's Noticeboard.
6.	**6-Monthly**	**A.**	**External Contractor testing of odour abatement system.**	Plant Manager	Z Drive > Environmental Records > Odour

			Future external tests to include testing of both inlet and outlet sample points in order to review efficiency of OMS. ***If efficiency of OMS drops below 70%, the carbon filter will be changed.***		
7.	**Annually**	**A.**	**Leak Detection Testing**	SHEQ Team & Plant Manager	Z Drive > Environmental Records > Odour
		B.	**Negative Pressure Testing**	SHEQ Team & Plant Manager	Z Drive > Environmental Records > Odour
		C.	**External Contractor Odour Survey**	SHEQ Team & Plant Manager	Z Drive > Environmental Records > Odour

Appropriate measures / BAT

Table 4.1 Monitoring procedures for appropriate measures/ BAT

Odorous and potentially odorous process / material	Control measures (Appropriate Measure / BAT)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
Deviation from BioC IMS and internal procedures	BAT 1, BAT 2, BAT 3, BAT 4, BAT33 Compliant with requirements against I through VI of BAT conclusions: BioC has implemented an IMS which is certified to ISO14001 Standard.	- Monthly internal audits by the SHEQ team - third-party auditing at least yearly - monthly toolbox ta ks delivered. - quarterly workshops organized. - annual management review	Complaints received. Environmental incidents reported. Adherence to IMS and associated procedures (e.g. waste acceptance procedure is followed; doors are kept closed when waste is being tipped). Too box talks delivered against the schedule. workshops delivered against the schedule. overall environmental performance of the site is carried out. corrective actions are introduced for all incidents;	Non-conformances being identified during an audit Any complaints received. Failure to adhere to toolbox schedule. Deviation from the workshop schedule.	Any NCR will be investigated, logged using ECO online and corrective actions must be deployed to avoid reoccurrence All complaints must be reported to Head of SHEQ Annual management review discusses reoccurrence of incidents and validates the adequacy of the IMS;
Regulatory changes not absorbed up by BioC	BAT 1: VII & IX Operator is member of ADBA, with representatives attending conferences and receiving regular updates in technology development.	BioC attends regular ABDA meetings	Barbour legislation register is live platform that updates on any legislative or regulatory changes.	Changes in legislation.	Greater engagement with ADBA council.
Inadequate procedures to reduce environmenta l risk derived	BAT 5 compliant. GECOs IMS describes all waste management procedures. As standalone documents the following are also available accident, contingency & incident plan which includes waste management procedures in the event of an abnormal or emergency scenario. OMP.	Daily, Weekly, Monthly, Quarterly and Annual inspections & internal auditing 3rd party compliance testing quarterly and biannually)	Daily waste reports. NCRs raised. Environmental observations reported. Environmental incidents reported.	<8% of plastic rejects 230m3/ton Biogas production per ton of feedstock. > 64%methane in biogas.	Efficiency of the depackaging reviewed Lower biogas yield process reading will be confirmed, feedstock tested

from GECO activities	Staff is trained on the approved procedures. Once a document is updated a refresher training is issued using too box talks as the vehicle to deliver the training.	Daily reports on ECO Online Quarterly report on plastic rejects recovery	Quality & environmental KPIs reviewed quarterly and annual on the annual management review. Annual reports to NIEA include the use of energy, raw material, boiler usage & quarterly waste returns	Monitoring of tons of daily feed, Daily Pasteurization volume and Daily degritting tonnage	Methane yield, retention time and OLR will be confirmed and adjusted
Failure to monitor key parameters on SCADA	BAT 2 The control System Philosophy (and incorporation of Environmental Monitoring) has been made bespoke to the site. This includes a full supervisory control and data acquisition (SCADA) to monitor and control the plant. The SCADA system has an interface will all third-party control systems showing alarm status and control actions. A PLC network system will ensure the safe start-up, operation and shutdown of the plant. The automatic control of the AD plant will be performed by the main PLC but will be capable of being controlled remotely. All plant alarms and control interlocks shall be displayed on a dedicated alarm screen. HMI 'Human Machine Interface' units have been installed to enable plant operatives to locally acknowledge alarms and check basic status of plant equipment, without having to contact the control room. Control philosophy has taken into account the HAZOP for the site.	SCADA is used 24/7 by site staff	No critical alarms to be left unattended. Staff are trained on the control philosophy Warnings from local control panels are relayed to main PLC. Number of nuisance alarms. Number of items 'with 'error messages. Internet connection & speed	All alarms generated by SCADA Software requires resetting throughout the week Local audible alarms reach staff faster than SCADA notifications	Site to acknowledge alarms and investigate root cause
Failure to monitor emissions to water & sewer	BAT 6 & 7 compliant The permit lists the wastewater characteristics / parameters that are monitored by staff prior to any discharges to both sewer and surface waters. The SCADA monitoring system includes live monitoring of tank levels, water usage, centrate recirculation volumes. Details of the day-to-day operation of the site are documented within the Plant log. SCADA includes an automated process control with fail safes to prevent uncontrolled releases of material	Environmental daily checks in place. Weekly operational meeting to discuss plant performance. Annual management review. Ppm schedule available for all auxiliary equipment Monthly checks for Suspended solids, pH,	Permit thresholds for surface water discharges. Permit thresholds for sewer discharges. both discharges are reported to NIEA on a quarterly basis. annual basis the total consumption of potable water & non potable water is reported	Permit thresholds for surface water discharges: SS 50mg/l; pH 6-9; BOD 10mg/l; COD <250mg/l; FOG nil; Ammoniacal Nitrogen 5mg/l Permit thresholds for sewer discharges: flow volume: <300m3/24h; flow rate <285	GECO currently do not discharge through SW1 due to water quality not reaching adequate parameters as defined in the permit.

		BOC& COD, FOG and ammoniacal Nitrogen	carbon reduction plan with 10% reduction for water usage	l/m; ammonia< 100mg/l; FOG <100mg/l. pH 5-10; COD <500mg/l; SS 500mg/l water usage >10% than previous year	
Breach of limits to CHPS (biogas)	BAT 8, BAT 10 Periodic monitoring of odour emissions from site is already undertaken, the frequency and methodology of which is detailed within the site's Odour Management Plan This includes sniffing methods, and use of emission factors Tables S4.2 within Schedule 4 of the permit lists the characteristics / parameters that are monitored for emissions to air from the combustion units (CHP stacks) Units are serviced by 3rd party with suppliers' recommendations being followed Local HMI is integrated with site SCADA to allow the operators to access to CHP operational parameters remotely	Ppm schedule including daily, weekly, monthly, quarterly & annual checks by site staff Annual service is done by 3rd party Daily odour checks	quality and environmental KPIs. annual CHP engine efficiency & usage reported to NIEA permit threshold for emission points. having no critical alarms. operating hours at max load. no odours being detected in the area. Compliance monitoring is done annually for oxides of nitrogen, CO, SO2 & total VOCs, sampling an analysis carried out by 3rd party to MCERTS standards;	CHP efficiency 42% 100% available to run. High priority alarms on SCADA. Odours being detected Trigger levels for compliance purposes: oxides of nitrogen <500 mg/m3; CO 1400 mg/m3, SO2 350mg/m3 & total VOCs 1000mg/m3,	Site is manned 24/7 alarms must be address and investigated.
Failure of the biogas scrubber	When in use, the biogas scrubber removes hydrogen sulphide, in order to prevent corrosion of the CHP units. This will result in the treated biogas having a hydrogen sulphide concentration of 500 ppm. This will also reduce S02 emissions. Caustic Soda will be dosed into the scrubber tower. The scrubber will comprise of a skid mounted scrubbing tower, inlet biogas/caustic mixing venturi, plastic scrubbing media, dosing pumps and other ancillary	Daily inspections/ppm schedule include daily weekly, monthly, quarterly checks.	temperature sensor, pH analyser, level indicator, gas lock in condensate trap, pressure in biogas booster	Temperature pH pressure alarms and/or warning on SCADA or local control panel	Team to confirm if condensate trap is working, Confirm if foam might be present in the tanks. Confirm if chemicals are available and being dosed appropriately

	equipment. The pH monitoring will ensure effective treatment has been conducted. Water provided to the scrubber system will be softened water. A condensate trap will be installed on the biogas pipeline, with a gas lock to prevent biogas emissions. The condensate trap will remove moisture from the biogas line, and this will be transferred into the wastewater treatment aeration tank. The condensate trap will be provided with a water supply to maintain a minimum liquid level (controlled by ball float valve) and will have a level switch linked to an alarm to indicate to operators when it needs to be emptied. The biogas boosters (two of duty/standby) will raise the biogas pressure as required for the CHP engines. Each booster will have a suction pressure switch and a discharge temperature switch.				
Breach of limits to OCU	BAT 8, BAT 34 The odour abatement equipment used on site consists of a wet chemical scrubber and polishing abatement plant. The odour abatement system treats odours collected from the main reception building, liquid waste holding tanks, pasteurisation tanks, dewatering building, strain press, and centrate buffer tank. The effectiveness and efficiency of the odour abatement unit is monitored for pH and/or using Oxygen Reduction Potential sensors which measure the condition of the scrubber liquor to maintain optimum performance.	Daily OCU bespoke operational checks. Monthly stock checks (parts and chemicals). Biannual testing as per permit done by 3rd party Quarterly environmental emission checks by trained site staff. Annual efficiency analysis;	Inlet & outlet pressure daily. Inlet & outlet (H2S & NH3). Sniff test daily of the area. Mercaptans & odour by 3rd party to MCERTS standard biannually. Permit Thresholds for Ammonia. Mercaptans; H2S. odour. daily chemical usage. olfactometry testing on carbon bank	Pressure inlet & outlet Concentrations for H2S & NH3 monitored. Sulfuric acid Sodium hydroxide monitored. pH within 3.5 - 4 for ammonia scrubber. pH 9 – 9.5 for hypo tower low odour with sniff test compliance testing within the permit thresholds	Results from testing compared against threshold: if any threshold are breached site manager to carry out investigation. Repairs must be carry out within 1 week for urgent breakdowns, odours must be mitigated within 24 hours.

	Critical spares list available and critical spare parts kept on site			Permit Thresholds of Ammonia <5mg/Nm3. mercaptans <5mg/Nm3 H2S <5mg/Nm3. odour < 700OuE/m3. olfactometry testing done quarterly	
Breach of limits of biogas to biomethane plant	BAT 8, BAT 45 SCADA monitoring system with bespoke control philosophy for best operating conditions. Monitoring parameters include total VOCs, H2S, CO2, CH4, amine (traces), and volume of biogas converted to Biomethane	Daily odour checks & Process checks integrated in the IMS as per manufacturer recommendations. Staff monitors SCADA 24/7 Ppm schedule available and reviewed weekly	SCADA monitoring with threshold for ammine levels, SCADA alarms for biomethane. Annual biogas to biomethane usage reported to NIEA. ppm schedule carried out by the team within the timeframe	Deviations from ppm schedule, Alarms and /or warning on SCADA. Odours detected on site	Site manger to retrain staff when inspections and or ppm schedules are not being complied with. SCADA alarms commonly originated form process deviations site manger to confirm the cause and deploy corrective actions
Deviation from the OMP	BAT 12, BAT 13 An existing Odour Management Plan forms part of the site's Environmental Management System Operational Documentation and contains details of frequency of odour monitoring; procedures and forms for responding to odour incidents/complaints as well as Odour prevention and reduction mitigation measures the O&M Manual provides details of the odour abatement system and protocols to ensure its effectiveness in treating malodours prior to release into atmosphere. Internal auditing under ISO 9001 & ISO 14001 Environmental daily checks OCU daily inspections TCM based on site with ownership of OMP	Internal auditing monthly auditing. OMP is reviewed yearly or if an activities change. Yearly auditing by 3rd party under ISO 9001 & ISO 14001. Weekly review of tasks completed by staff. Quarterly reporting to NIEA of compliance monitoring for emission point	NCRs raised. Parameters measured against each emission point. OCU operational parameters data being collated daily	>5 NCR No daily inspections being carried out Emission levels above the limit defined in the permit	Site manager to retrain staff on the inspection schedule. In OCU is underperforming site manager to confirm process efficiency, confirm, no alarms or warnings are active

Site activities generate diffuse emissions to air	BAT 14 The site has been designed to include the following mitigation techniques to reduce diffuse emissions release to atmosphere: Appropriate design and piping layout; minimisation of pipe run lengths; minimisation of flanges and valves; use of high-integrity equipment such as stainless-steel pipes; tanks at risk from corrosion are coated within epoxy resin to reduce risk of corrosion. Pumps and agitators are fitted with seals to ensure tanks remain sealed and anaerobic. The plant design was scrutinised for suitability as part of a HAZOP study. The site is covered within an impermeable concrete surfacing to reduce dust emissions. Leak Detection and Repair (LDAR) programme submitted to NIEA. Good housekeeping practices such as minimising drop heights for deposited solid waste feedstock deliveries, receipt of solid waste deliveries within the reception building with tipping only occurring with the doors closed etc. The reception hall fall is regularly hosed down and disinfected to keep clean. The reception building is enclosed and serviced with odour abatement which provides a minimum of 3 air changes an hour and maintains a negative pressure into the building Water hoses are available for use in the outside yard area if dampening down is required in periods of dry weather.	IMS including site management plan. OMP. Ppm schedules Inspections schedules SCADA for process control Lab testing KPI operational review by the team Management Of Change procedures HAZOP available	Daily site inspections Ppm schedule. Lab testing.	Odour detected during site inspections. SCADA alarms (including but not limited to gas consumers being off, active flaring, out of spec gas). Digestate fibre <28% Leak detection alarms on SCADA	Site manager to investigate and validate the odour. Once odour sources are identified activities must be mitigated to avoid generating odour. If odour release cannot be mitigated within 30 minutes activities must stop. Site is manned 24/7.
Failure of flare	BAT 15 & BAT 16 The waste gas burner / emergency flare is only used when the primary gas consumers are unavailable. The emergency flare or waste gas burner has been	Ppm checks carried out daily, SCADA 24/7	Use of the flare is recorded within the sites Plant Log and controls are limited to central SCADA system.	Alarms on SCADA, warning messages on the local control panel.	Alarms are to be investigated Site staff to must identify, if possible, to proceed to repair or

	designed to ensure its capacity can accommodate all gas generated on site in the event all other gas consumers become unavailable. Maintenance contract in place with technology providers to maintain the equipment, this also includes a call out allowance for fast site attendance in case of a breakdown. Critical spares list & stock available on site		SCADA monitors biogas pressure, temperature, biogas flows, control philosophy integrates the valve operation with the gas level in the tanks		out of hours or 3rd party support must be requested. Reduce biogas production if flare cannot be operational within 24h and gas consumers are also not operational (this will minimize venting of biogas) Deploy temporary equipment (e.g. generator) if timeline for repair is longer than 1week
Failure to Optimise water consumption, reduce wastewater generation and prevent or where not practicable reduce emissions to soil and water	BAT 19 The site implements a number of techniques to optimise water consumption; reduce wastewater generation; and prevent or where not practicable reduce emissions to soil and water. Whole digestate is sent through a dewatering process consisting of two centrifuges, which increase the dry solid content from 4-6% to approximately 30% dry solids. The resulting liquid process stream (centrate) is recirculated back into the AD system, with excess being treated prior to discharge to the sewerage system. Semi-solid / solid waste feedstocks are unloaded within a reception building which is serviced with impermeable surfacing and sealed drainage. The building ensures that rainwater does not come into contact with the storage area, thus minimising the generation of leachate. Liquid wastes are directly pumped into one of the three liquid reception tanks which are also sealed to prevent rainwater entering the tanks. Daily waste reports are produced to record waste deliveries. The dewatering building is	Daily infrastructure inspections. Compliance inspection by 3rd party. Daily performance review by site manager	Waste availability review carried out annually by the transport team Key parameters being monitored include daily feed, daily pasteurized volume, digestate production, degritting daily volume produced and cake production. Discharges to surface water & sewer and their testing schedule defined in the permit with threshold limits for each parameter	>88 000 tons of feedstock must be available per annum. Daily pasteurization volumes must not deviate from 25% daily feedstock processed. Automated transfer of material in between tanks in done automatically.	Lack of feedstock, site manager to inform transport manager to deploy replacement feedstock contracts and/or divert feedstock from other sites. Deviation form automatic mode on SCADA must be reported to site manager.

	also serviced with a concrete impermeable base. The whole site is serviced within impermeable surfacing. Appropriate secondary containment is provided for storage vessels containing potentially harmful substances.				
Catastrophic event with the main tanks	BAT 21 The site has an Accidents and Incidents Plan which identifies hazards posed by the plant and the associated risks. The plan defines measures to then address these risks. The plan includes an inventory of pollutants present or likely to be present which could have environmental consequences if they escape. Site is bunded and waste activities occur in an impermeable surface with sealed drainage. Pressure Relief Valves (PRVs) installed will be provided on the hydrolysis and AD tanks, in the event of an emergency scenario. The latter is considered highly unlikely as overpressure can be controlled by utilising storage within the gas buffer balloon and using the waste gas flare system. A preventative maintenance system will be in place for key equipment: Overpressure will be automatically controlled by utilising storage within the gas buffer balloon and using the waste A preventative maintenance schedule is available	Daily site inspections. SCADA monitoring of the site 24/7. Changes to process required the Management of Change process to be followed. Ppm schedule available GECO will review the integrity and containment effectiveness of any building, covers and contained air systems periodically following manufacturers guidelines. In the event of a catastrophic failure of tank where their integrity has been significantly compromised., GECO will stop using any vessel or tanks upon immediate resource of an alternative.	Tonnage processed, m3 of material pasteurized, Level of tanks, biogas pressure, temperature of digestate, biogas flows, digestate flows, Presence of foam, Status of Gas consumers Pump Hz; leak detection in the bund. pH and alkalinity of the digester feed; Digester operating temperature; Hydraulic and organic loading rates of the digester feed; Volatile fatty acids and NH3; concentrations within digester & digestate; Biogas quantity, composition (e.g. H2S) and pressure. Weekly reviews of site operations and completed tasks	Control philosophy includes trigger for the operator to be notified as per sites HAZOP. Deviations from the ppm schedule must be authorized by site manager.	All SCADA alarms must be investigated, if spillage can't be minimized the contingency plan to be activated by site manager

Poor housekeeping standards	BAT 14 & 18 Inspections shall be carried out in using the Daily Inspection Form (refer to Annex 8). Any issues identified within the daily inspection will be noted and respons bility specifically assigned to an operator by Site Supervisor to ensure action is rectified. EP2 Spillage Response Procedure is in place and enforced to ensure any spillages of any nature for example leaks, vehicle deposits etc. are immediately cleared and by suitable means. Spill kits are kept onsite in suitable locations to aid with this process. A Near Miss / Safety & Environmental Observation reporting programme is employed and encouraged within the organisation which ensures that any health, safety, and environmental related hazards for example, spillages are identified and reported. Waste produced onsite is controlled via segregated waste bins and appropriate disposal methods are undertaken as outlined within (SR09) Waste Summary Register. Pest control by 3rd party Housekeeping inspection sheets by zones	Daily inspections	Cleanliness and tidiness of the site throughout, no spillages, no leaks. Areas are free of litter with no loose items, no bins overflowing, no standing liquids	Identifying litter or loose items, odours, spillages left unattended, standing liquids	SHEQ team to be notified, team to proceed with cleaning regime
Breakdown of critical equipment	A bespoke ppm schedule based on the manufacturer recommendations is in place. O&M manuals available O&M service contracts & support are in place for CHPs, biogas to biomethane flare, SCADA, PRVs, digestate removal. Faults and breakdowns are investigated, and the service schedule revised if necessary. Emergency maintenance instructions are included in the IMS. Any large Site malfunctions should be	All equipment is subject to ongoing maintenance on daily, weekly, monthly and 6-monthly intervals (as appropriate). Details of faults, breakdowns and repairs are documented in a maintenance folder and the site diary as and when they occur. The Maintenance	On completion of the job a maintenance technician signs that the work has been carried out. Where appropriate, preventative maintenance shall be carried out. Daily review of sites operational performance by the site manager. Daily catch-up meetings to review the overall site performance in all areas (transport, feedstock,	Feedstock residence time <24h. Critical equipment to be replaced <5 working days. Minimum stock for parts. Reactive repairs. Alarms on SCADA	Maintenance team to report to site manager if parts require ordering, ETA is longer than expected any deviation to the ppm schedule Contingency plan to be deployed if required

	recorded in the Site Diary and reported to the Agency via a Schedule 6 Notification (refer to Annex 8). Critical equipment (e.g. feeding pumps, gas booster) run on duty standby. A list of critical spares is available with site carrying stock on site to allow for a quick repair when needed. Max retention time for all waste held on site is in place to minimize odour generation Contingency plan in place to mitigate effects of a major breakdown;	Schedule is controlled and maintained by the Asset Technician. A record of maintenance to plant is kept in the maintenance folder on the site server. Daily maintenance inspections (e.g. corrosion detected by visual inspection)	energy production, ppm schedule, digestate removal)		

The GECO drainage system is checked daily through a daily site tagging walkover where photographic evidence is recorded. The drainage system is also fitted with a submersible pump to ensure no risk of overflow into local waterway system. Drainage pathway checks are also included in the daily walkover and are assessed during Monthly site inspections.

5. Odour reporting

5.1 Complaints reporting

Complaints can be received from a third party using several methods including:

a) Receipt of E6 Odour Complaint Form: held in Weighbridge Office or available via contact.
b) Direct Phone call or email to GECO.
c) NIEA notification.

Upon receival of a complaint it is crucial to obtain as much relevant information as possible to ensure an accurate investigation can take place.
If an employee receives a telephone or email complaint, they should provide E6 Odour Complaint Form to the complainant or ask for these details to complete the form. The complaint form requires the following information to be supplied:

a) Complainant Address
b) Date & Time odour was detected
c) Name
d) Location of odour detection
e) Weather conditions
f) Temperature
g) Wind Strength
h) Wind Direction
i) Intensity of odour, duration of odour, constant or intermittent.
j) Odour description.

Plant Manager, Plant Supervisor or SHEQ Team will begin the investigation process on receipt of a complaint promptly through the use of E4 Odour Complaint Investigation Form as a template to ensure all potential avenues of odour sources are examined. The investigation should consider:

A) Daily Site Environmental Inspection Form
B) E3 Daily Odour Assessment Form (Internal & External).
C) Consultation with operators on shift at time period of complaint.
D) Consultation with Weighbridge Operative and Commercial Manager to determine waste acceptance and removal from site at or around time period of complaint.
E) Review of visitor book & permit to work schedule to determine abnormal job tasks or contractor works taking place.
F) Consultation with Plant Manager, Plant Supervisor & CHP Manager to determine nature of works which took place in 24-hour period of the complaint. Investigate any alarms, breakdowns or repair potential for odour.
G) PRV data review where applicable to odour description.

The investigator must examine each of these elements to determine if the odour source or cause can be determined. If the odour source cannot be determined a copy of the investigation report will be provided to the complainant alongside the conclusions.

If an odour is sourced or determined as being caused by activity within the site boundary of Granville Ecopark this must be logged as an environmental incident using the ECO ONLINE Portal and corrective action established to rectify the nuisance being caused alongside responsibility and completion date aim. As best practice where possible, the NIEA shall be notified where a 3rd party has made the complaint and after investigation, the source has been found to have originated from site.

Upon breach of permit Site management must ensure:

- the NIEA must be notified by completion of a Schedule 6 Notification Form as soon as possible.
- Findings from the investigation must be provided to the complainant alongside a summary of the action agreed to be taken. Consultation should be ongoing throughout this process.
- The non-conformance must be recorded using the SR10 Non-Conformance Register.

All complaints must be recorded using SR21 Complaints Register which summarises the findings and outcomes of all complaints received to Granville Ecopark to enable monitoring and correction action proportionate. Corrective actions

where change to site process is required is completed in accordance with the BioCapital Management of Change Procedure. Complaints are monitored by SHEQ Team & Plant Manager and reported to Bio Capital Head of SHEQ & Bio Capital CTO on both a monthly & quarterly basis.

5.2 Community engagement

Local residents and businesses etc. will be able to reach out to Granville Eco Park at any time. On entrance to the site the notice board displays the telephone number for the plant manager and also via the company website on the "Contact Us" page anyone can submit a query through the website, and this is managed by the admin team and forwarded on accordingly. GECO aim to engage with the public safely where possible, including taking time to speak to the public and neighbouring businesses and residents where they may have questions or concerns

5.3 Pro-active odour monitoring

GECO undergo a range of frequent monitoring including daily sniff test of the external and internal site boundary to ensure the site is constantly monitored to encourage a proactive monitoring approach and to avoid reactive actions. See section 4 for reference.

5.4 Reactive odour monitoring

Table 5.4.1 Example of reactive measures to be deployed in the event of an odour complaint

Odorous and potentially odorous process / material	Control measures (Appropriate Measure / BAT)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
Waste Unloading in Waste Reception Hall	No out of Specification Waste, no overly odorous loads	Every tipped load is observed	Visual and Olfactive.	Overly odorous loads or loads not specified in our permit conditions.	Loads rejected
Waste in reception bins	No out of Specification Waste	Constant. Site Manned 24/7	Visual and Olfactive.	Items not specified in our permit conditions.	Items removed using overhead gantry grab and rejected.
Bioaerosols from odorous material	Sealed buildings with negative pressure OAS	Constant. Site Manned 24/7	Visual and SCADA Monitoring	Doors left open except for access and egress and OAS not running.	Doors closed and if OAS down limit vehicle movement to reduce door opening.
Soup or Organic Material	No uncontrolled releases of Soup or Organic Material	Daily and Constant. Site Manned 24/7	Daily Site Environmental Walk and SCADA monitoring of Tank Level Sensors	Any visible soup or organic material released from tanks or pipework and on the tank level sensors an unexpected level drop to trigger a visual check	Spillage Response Procedure
Biogas or Biomethane	No uncontrolled release of Biogas or Biomethane	Constant and Annual	SCADA pressure levels, fixed LEL gas detectors and	34mbar, Auditory alarm from fixed gas detectors	Shut of valves used to isolate gas from specific areas. Repairs

			Annual Infrared Camera Survey	exceeding the LEL and any detectable volumes from the infrared camera.	completed by CHP engineers who are available on call.
Dosing station	No odour identified	Daily	Visual – daily site walk	Items not specified in our permit conditions.	Odour response as per OMP.

6. Abnormal events

Although consideration has been given to the different common scenarios within anaerobic digestion operations, hazards and potential risk. There is also the need to plan for the unexpected events. In the table below a list of the potential abnormal events that could affect day to day operations. To each scenario, a list of the controls that will be in place to mitigate any possible negative impacts this might have.

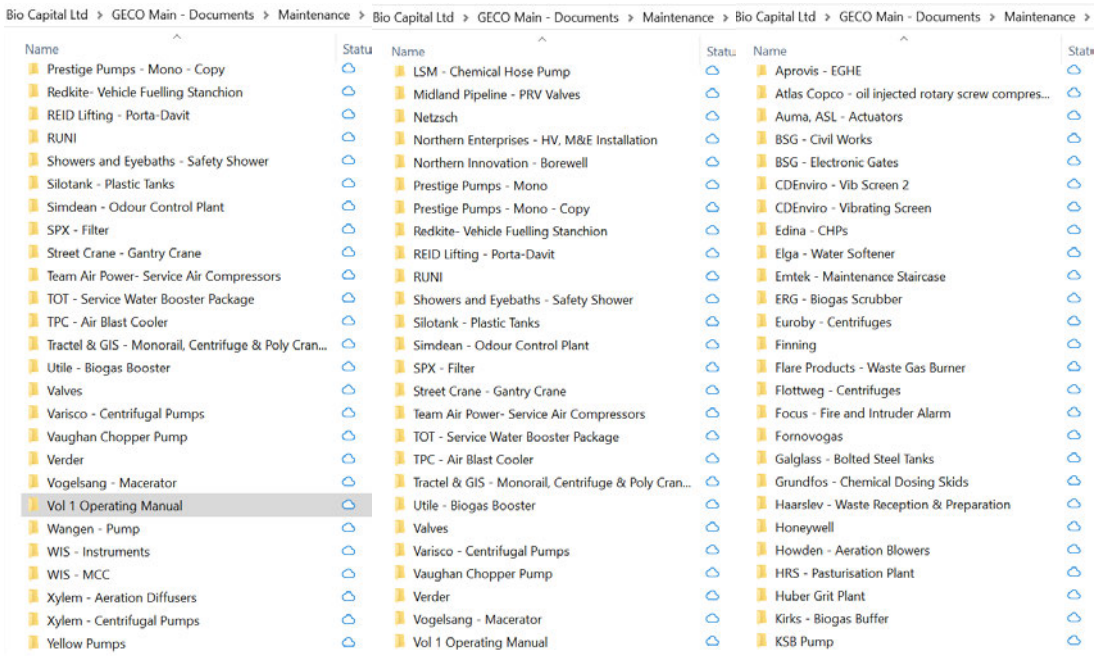
Table 6.1 Abnormal events

Abnormal event	Recovery steps
Unplanned Power Outage	UPS available for maintained SCADA data logging throughout. Number of approved suppliers in event of long-term power outage. PRV's in place to release excess gas to ensure integrity of the tanks is not compromised (safety critical measure). Organic matter stored in sealed sheds. Timeframe: immediate(automated switch controlled by SCADA)
Unexpected failure of Odour Abatement System	Approved list of suppliers to ensure repairs are carried out in a timely manner. Critical spare equipment kept on site. Restrictions on site operations to ensure there are no release of odours (waste acceptance & processing might be restricted to minimum operations). Delivery of carbon within 5 working days if required. Timeframe: within 5 working days
Failure of Roller Shutter Doors	Ability to operate roller shutter doors manually. Approved suppliers available to assist repair. Critical spares are kept onsite to allow for timely repair. Timeframe: within a working day, staff competent to carry out mitigants.
Compromised Tank Integrity	SCADA allow live monitoring of key operational parameters. System equipped with duty/standby equipment in case of failure. Fail safe included within automated process controls to minimize the potential for uncontrolled releases to the environment (for more details please refer to the sites HAZOP) Site is manned 24/7 with CCTV to allow remote monitoring. Ppm schedule in place to minimize the likely hood of failure, 3rd party inspections carried out by competent person. Site design includes containment structures complying with CIRIA. Availability of approved contractors both for tank repair and tankers to dispatch material is required. Critical spares are kept onsite to allow for emergency repairs. Timeframe: immediate for SCADA controls (done automatically), site is manned 24/7 with dedicated maintenance team, dispatch of digestate can start immediately as BioC includes fleet of tankers to spread the material. List of approved suppliers available to be deployed on <24h notice.
Compromised Biogas/Biomethane pipework or associated components including gas consumers	Site manned 24/7 to respond to biogas or biomethane leaks. Availability of shut off valves to minimise and stop further leaks and alarm notification from remote plant. SCADA allows live monitoring of key operational parameters. Installation is equipped with duty/standby critical equipment in case of failure. Fail safe included within the automated process controls to minimize the potential for uncontrolled releases to the environment (for more details please refer to the sites HAZOP). Critical equipment includes flaring excess biogas if the gas consumers come to a halt. Instrumentation installed in gas lines include failsafe of automated valves to minimize any biogas release if an abnormal reading is detected (sudden drop of pressure in the gas line the gas consumers will stop in a controlled and safe manner). Timeframe: immediate for SCADA controls (done automatically), site is manned 24/7 with dedicated maintenance team

Disruption to chemical supply	Several suppliers are on the approved list to prevent logistical limitations or issues with stock. Timeframe: within 2 weeks chemical deliveries
Extended wet periods focused on digestate spreading	Satellite lagoons are available in case spreading season is disrupted Timeframe: <1month (levels of tanks are kept low to allow a few weeks' notice before site needs to store material off site
Extended dry periods	If water is needed to maintain optimal DM & temperature control in summer months within the tanks as last resort mains water will be considered. Site prioritizes the control of DM with feedstocks being accepted onto site to maintain an optimal DM within the tanks. High temperature within the tanks can be controlled with the current heat exchangers on site.
Disruption to feedstock supply (e.g. strikes)	Several sources of feedstock approved to ensure potential disruptions to feedstock supplies are minimized. Timeframe: <5 working days, site manager to reduce feed rate if feedstock supply is below the expected. Feedstock to be diverted from sister sites to avoid compromising the AD biology.

7. Appendix

Appendix 1 – Equipment Specifications



Appendix 2 – EWC permitted to GECO

European Waste Catalogue Code	Description including physical form.
02	Wastes from Agriculture, Horticulture, Aquaculture, Forestry, Hunting and Fishing, Food Preparation and Processing
02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02 01 01	sludges from washing and cleaning
02 01 02	animal-tissue waste
02 01 03	plant-tissue waste
02 01 06	animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site
02 01 07	wastes from forestry
02 02	wastes from the preparation and processing of meat, fish and other foods of animal origin
02 02 01	sludges from washing and cleaning
02 02 02	animal-tissue waste
02 02 03	materials unsuitable for consumption or processing
02 03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation
02 03 01	sludges from washing, cleaning, peeling. centrifuging and separation
02 03 02	wastes from preserving agents
02 03 04	materials unsuitable for consumption or processing
02 03 05	sludges from on-site effluent treatment
02	wastes from sugar processing
02 04 03	sludges from on-site emuent treatment
02 05	wastes from the dairy products industry

02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment
02 06	wastes from the baking and confectionery Industry
02 06 01	materials unsuitable for consumption or processing
02 06 03	sludges from on-site effluent treatment

European Waste Catalogue Code	Description including physical form.
02 07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 04	materials unsuitable for consumption or processing
03	Wastes from Wood Processing and the Production of Panels and Fumiture, Pulp, Paper and Cardboard
03 03	wastes from pulp, paper and cardboard production and processing
03 03 02	green liquor sludge (from recovery of cooking liquor)
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation
04	Wastes from the Leather, Fur and Textile Industries
04 01	wastes from the leather and fur industry
04 01 01	fleshings and lime split wastes
04 01 05	tanning liquor free of chromium
04 Oi 07	sludges, in particular from on-site effluent treatment free of chromium
04 02	wastes from the textile Industry
04 02 10	organic matter from natural products (for example grease, wax)
15	Waste Packaging; Absorbents, Wiping Cloths, Filter Materials and Protective Clothing not otherwise specified
15 01	packaging (Including separately collected municipal packaging waste)
15 01 Of	paper and cardboard packaging

15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 05	composite packaging
19 02	wastes from physico/chemical treatments of waste (including dechromatatfon, decyanldatlon, neutralisation)
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 05	wastes from aerobic treatment of solid wastes
19 05 01	non-composted fraction of municipal and similar wastes

European Waste Catalogue Code	Description including physical form.
19 05 02	non-composted fraction of animal and vegetable waste
19 05 03	off-specification compost
19 06	wastes from anaerobic treatment of waste
19 06 03	liquor from anaerobic treatment of municipal waste
19 06 04	digestate from anaerobic treatment of municipal waste
19 06 05	liquor from anaerobic treatment of animal and vegetable waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste
19 08	wastes from wastewater treatment plants not otherwise specified
19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats
19 08 12	sludges from biological treatment of industrial wastewater other than those mentioned in 19 08 11
20	Municipal Wastes (Household waste and similar commercial, industrial and institutional wastes) including separately collected fractions
20 01	separately collected fractions (except 15 01)
20 01 01	paper and cardboard
20 01 08	biodegradable kitchen and canteen waste
20 01 25	edible oil and fat
20 01 38	wood other than that mentioned in 20 01 37
20 02	garden and park wastes (including cemetery waste)
20 02 01	biodegradable waste
20 03	other municipal wastes

20 03 01	mixed municipal waste
20 03 02	waste from markets

Appendix 3 OCU SCADA view

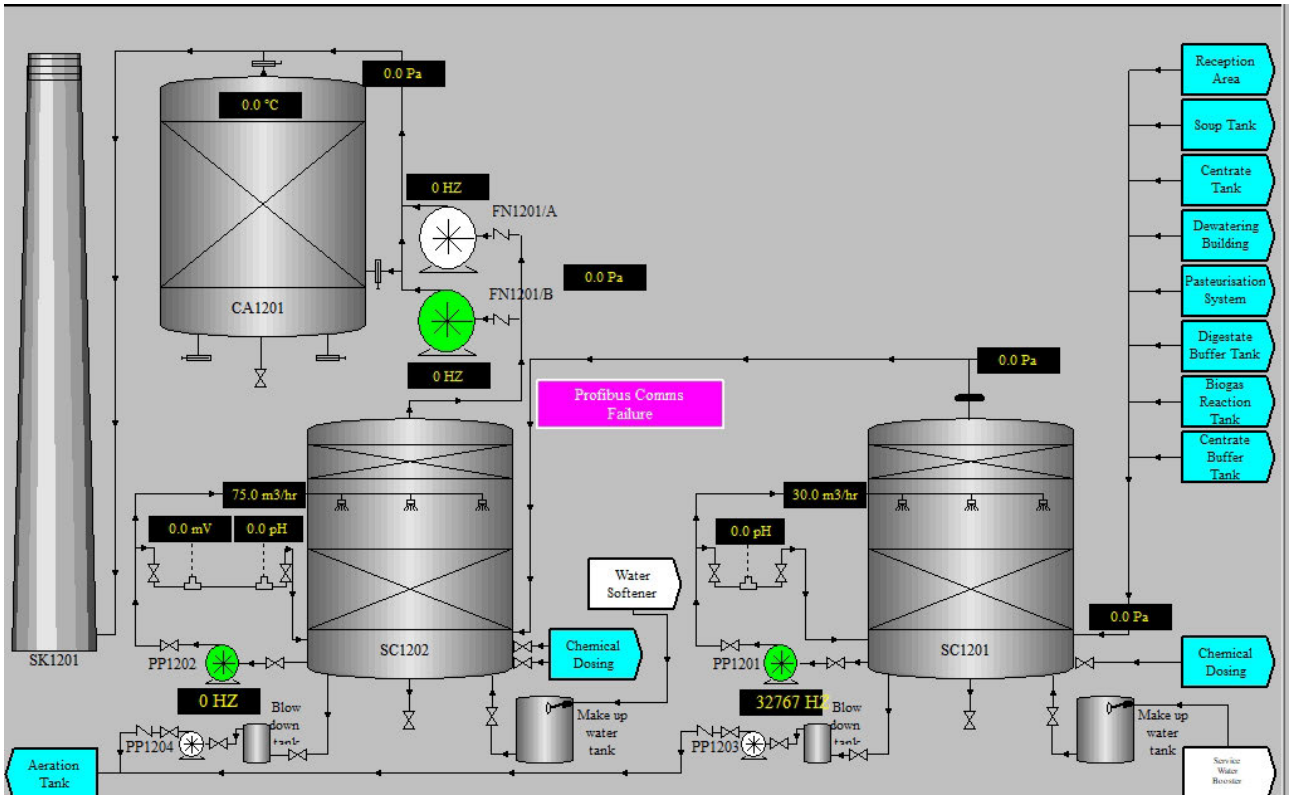


Figure 11 OCU Scada View

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granville ecopark

THE BIO CAPITAL GROUP

Dear Helen

On the 10th of July 2024, the GECO team & the NIEA met remotely to review the Silsoe Interim report as a result of the odour monitoring survey carried out on the 18 & 19th of June 2024. In this meeting a few actions were identified.

Please accept the current letter as the formal response to action 3 referenced in the minutes of the above cited meeting, and referenced as action 2024/25-2-1 on CAR 2024/25-2 report issued on the 11th of July 2024.

Detail of the information required for a successful resolution of the action is defined here: *"Action 3: GECO to send written plan of action to NIEA to include short, medium and long term actions for addressing the issues highlighted in this report."*

GECO understands the NIEA concerns risen from the Silsoe report and is committed to adequately addressing these to ensure the site performs compliantly as per the permit requirements.

The need for an action plan was discussed in between all the participants and the urgency of agreeing both short- and medium-term actions as well as a long term strategy are aligned with both NIEA & GECO views on resuming a trusted & compliant path.

A Compliance assessment report was issued on the 11th of July listing the considerations identified by the NIEA inspectors on the day of the odour survey (18th & 19th of June) while on site.
The minutes issued on the 11th of July 2024, have a supporting list of actions arising from the meeting held to review Silsoe's interim report.

For reference the following actions have been completed by the date this letter has been issued:

- Action 1: GECO to submit Part B of Schedule 6 notification. **Completed, schedule 6 issued as supporting information to this letter**
- Action 2: NIEA to issue CAR for 18/19 June 2024. **Completed on the 11th of July 2024**
- Action 4: GECO to supply NIEA with GCMS results as soon as they come in. **Completed, results issued as supporting information to this letter**

In an attempt to unify both listings, each task will be clearly referenced by the ID used in issuing document they have originated from, eg CAR report 2024/25-2 and the minutes referring to the Silsoe report review meeting.

The GECO team would like to propose the following action plan:

1) **Short term actions**

   a. Improved daily checklist to the OCU unit

Note: Checks currently being carried out by the team, these include integrity checks, H2S& NH3 readings inlet and outlet, pH and pressure readings as well as chemical usage.

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b. Waste reception hall – operator to fix any gaps between the ground and roller doors and fit appropriate rubber seal where missing or damaged (action 2024/25-2-2).

Note: All materials required have been ordered. Site expects repair to be straightforward.

Action to be completed by the **26th of July 2024**

c. Fix louvres in digestate building (action 2024/25-2-8)

Note: Repair materials available. Site expects repair to be straightforward.

Action to be completed by the **26th of July 2024**

d. Change carbon in Odour Control Unit and provide specification, safety data sheet and the design specification for the activated carbon bed ((2024/25-2-10).

Note: We are currently placing an order with our Carbon providers, and we are expecting the carbon to be delivered to site w/c 22/07/24. The carbon will then be replaced in the OCU w/c 29/07/24. Data sheet for the carbon to be used is attached.

Action to be completed by the **2nd of August 2024**

e. Action 5 (referenced in the 10th of June meeting minutes): GECO to submit proposals for changing the carbon in the filter and cleaning and repairing (as required) the scrubbers for agreement in writing on or by 17 July 2024. This must include proposals of how GECO intend to control and treat odorous emissions when the OCU is out of action (or plan a period of stoppage).

Response: Carbon to be changed as per d. above.

The team will monitor activities and in order to prevent and minimize the uncontrolled release of emissions, the following considerations will be taken into account prior to the commencing of any work and during the window where activities related with the OCU maintenance take place:

1) Waste handling activities inside Reception Building to be minimized, this will allow for odour abatement needs to be minimal for the duration of the Carbon exchange activities; This will allow us to keep doors closed on the reception building as much as possible.
2) Waste deliveries to be minimized to allow for the odour abatement needs for the soup room to be minimal for the duration of the Carbon exchange activities;
3) Limit the activities in the dewatering building;
4) Introduce site routine walk arounds focused on odour monitoring with supporting information being collated (wind direction, description of operating facilities eg all doors are closed);

Action completed

2) Medium term actions

a. Retest emissions from Odour Control Unit – Mcerts (2024/25-2-10) to be completed by end of August

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Note: Element team has been contacted. Waiting for quote to be issued. They have confirmed they are available to carry out the survey in August, exact date still TBC.

Action to be completed by **the 31st of August 2024**

b. Inspect the scrubbers internally and check for any fouling or damage to internal surface. Clean, repair and replace, as necessary. Retest as for action 2024/25-2/11 ((2024/25-2-11)

Action to be completed by the **31st of August 2024**

c. Action 6 (referenced in the 10th of June meeting minutes): GECO to provide details (who, what, where, when) for the MCerts retesting they propose, for agreement in writing

Note: Element have been contacted, currently generating the list of requirements for the survey to be carried out including the number of samples to be collected in each location and the details of the labs approved for testing.

Action to be completed by the **31st of August 2024 (including carrying out the odour survey)**

d. Action 7 (referenced in the 10th of June meeting minutes): GECO to provide test plan 2 weeks in advance of testing, for agreement with NIEA prior to sampling. NIEA officers to be on site during sampling.

Note: Element have confirmed the Site Specific Protocol test plan will be made available prior to the site visit, dates are depending on their availability. Once date is confirmed we can make all necessary arrangements to allow for NIEA to be present during the survey.

Action to be completed **at least 2 weeks prior to the survey takes place**

e. Action 8 (referenced in the 10th of June meeting minutes): GECO to provide NIEA with details of the independent assessment of the OCU – who they propose to commission to do this work, what they are asking for, and when this is to be undertaken. Results of this assessment must be provided to NIEA.

Note: Currently carrying out procurement due diligence from independent experts.
Details will be shared with NIEA once an expert is appointed. The bullet points below have been identified as the information we require to be assessed as part of a technical review of the OCU. The list is not comprehensive and the final proposal might diverge from this.

Topics we would like to see covered include:

- *Confirmation the design is still relevant for the current operational load and needs of the site*
- *Operational review of the unit (is it working appropriately?) if not please include a list of suggested corrective actions*
- *Recommend operational KPIs and improved ppm schedules to assure a compliant performance*
- *Estimate of chemical usage/year as well as carbon exchanges*
- *Confirm maximum treatment capacity of the unit (could we increase the flow by 15% to allow more air sources to be treated in the OCU?) identify any upgrades (if any are required)*

Action to be completed by the **31st of August**

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3) Long term actions

Regarding long term actions Granville Ecopark and Bio Capital are committed to abating all odorous emissions from our processes that are likely to cause annoyance outside of the site boundary. We will address all point and fugitive emissions as identified in the odour surveys and impact assessment reports that have been commissioned as part of the recent enforcement notice.

As required by the enforcement notice we will provide a proposal with timescales for completion of any required remedial actions. It is our expectation that this remedial work will require input from specialist contractors and will potentially involve capital expenditure for the installation of additional odour abatement infrastructure and/or other changes in the configuration of our processes

Request for extension to enforcement notice deadlines

It is our view, that given the recent developments the closing date for a few of the actions of the enforcement notice, might now be inadequate, specifically given the extent and implications of the inquiries to the OCU. We must not also neglect the difficulty of coordinating external contractors to carry out work on site, particularly during summer months due to school holidays.
We would therefore like to request an extension to the enforcement actions below.

Steps to be taken	Proposed deadline
Operator to provide a report by the independent odour control and anaerobic digestion expert of the characterization and quantification of all major point and fugitive odour sources.	30th of September
Operator to provide a report by the independent odour control and AD expert of the odour impact assessment from all major point and fugitive odour sources with options for reducing the impact to an acceptable level from the significant contributors	30th of October
Operator to provide a proposal with timescales with justification for remedial actions to ensure an acceptable odour impact (e.g. 98%le<1 OU/m3 at the site boundary), which will include process and emissions monitoring.	31st of December
Operator to provide an updated odour management plan to include proposed remedial actions.	31st of January

Respectfully,
The GECO team

Stage 2 Results – Granville Ecopark

CLIENT: Bio Capital
SITE/PROJECT: Granville Ecopark
REPORT DATE: 12/07/2024
REFERENCE: CR/SO2645/24/BCA002_Stage 2 Results_FINAL
AUTHOR: Paul Outen

ODOUR MEASUREMENT & CONSULTANCY SERVICES

Building 42 • Wrest Park • Silsoe • Bedfordshire • MK45 4HP
01525 860222

Contents

Silsoe Odours Ltd.

Silsoe Odours Ltd is an odour laboratory in Bedfordshire offering complete odour management and consultancy services.

We are accredited by UKAS (Lab. 0609) for sampling of odorous air, odour concentration measurements by dynamic olfactometry as specified in BSEN13725:2023 and air flow measurements in ducts and stacks.

1. Introduction

This note sets out the results of the sampling and analysis survey undertaken by Silsoe Odours Ltd (SOL) at the Granville Anaerobic Digestion (AD) and Biogas Plant (referred to herein as "the facility") in Northern Ireland on the 18 and 19 June 2024. The sources sampled are set out in Table 1.

Table 1: Sampling locations

Source	Sampled
OCU inlet duct	Odour, H_2S, NH_3, airflow, VOC speciation
OCU mid stage 1	Odour, H_2S, NH_3, VOC speciation
OCU mid stage 2	Odour, H_2S, NH_3, VOC speciation
OCU outlet stack	Odour, H_2S, NH_3, airflow, VOC speciation
Vibrating screens	Odour, H_2S, NH_3, airflow, VOC speciation
Waste CO_2 outlet flue	Odour, H_2S, NH_3
Reception building	Odour, H_2S, NH_3, airflow, differential pressure
Soup building	Odour, H_2S, NH_3, airflow, differential pressure
Dewatering building	Odour, H_2S, NH_3, airflow, differential pressure
CHP 3 stack	Odour, H_2S, NH_3
Pasteurisation vessels combined outlet duct	Airflow

This note is provided to meet the requirement of the enforcement notice that states "*Operator to provide a report by the independent odour control and anaerobic digestion expert of the characterisation and quantification of all major point and fugitive odour sources"* required for submission to the Northern Ireland Environment Agency (NIEA) by 30 June 2024. The approach to the assessment is set out in report reference CR/SO2645/24/BCA001_FINAL_2 (dated 13 June 2024, issued for Stage 1), and a full interpretation of the results, including an odour impact assessment using modelling, will be provided by 31 August 2024.

The relevant professional experience of the odour expert leading this study is provided in Appendix A1.

2. Results

2.1. Odours

The results of the odour sampling and analysis, as well as the airflow data where applicable, are presented in Table 2. Interpretation of the results will be provided in a full report by 31 August 2024. It should be noted that the odour concentration at the OCU outlet is considerably higher than the concentrations measured as part of the periodic testing required by the facility's permit; testing to date has demonstrated that the outlet airstream has consistently met the permitted emission limit of 700 ou_E/m^3, and thus the measured emissions at the time of testing may not represent normal operations at the site. It is suggested that the modelling will consider both the measured emission provided in Table 2, and the emissions previously measured as part of the permit requirements.

Table 2: Odour Results

Source	Geomean Odour Concentration (ou_E/m^3)	Temperature (°C)	Volume Flow (Nm^3/s) [1]	Odour Emission Rate (ou_E/s)
OCU inlet	16,569	17.5	42.073 [2]	174,279 [3]
OCU post first scrubber	9,133	- [4]	- [4]	96,068 [5]
OCU post second scrubber	10,252	- [4]	- [4]	107,830 [5]
OCU outlet stack	7,327	18.5	10.518	77,063
Vibrating screens	97,453	29.9	2.448	238,566
Waste CO_2 outlet flue	306,864	47.0 [6]	0.047 [6, 7]	14,549 [8]
Reception building	7,500	15.0	5.847	43,852 [9]
Soup building	3,008	20.7	7.951	23,915 [9]
Dewatering building	309	20.8	2.474	765 [9]
CHP 3 stack	21,325	100.0 [10]	0.11 [6, 7]	2,385
Pasteurisation vessels combined outlet duct	-	20.0	0.165	-

[1] Flows normalised to olfactometry laboratory conditions of 101.3 kPa, 20°C.

[2] Flow location was downstream of sharp bend – measured flow rate is extremely high, is likely the result of high levels of swirl, and thus should not be relied upon.

[3] Due to erroneous inlet flows, the emission rate has been calculated using the measured volume flow at the outlet stack.

[4] No safe access for measurements.

[5] Calculated using the measured volume flow at the outlet stack.

[6] Data provided by Bio Capital Ltd – flow and temperature measurements were not possible at this location.

[7] Flow calculated from daily average flows and has been corrected for temperature, only.

[8] This source operates on pressure release and is not continuous. The emission rate provided assumes a constant emission across a 24-hour period and therefore emissions from this source during release events are likely to be higher than those presented (periodic releases will be considered in the model if appropriate). The outlet diameter of the flue has been estimated at 0.2 m.

[9] Emission rate calculated is the emission rate in the ductwork and does not represent fugitive releases (fugitive releases will be considered in the model).

[10] Estimated value which represents a conservative assumption (exhaust gas is ~400°C out of the engine).

2.2. Hydrogen Sulphide, Ammonia and Volatile Organic Compounds

The results of the H_2S and NH_3 analyses on the samples are presented in Table 3 below. The data are mean values from the triplicate samples from each source. The results of the GC-MS analysis are provided in Appendix A2. Interpretation of the results will be provided in a full report by 31 August 2024.

Table 3: Trace Gas Results

Source	Mean H_2S Conc (ppm)	Mean NH_3 Conc (ppm)
OCU inlet duct	0.763	0.50
OCU post first scrubber	0.703	<LLOD [1]
OCU post second scrubber	0.770	<LLOD [1]
OCU outlet stack	0.048	0.17
Vibrating screens	3.233	167.33
Waste CO_2 outlet flue	29.333	16.00
Reception building	0.263	0.33
Soup building	0.157	<LLOD [1]
Dewatering building	0.004	<LLOD [1]
CHP stack (one of the four flues)	6.100	<LLOD [1]

[1] Concentration was below the lower limit of detection (0.5 ppm) of the analysis technique.

2.3. Differential Pressure

Indicative differential pressure measurements were made between the reception, soup and dewatering buildings and the outside air, to determine whether the internal environment of each building was being maintained under negative pressure. Measurements were undertaken using a micromanometer at various locations in each building with the doors closed, over a period of approximately 5 minutes.

It should be noted that these measurements are indicative, only, and will not be used in the calculations of fugitive emission rates in the dispersion modelling study.

Table 4: Differential Pressure Measurements

Building	Differential Pressure (Pa)	
	Min	Max
Reception building	-7	0
Soup building	-14	-6
Dewatering building	-4	-2

3. Summary

This note presents the results of the sampling and analysis survey undertaken by SOL at the Granville AD and Biogas Plant in Northern Ireland on the 18 and 19 June 2024. The survey was undertaken to address Stage 2 of the enforcement actions, as reproduced below.

Table 5: Enforcement notice actions

Requirement of Enforcement Notice	Deadline	Action
1. Operator to provide a proposal (who, what and when) of a review by an independent odour control and anaerobic digestion expert to ensure all the requirements of the enforcement notice are addressed.	30 April 2024	Complete
2. Operator to provide a report by the independent odour control and anaerobic digestion expert of the characterisation and quantification of all major point and fugitive odour sources.	30 June 2024	Complete
3. Operator to provide a report by the independent odour control and anaerobic digestion expert of the odour impact assessment from all major point and fugitive odour sources with options for reducing the impact to an acceptable level (e.g. 98%le <1 OU/m3 at the site boundary) from the significant contributors.	31 August 2024	To be completed
4. Operator to provide a proposal with timescales with justification for remedial actions to ensure an acceptable odour impact (e.g. 98%le <1 OU/m^3 at the site boundary), which will include process and emissions monitoring.	31 October 2024	To be completed

A full impact assessment, including interpretation of the results, dispersion modelling, and recommendations for improvements, will be provided in the full report due 31 August 2024 (Stage 3), which will inform the requirements of Stage 4.

A1. Appendix 1 – Professional Experience

Paul Outen (BSc, MIAQM, MIES)

Mr Outen is a Principal Consultant with SOL, having joined in 2024. He undertakes odour assessments for SOL, covering residential and commercial developments, industrial installations and mineral and waste facilities. These involve qualitative assessments, and quantitative modelling assessments using the ADMS dispersion model, for planning, permitting and investigative purposes. He has successfully acted as expert witness on odours at public inquiries and hearings and is a recognised expert in the field of odour assessment. Mr Outen has extensive experience in the assessment of odours across a wide range of industries throughout the UK, Europe and Asia, and is knowledgeable in pollutant monitoring techniques for odours and trace gases. He regularly undertakes site audits for various installations, including AD facilities, to advise on pollution control and mitigation strategies. He is also highly experienced in iterative dispersion modelling to assist with both the initial design or the required improvements to an odorous facility or process.

Paul is a member of both the Institute of Air Quality Management and Institute of Environmental Sciences.

A2. Appendix 2 – GC-MS Results

The results of the GC-MS analysis are presented in full below. All concentrations have been standardised to 20°C, 101.3 kPa.

OAV (Odour Activity Value): Ratio between concentration and odour threshold value

Shaded blue cells: Very volatile compound

Red values: Odour threshold value exceeded.

Compound	OCU Inlet		OCU Post Scrubber 1		OCU Post Scrubber 2		OCU Outlet		Vibrating Screens	
	µg/m³	OAV	µg/m³	OAV	µg/m³	OAV	µg/m³	OAV	µg/m³	OAV
Aromatic Hydrocarbons										
toluene	6	0	10	0	23	0	43	0	29	0
styrene	1	0	1	0	2	0				
ethylbenzene	11	0	10	0	7	0	12	0	10	0
m,p-xylene	26	0	24	0	22	0	6	0	34	0
o-xylene	6	0	5	0	5	0	0	0	9	0
1-ethyl-3-methylbenzene									5	0
1-ethyl-4-methylbenzene									2	0
S C10H12	10	0	8	0	11	0	4	0	31	0
1-methyl-4-(1-methylethyl)-benzene	1748	146	1559	130	1631	136	699	58	37997	3166
butylbenzene									20	0
S C10H14					8	0			24	0
Total	*1808*		*1618*		*1710*		*765*		*38162*	
Cyclic Hydrocarbons										
methylcyclohexane							19	0		
S C9H18							11	0	29	0
S C10H18			7	0	9	0			71	0
S C10H20									7	0
S C14H26									40	0
S C15H22									29	0
S C15H24	8	0	7	0	8	0			513	0
S C15H26									24	0
Total	*8*		*14*		*17*		*30*		*713*	
Aliphatic Hydrocarbons										
propane	1832	0	1797	0	1812	0	634	0	4	0
2-methylpropane	3114	0	3042	0	3632	0	1274	0		
butane	10444	0	5027	0	5767	0	2550	0		
2-methylbutane	114	0	40	0	125	0	48	0		
pentane	90	0	43	0	50	0	59	0		
2-methylpentane							25	0		
3-methylpentane							8	0		
hexane							4	0		
2-methylhexane							15	0		
3-methylhexane							18	0		
heptane							48	0		
octane					3	0	28	0		

2-methyloctane							4	0		
nonane	3	0	3	0	3	0	3	0	9	0
S C9 alkane					5	0				
decane	3	0	2	0	3	0			13	0
undecane	3	0	2	0	5	0			31	0
S C11 alkane					3	0				
tridecane	2	0	3	0	2	0			17	0
S C13 alkane					3	0				
tetradecane	4	0	2	0	4	0			20	0
S C14 alkane									13	0
pentadecane									9	0
S C15 alkane									7	0
hexadecane									3	0
propene	700	0	652	0	700	0	264	0	238	0
S C4 alkene	177	0							1168	0
S C5 alkene									34	0
S C10 alkene			3	0					6	0
1-undecene									13	0
S C10H18	29	0	13	0	16	0	2	0	294	0
Total	*16515*		*10629*		*12134*		*4984*		*1879*	
Alcohols										
phenol	2	0	4	0						
methylphenol									5	0
3,7-dimethyl-1,6-octadien-3-ol	10	0	7	0	7	0				
methanol	5129	0	3772	0	3310	0	2421	0		
ethanol	250123	252	208465	210	112806	113	153633	155	1708	2
1-propanol	13309	57	10533	45	7889	34	7985	34	78	0
2-propanol	241	0	164	0	118	0	139	0	341	0
2-methyl-1-propanol	38	1	43	1	42	1	74	2		
1-butanol	26	0	24	0	23	0	103	1		
2-butanol	1140	2	942	1	728	1	1130	2	1840	3
2-methyl-1-butanol	8	0	8	0	11	0	32	0		
3-methyl-1-butanol	50	8	49	8	53	9	131	22		
1-pentanol							19	0		
2-pentanol					9	0	25	0	27	0
1-hexanol	9	0	7	0	8	0	1	0		
1-butoxy-2-propanol									4	0
2-ethyl-1-hexanol									153	0
S C10H14O					6	0			38	0
S C10H18O	13	0	10	0	4	0			628	0

S C10H20O									35	0
Total	*270098*		*224027*		*125014*		*165695*		*4857*	
Esters										
methylacetate	107	0	68	0	62	0	87	0		
ethylacetate	1263	0	1089	0	1121	0	1452	0	209	0
propylformate			19	0						
ethylpropionate	47	2	40	1	31	1	163	5		
propylacetate	317	0	278	0	299	0	825	1	19	0
methylbutanoate							25	1		
ethyl-2-hydroxypropanoate	12	0	9	0						
ethylbutanoate	126	664	107	563	107	562	726	3823		
butylacetate	67	1	54	1	48	1	50	1		
methylpentanoate							14	1		
propyl propionate	14	0	18	0			77	0		
1-methoxy-2-propylacetate	9	0	8	0	21	0				
ethyl-2-methylbutanoate							20	0		
3-methylbutylacetate	27	0	21	0	27	0	14	0		
ethylpentanoate	28	28	21	21	20	20	61	61		
propylbutanoate	46	1	38	1	36	1	25	0	5	0
S C7H14O2							9	0		
ethyl-3-methylbutanoate							12	168		
ethylhexanoate	193	18	217	20	224	20				
3-methylbutylbutanoate	8	0	10	0	8	0				
ethylheptanoate	7	0	5	0						
propylhexanoate	50	0	41	0	43	0			22	0
methyloctanoate									23	0
ethyloctanoate	44	11	34	8	34	8				
propylheptanoate			6	0						
2-(2-butoxyethoxy)-ethylacetate	11	0								
propyloctanoate	17	0	13	0	14	0				
S C12H22O2									28	0
ethyldecanoate	19	5	17	4	15	4				
Total	*2414*		*2113*		*2110*		*3561*		*307*	
Ketones										
methylacetophenone			3	0	3	0				
acetone	752	0	627	0	495	0	453	0	6051	0
3-buten-2-one					17	0	19	0	483	0
2-butanone	178	0	154	0	345	0	331	0	18623	14

2,3-butanedione									102	567
cyclopentanone									232	0
2-pentanone							111	1	90	1
3-pentanone									329	0
2,3-pentanedione									1096	52
cyclohexanone					61	0				
2-methylcyclopentanone									13	0
methylcyclopentanone									14	0
4-methyl-2-pentanone									26	0
3-hexanone									12	0
2-hexanone									17	0
3-methyl-2-pentanone									10	0
5-methyl-3-hexanone									13	0
4-heptanone									13	0
3-heptanone									4	0
2-heptanone									58	2
6-methyl-5-hepten-2-one							4	0	11	0
3-octanone									59	0
4-acetyl-1-methylcyclohexene	13	0	7	0	17	0	5	0	86	0
2-nonanone									51	0
3-nonanone									13	0
2-methyl-5-(1-methylethenyl)-2-cyclohexen-1-one	6	0	7	0	9	0				
thujone									21	0
S C10H16O									136	0
S C10H18O									129	0
2-undecanone									9	0
Total	*949*		*796*		*948*		*923*		*27701*	
Aldehydes										
acetaldehyde	495	165	675	225	439	146	383	128	74	25
2-propenal	162	20	111	14	80	10	77	10		
propanal	198	3	155	2	90	1	114	2		
hexanal	11	11			14	14				
nonanal	32	16	27	14	34	17	36	18		
decanal	26	9	26	9	25	8	35	12		
undecanal	5	0	5	0			4	0		
dodecanal	8	0	7	0	5	0	6	0		
Total	*937*		*1007*		*687*		*656*		*74*	
Organic sulphur compounds										

carbonylsulfide	6	0	6	0	6	0	1	0	44	0
carbondisulfide	173	0	124	0	116	0	202	0	737	1
dimethylsulfide	35	4	40	5	25	3	28	4		
dimethyldisulfide							24	3		
dimethyltrisulfide							5	1		
dipropyldisulfide									169	0
dipropyltrisulfide	4	0							73	0
3-methylthiophene							8	0	5	0
S C6H12S2	12	0	8	0	10	0				
S C7H16S2									24	0
onbekend sul	8						13			
Total	*237*		*178*		*157*		*281*		*1052*	
Ethers										
2-methylfuran							49	0		
2-pentylfuran									33	0
1-ethoxy-3-methyl-2-butene							14	0		
S C10H16O	16	0	5	0	22	0				
eucalyptol	44	0	86	1	66	1	21	0	964	9
S C10H16O3	20	0			26	0	7	0		
Total	*81*		*91*		*114*		*91*		*997*	
Terpenes										
alpha-pinene	76	1	75	1	94	1	351	3	103	1
beta-pinene	95	1	92	0	108	1	222	1	288	2
limonene	6180	29	5558	26	5732	27	1034	5	3618	17
S C10H16	275	3	246	2	254	2	109	1	638	6
Total	*6626*		*5970*		*6189*		*1717*		*4647*	
Organic nitrogen compounds										
acetonitrile	54	0	25	0	26	0	41	0	245	0
2-methylpyridine									15	0
3-methylpyridine									6	0
S C6H13NO									47	0
benzonitrile									37	0
Total	*54*		*25*		*26*		*41*		*349*	
Organic acids										
acetic acid	218	15	190	13	40	3	192	13	417	28
butanoic acid	6	6	6	6						
Total	*224*		*197*		*40*		*192*		*417*	
Other compounds										
onbekend	3								181	
Total	*3*		*0*		*0*		*0*		*181*	

Total	299956		246666		149146		178936		81335	

Stage 2 Results – Granville Ecopark

CLIENT: Bio Capital
SITE/PROJECT: Granville Ecopark
REPORT DATE: 12/07/2024
REFERENCE: CR/SO2645/24/BCA002_Stage 2 Results_FINAL
AUTHOR: [redacted]

ODOUR MEASUREMENT & CONSULTANCY SERVICES

Building 42 • Wrest Park • Silsoe • Bedfordshire • MK45 4HP
01525 860222

Contents

Silsoe Odours Ltd.

Silsoe Odours Ltd is an odour laboratory in Bedfordshire offering complete odour management and consultancy services.

We are accredited by UKAS (Lab. 0609) for sampling of odorous air, odour concentration measurements by dynamic olfactometry as specified in BSEN13725:2023 and air flow measurements in ducts and stacks.

1. Introduction

This note sets out the results of the sampling and analysis survey undertaken by Silsoe Odours Ltd (SOL) at the Granville Anaerobic Digestion (AD) and Biogas Plant (referred to herein as "the facility") in Northern Ireland on the 18 and 19 June 2024. The sources sampled are set out in Table 1.

Table 1: Sampling locations

Source	Sampled
OCU inlet duct	Odour, H_2S, NH_3, airflow, VOC speciation
OCU mid stage 1	Odour, H_2S, NH_3, VOC speciation
OCU mid stage 2	Odour, H_2S, NH_3, VOC speciation
OCU outlet stack	Odour, H_2S, NH_3, airflow, VOC speciation
Vibrating screens	Odour, H_2S, NH_3, airflow, VOC speciation
Waste CO_2 outlet flue	Odour, H_2S, NH_3
Reception building	Odour, H_2S, NH_3, airflow, differential pressure
Soup building	Odour, H_2S, NH_3, airflow, differential pressure
Dewatering building	Odour, H_2S, NH_3, airflow, differential pressure
CHP 3 stack	Odour, H_2S, NH_3
Pasteurisation vessels combined outlet duct	Airflow

This note is provided to meet the requirement of the enforcement notice that states "*Operator to provide a report by the independent odour control and anaerobic digestion expert of the characterisation and quantification of all major point and fugitive odour sources"* required for submission to the Northern Ireland Environment Agency (NIEA) by 30 June 2024. The approach to the assessment is set out in report reference CR/SO2645/24/BCA001_FINAL_2 (dated 13 June 2024, issued for Stage 1), and a full interpretation of the results, including an odour impact assessment using modelling, will be provided by 31 August 2024.

The relevant professional experience of the odour expert leading this study is provided in Appendix A1.

2. Results

2.1. Odours

The results of the odour sampling and analysis, as well as the airflow data where applicable, are presented in Table 2. Interpretation of the results will be provided in a full report by 31 August 2024. It should be noted that the odour concentration at the OCU outlet is considerably higher than the concentrations measured as part of the periodic testing required by the facility's permit; testing to date has demonstrated that the outlet airstream has consistently met the permitted emission limit of 700 ou_E/m^3, and thus the measured emissions at the time of testing may not represent normal operations at the site. It is suggested that the modelling will consider both the measured emission provided in Table 2, and the emissions previously measured as part of the permit requirements.

Table 2: Odour Results

Source	Geomean Odour Concentration (ou_E/m^3)	Temperature (°C)	Volume Flow (Nm^3/s) [1]	Odour Emission Rate (ou_E/s)
OCU inlet	16,569	17.5	42.073 [2]	174,279 [3]
OCU post first scrubber	9,133	- [4]	- [4]	96,068 [5]
OCU post second scrubber	10,252	- [4]	- [4]	107,830 [5]
OCU outlet stack	7,327	18.5	10.518	77,063
Vibrating screens	97,453	29.9	2.448	238,566
Waste CO_2 outlet flue	306,864	47.0 [6]	0.047 [6, 7]	14,549 [8]
Reception building	7,500	15.0	5.847	43,852 [9]
Soup building	3,008	20.7	7.951	23,915 [9]
Dewatering building	309	20.8	2.474	765 [9]
CHP 3 stack	21,325	100.0 [10]	0.11 [6, 7]	2,385
Pasteurisation vessels combined outlet duct	-	20.0	0.165	-

[1] Flows normalised to olfactometry laboratory conditions of 101.3 kPa, 20°C.

[2] Flow location was downstream of sharp bend – measured flow rate is extremely high, is likely the result of high levels of swirl, and thus should not be relied upon.

[3] Due to erroneous inlet flows, the emission rate has been calculated using the measured volume flow at the outlet stack.

[4] No safe access for measurements.

[5] Calculated using the measured volume flow at the outlet stack.

[6] Data provided by Bio Capital Ltd – flow and temperature measurements were not possible at this location.

[7] Flow calculated from daily average flows and has been corrected for temperature, only.

[8] This source operates on pressure release and is not continuous. The emission rate provided assumes a constant emission across a 24-hour period and therefore emissions from this source during release events are likely to be higher than those presented (periodic releases will be considered in the model if appropriate). The outlet diameter of the flue has been estimated at 0.2 m.

[9] Emission rate calculated is the emission rate in the ductwork and does not represent fugitive releases (fugitive releases will be considered in the model).

[10] Estimated value which represents a conservative assumption (exhaust gas is ~400°C out of the engine).

2.2. Hydrogen Sulphide, Ammonia and Volatile Organic Compounds

The results of the H_2S and NH_3 analyses on the samples are presented in Table 3 below. The data are mean values from the triplicate samples from each source. The results of the GC-MS analysis are provided in Appendix A2. Interpretation of the results will be provided in a full report by 31 August 2024.

Table 3: Trace Gas Results

Source	Mean H_2S Conc (ppm)	Mean NH_3 Conc (ppm)
OCU inlet duct	0.763	0.50
OCU post first scrubber	0.703	<LLOD [1]
OCU post second scrubber	0.770	<LLOD [1]
OCU outlet stack	0.048	0.17
Vibrating screens	3.233	167.33
Waste CO_2 outlet flue	29.333	16.00
Reception building	0.263	0.33
Soup building	0.157	<LLOD [1]
Dewatering building	0.004	<LLOD [1]
CHP stack (one of the four flues)	6.100	<LLOD [1]

[1] Concentration was below the lower limit of detection (0.5 ppm) of the analysis technique.

2.3. Differential Pressure

Indicative differential pressure measurements were made between the reception, soup and dewatering buildings and the outside air, to determine whether the internal environment of each building was being maintained under negative pressure. Measurements were undertaken using a micromanometer at various locations in each building with the doors closed, over a period of approximately 5 minutes.

It should be noted that these measurements are indicative, only, and will not be used in the calculations of fugitive emission rates in the dispersion modelling study.

Table 4: Differential Pressure Measurements

Building	Differential Pressure (Pa)	
	Min	Max
Reception building	-7	0
Soup building	-14	-6
Dewatering building	-4	-2

3. Summary

This note presents the results of the sampling and analysis survey undertaken by SOL at the Granville AD and Biogas Plant in Northern Ireland on the 18 and 19 June 2024. The survey was undertaken to address Stage 2 of the enforcement actions, as reproduced below.

Table 5: Enforcement notice actions

Requirement of Enforcement Notice	Deadline	Action
1. Operator to provide a proposal (who, what and when) of a review by an independent odour control and anaerobic digestion expert to ensure all the requirements of the enforcement notice are addressed.	30 April 2024	Complete
2. Operator to provide a report by the independent odour control and anaerobic digestion expert of the characterisation and quantification of all major point and fugitive odour sources.	30 June 2024	Complete
3. Operator to provide a report by the independent odour control and anaerobic digestion expert of the odour impact assessment from all major point and fugitive odour sources with options for reducing the impact to an acceptable level (e.g. 98%le <1 OU/m3 at the site boundary) from the significant contributors.	31 August 2024	To be completed
4. Operator to provide a proposal with timescales with justification for remedial actions to ensure an acceptable odour impact (e.g. 98%le <1 OU/m^3 at the site boundary), which will include process and emissions monitoring.	31 October 2024	To be completed

A full impact assessment, including interpretation of the results, dispersion modelling, and recommendations for improvements, will be provided in the full report due 31 August 2024 (Stage 3), which will inform the requirements of Stage 4.

A1. Appendix 1 – Professional Experience

Paul Outen (BSc, MIAQM, MIES)

Mr Outen is a Principal Consultant with SOL, having joined in 2024. He undertakes odour assessments for SOL, covering residential and commercial developments, industrial installations and mineral and waste facilities. These involve qualitative assessments, and quantitative modelling assessments using the ADMS dispersion model, for planning, permitting and investigative purposes. He has successfully acted as expert witness on odours at public inquiries and hearings and is a recognised expert in the field of odour assessment. Mr Outen has extensive experience in the assessment of odours across a wide range of industries throughout the UK, Europe and Asia, and is knowledgeable in pollutant monitoring techniques for odours and trace gases. He regularly undertakes site audits for various installations, including AD facilities, to advise on pollution control and mitigation strategies. He is also highly experienced in iterative dispersion modelling to assist with both the initial design or the required improvements to an odorous facility or process.

Paul is a member of both the Institute of Air Quality Management and Institute of Environmental Sciences.

A2. Appendix 2 – GC-MS Results

The results of the GC-MS analysis are presented in full below. All concentrations have been standardised to 20°C, 101.3 kPa.

OAV (Odour Activity Value): Ratio between concentration and odour threshold value

Shaded blue cells: Very volatile compound

Red values: Odour threshold value exceeded.

Compound	OCU Inlet		OCU Post Scrubber 1		OCU Post Scrubber 2		OCU Outlet		Vibrating Screens	
	µg/m³	OAV	µg/m³	OAV	µg/m³	OAV	µg/m³	OAV	µg/m³	OAV
Aromatic Hydrocarbons										
toluene	6	0	10	0	23	0	43	0	29	0
styrene	1	0	1	0	2	0				
ethylbenzene	11	0	10	0	7	0	12	0	10	0
m,p-xylene	26	0	24	0	22	0	6	0	34	0
o-xylene	6	0	5	0	5	0	0	0	9	0
1-ethyl-3-methylbenzene									5	0
1-ethyl-4-methylbenzene									2	0
S C10H12	10	0	8	0	11	0	4	0	31	0
1-methyl-4-(1-methylethyl)-benzene	1748	146	1559	130	1631	136	699	58	37997	3166
butylbenzene									20	0
S C10H14					8	0			24	0
Total	*1808*		*1618*		*1710*		*765*		*38162*	
Cyclic Hydrocarbons										
methylcyclohexane							19	0		
S C9H18							11	0	29	0
S C10H18			7	0	9	0			71	0
S C10H20									7	0
S C14H26									40	0
S C15H22									29	0
S C15H24	8	0	7	0	8	0			513	0
S C15H26									24	0
Total	*8*		*14*		*17*		*30*		*713*	
Aliphatic Hydrocarbons										
propane	1832	0	1797	0	1812	0	634	0	4	0
2-methylpropane	3114	0	3042	0	3632	0	1274	0		
butane	10444	0	5027	0	5767	0	2550	0		
2-methylbutane	114	0	40	0	125	0	48	0		
pentane	90	0	43	0	50	0	59	0		
2-methylpentane							25	0		
3-methylpentane							8	0		
hexane							4	0		
2-methylhexane							15	0		
3-methylhexane							18	0		
heptane							48	0		
octane					3	0	28	0		

2-methyloctane							4	0		
nonane	3	0	3	0	3	0	3	0	9	0
S C9 alkane					5	0				
decane	3	0	2	0	3	0			13	0
undecane	3	0	2	0	5	0			31	0
S C11 alkane					3	0				
tridecane	2	0	3	0	2	0			17	0
S C13 alkane					3	0				
tetradecane	4	0	2	0	4	0			20	0
S C14 alkane									13	0
pentadecane									9	0
S C15 alkane									7	0
hexadecane									3	0
propene	700	0	652	0	700	0	264	0	238	0
S C4 alkene	177	0							1168	0
S C5 alkene									34	0
S C10 alkene			3	0					6	0
1-undecene									13	0
S C10H18	29	0	13	0	16	0	2	0	294	0
Total	*16515*		*10629*		*12134*		*4984*		*1879*	
Alcohols										
phenol	2	0	4	0						
methylphenol									5	0
3,7-dimethyl-1,6-octadien-3-ol	10	0	7	0	7	0				
methanol	5129	0	3772	0	3310	0	2421	0		
ethanol	250123	252	208465	210	112806	113	153633	155	1708	2
1-propanol	13309	57	10533	45	7889	34	7985	34	78	0
2-propanol	241	0	164	0	118	0	139	0	341	0
2-methyl-1-propanol	38	1	43	1	42	1	74	2		
1-butanol	26	0	24	0	23	0	103	1		
2-butanol	1140	2	942	1	728	1	1130	2	1840	3
2-methyl-1-butanol	8	0	8	0	11	0	32	0		
3-methyl-1-butanol	50	8	49	8	53	9	131	22		
1-pentanol							19	0		
2-pentanol					9	0	25	0	27	0
1-hexanol	9	0	7	0	8	0	1	0		
1-butoxy-2-propanol									4	0
2-ethyl-1-hexanol									153	0
S C10H14O					6	0			38	0
S C10H18O	13	0	10	0	4	0			628	0

S C10H20O									35	0
Total	*270098*		*224027*		*125014*		*165695*		*4857*	
Esters										
methylacetate	107	0	68	0	62	0	87	0		
ethylacetate	1263	0	1089	0	1121	0	1452	0	209	0
propylformate			19	0						
ethylpropionate	47	2	40	1	31	1	163	5		
propylacetate	317	0	278	0	299	0	825	1	19	0
methylbutanoate							25	1		
ethyl-2-hydroxypropanoate	12	0	9	0						
ethylbutanoate	126	664	107	563	107	562	726	3823		
butylacetate	67	1	54	1	48	1	50	1		
methylpentanoate							14	1		
propyl propionate	14	0	18	0			77	0		
1-methoxy-2-propylacetate	9	0	8	0	21	0				
ethyl-2-methylbutanoate							20	0		
3-methylbutylacetate	27	0	21	0	27	0	14	0		
ethylpentanoate	28	28	21	21	20	20	61	61		
propylbutanoate	46	1	38	1	36	1	25	0	5	0
S C7H14O2							9	0		
ethyl-3-methylbutanoate							12	168		
ethylhexanoate	193	18	217	20	224	20				
3-methylbutylbutanoate	8	0	10	0	8	0				
ethylheptanoate	7	0	5	0						
propylhexanoate	50	0	41	0	43	0			22	0
methyloctanoate									23	0
ethyloctanoate	44	11	34	8	34	8				
propylheptanoate			6	0						
2-(2-butoxyethoxy)-ethylacetate	11	0								
propyloctanoate	17	0	13	0	14	0				
S C12H22O2									28	0
ethyldecanoate	19	5	17	4	15	4				
Total	*2414*		*2113*		*2110*		*3561*		*307*	
Ketones										
methylacetophenone			3	0	3	0				
acetone	752	0	627	0	495	0	453	0	6051	0
3-buten-2-one					17	0	19	0	483	0
2-butanone	178	0	154	0	345	0	331	0	18623	14

2,3-butanedione									102	567
cyclopentanone									232	0
2-pentanone							111	1	90	1
3-pentanone									329	0
2,3-pentanedione									1096	52
cyclohexanone					61	0				
2-methylcyclopentanone									13	0
methylcyclopentanone									14	0
4-methyl-2-pentanone									26	0
3-hexanone									12	0
2-hexanone									17	0
3-methyl-2-pentanone									10	0
5-methyl-3-hexanone									13	0
4-heptanone									13	0
3-heptanone									4	0
2-heptanone									58	2
6-methyl-5-hepten-2-one							4	0	11	0
3-octanone									59	0
4-acetyl-1-methylcyclohexene	13	0	7	0	17	0	5	0	86	0
2-nonanone									51	0
3-nonanone									13	0
2-methyl-5-(1-methylethenyl)-2-cyclohexen-1-one	6	0	7	0	9	0				
thujone									21	0
S C10H16O									136	0
S C10H18O									129	0
2-undecanone									9	0
Total	*949*		*796*		*948*		*923*		*27701*	
Aldehydes										
acetaldehyde	495	165	675	225	439	146	383	128	74	25
2-propenal	162	20	111	14	80	10	77	10		
propanal	198	3	155	2	90	1	114	2		
hexanal	11	11			14	14				
nonanal	32	16	27	14	34	17	36	18		
decanal	26	9	26	9	25	8	35	12		
undecanal	5	0	5	0			4	0		
dodecanal	8	0	7	0	5	0	6	0		
Total	*937*		*1007*		*687*		*656*		*74*	
Organic sulphur compounds										

carbonylsulfide	6	0	6	0	6	0	1	0	44	0
carbondisulfide	173	0	124	0	116	0	202	0	737	1
dimethylsulfide	35	4	40	5	25	3	28	4		
dimethyldisulfide							24	3		
dimethyltrisulfide							5	1		
dipropyldisulfide									169	0
dipropyltrisulfide	4	0							73	0
3-methylthiophene							8	0	5	0
S C6H12S2	12	0	8	0	10	0				
S C7H16S2									24	0
onbekend sul	8						13			
Total	*237*		*178*		*157*		*281*		*1052*	
Ethers										
2-methylfuran							49	0		
2-pentylfuran									33	0
1-ethoxy-3-methyl-2-butene							14	0		
S C10H16O	16	0	5	0	22	0				
eucalyptol	44	0	86	1	66	1	21	0	964	9
S C10H16O3	20	0			26	0	7	0		
Total	*81*		*91*		*114*		*91*		*997*	
Terpenes										
alpha-pinene	76	1	75	1	94	1	351	3	103	1
beta-pinene	95	1	92	0	108	1	222	1	288	2
limonene	6180	29	5558	26	5732	27	1034	5	3618	17
S C10H16	275	3	246	2	254	2	109	1	638	6
Total	*6626*		*5970*		*6189*		*1717*		*4647*	
Organic nitrogen compounds										
acetonitrile	54	0	25	0	26	0	41	0	245	0
2-methylpyridine									15	0
3-methylpyridine									6	0
S C6H13NO									47	0
benzonitrile									37	0
Total	*54*		*25*		*26*		*41*		*349*	
Organic acids										
acetic acid	218	15	190	13	40	3	192	13	417	28
butanoic acid	6	6	6	6						
Total	*224*		*197*		*40*		*192*		*417*	
Other compounds										
onbekend	3								181	
Total	*3*		*0*		*0*		*0*		*181*	

Total	299956		246666		149146		178936		81335	

From: [redacted]
To:
Cc: [redacted]
Subject: Noise Complaint Friday 12th April 2024
Date: 15 April 2024 17:48:45
Attachments: image004.png

CAUTION – This email has been received from outside the NICS network. If you have any concerns, please report for investigation.

Hi [redacted]

Following this morning's phone call, I have checked with the supervisor on site during Friday's shift and with the nightshift team who reported no increase in noise levels from any equipment onsite. All equipment operation was typical and process was in line with normal operating conditions across Friday and the weekend.
I've carried out a walkover of site today and also offsite and did not picked up any unusual noise or noise increase onsite. This issue has been added to EcoOnline for our attention and site will continue to monitor site noise levels closely and will inform you of any change. If you have any developments or further information, please let me us know- thanks.

Kind Regards,

[redacted]
Plant Manager
GRANVILLE ECO PARK LIMITED
T [redacted]
E: [redacted]
<!--[if !vml]--><!--[endif]-->A: Granville Industrial Estate, Granville Rd, Granville, Dungannon, BT70 1NJ

GRANVILLE ECOPARK LIMITED	GRANVILLE ECOPARK LTD.	Document Ref: E3
		Version: 5.1
	Daily Odour Assessment Form.	Reviewed By [redacted]
		Date: 28/03/2022

PART E: EXTERNAL BOUNDARY ASSESSMENT

ASSESSOR CRITERA

Assessor is free from medical conditions e.g. cold, sore throat or sinus trouble?	Assessor has not smoked, consumed strongly flavoured food or drank coffee in past 30 minutes?	Assessor has not consumed confectionary or soft drinks immediately before assessment?	Assessor has not applied scented toiletries such as perfume / aftershave or deodorisers immediately before assessment?	Assessor vehicle does not contain air fresheners or deodorisers?
(YES) / NO	(YES) / NO	(YES) / NO	(YES) / NO	(YES) / NO

ASSESSOR NAME:	[redacted]	DATE:	24/4/24	TOTAL TIME TAKEN:	32 mins

ODOUR REPORT FORM

Location of Test	1	2	3	4	5	6
Time of Test	13:20	13:25	13:28	13:30	13:35	13:39
Test Duration	2 mins	2 mins	2 mins	2 mins	2 mins	1 mins
Weather conditions	Dry, slightly overcast					
Temperature	14 °C					
Wind Strength	6 mph					
Wind Direction	N - NW					
Odour Intensity	1	3	0	2	0	2
Constant or Intermittent odour?	I	C	/	I	/	C
Odour Description?	very faint exhaust smell	Bunemical odour, waste water odour	/	Solvent odour, paint smell	/	Farm manure odour from farm
Receptor Sensitivity?	2	2	/	1	/	1
Potential identified source?	GECO	Linergy + Linden	/	BMI paint shed	/	Farm ab point 7.

GRANVILLE ECOPARK LIMITED	GRANVILLE ECOPARK LTD.	Document Ref: E3
		Version: 5.1
	Daily Odour Assessment Form.	Reviewed By: [redacted]
		Date: 28/03/2022

PART E: EXTERNAL BOUNDARY ASSESSMENT

Location of Test	7	8	9	10	11	12
Time of Test	13:42	13:45	13:50	13:48	13:47	
Test Duration	1min	1min	2mins	2mins	1min	
Weather conditions						
Temperature						
Wind Strength						
Wind Direction						
Odour Intensity	2	0	2	3	2	
Constant or Intermittent odour?	C	/	I	C	C	
Odour Description?	Farm, manure	/	Compost odour	ADP smell, rubber odour	rubber mat odour	
Receptor Sensitivity?	3	/	2	2	2	
Potential identified source?	Farm, livestock shed	/	Wetland	Plumbing/Linden	Plumbing	

GRANVILLE ECOPARK LIMITED	GRANVILLE ECOPARK LTD.	Document Ref: E3
		Version: 5.1
	Daily Odour Assessment Form.	Reviewed By: [redacted]
		Date: 28/03/2022

PART E: EXTERNAL BOUNDARY ASSESSMENT

Location of Test	**13**
Time of Test	
Test Duration	
Weather conditions	
Temperature	
Wind Strength	
Wind Direction	
Odour Intensity	0
Constant or Intermittent odour?	/
Odour Description?	/
Receptor Sensitivity?	/
Potential identified source?	/

Please note here any other observations or comments relevant to odour assessment external to site boundary here:

ACTION REQUIRED?	YES / (NO)	**ACTION REPORTED?**	YES / (NO)
SHEQ Officer or Plant Manager Sign Off:			
Date:	24/04/24	**Time:**	

From: [redacted]
To: Lewis, Helen
Cc: [redacted] Cummings, Philip; [redacted]
Subject: RE: Compliance Assessment Report 18/19 June 2024 and draft minutes of meeting on 10 July 2024 to discuss Silsoe Report
Date: 18 July 2024 17:14:41
Attachments: image002.png
image004.png
image001.png
GECO odour actions proposal 18th July 2024.docx
18-07-2024 Schedule 6 Notification.docx
Granville Ecopark Enforcement Notice - Stage 2 Results_FINAL.pdf
EN-ENVIROCARB-AP3-60-and-AP4-60.pdf

Hi Helen

As promised, please find attached proposal and additional information.

If you have any questions, please let me know.

Kind regards

[redacted]
Head of SHEQ
BIO CAPITAL LIMITED
[redacted]
E [redacted]
<!--[if !vml]--><!--[endif]--> **A:** The Corn Store Hyde Hall Farm Buntingford Hertfordshire SG9 0RU

From: Lewis, Helen [redacted]
Sent: Thursday, July 11, 2024 4:57 PM
To: [redacted]
Cc [redacted]; Cummings, Philip [redacted]
Subject: Compliance Assessment Report 18/19 June 2024 and draft minutes of meeting on 10 July 2024 to discuss Silsoe Report

[redacted] please find Compliance Assessment Record for the 18/19 June 2024.

All, please find a copy of the draft minutes of the meeting on 10 June 2024 to discuss the interim Silsoe results. Please let me know by close of play next week if you would like and amendments made.

Kind regards,

Helen

Helen Lewis
Head of Chemicals Compliance
Industrial Pollution and Radiochemicals Inspectorate
Resource Efficency Division
Northern Ireland Environment Agency
Department of Agriculture, Environment and Rural Affairs (DAERA)
NIEA Headquarters Lisburn

Tel [redacted]

Sustainability *at the heart of a living, working, active landscape valued by everyone.*

From: [redacted]
To:
Subject: RE: Odour complaint 24/4/24 at 10am
Date: 25 April 2024 11:33:19
Attachments: image005.jpg
image004.png
Weather Data 24.04.24.pdf
Odour Survey 24.4.24.pdf

Hi [redacted]

Hope all is well with you.

Yes I received a call from him around 10:20am and he left a voicemail outlining an odour that was intermittent. I rang back but didn't get through to him.

Please see attached my odour survey that myself and the G.M completed around 1pm. Also to note that the wind direction was a Northernly wind ranging from NE to NW throughout the day- attached is the weather data from our station onsite. Our windsock also verifies this

If you have any questions please let me know

Thanks

[redacted]
Plant Manager
GRANVILLE ECO PARK LIMITED
T: [redacted]
E [redacted]
<!--[if !vml]--><!--[endif]-->A: Granville Industrial Estate, Granville Rd, Granville, Dungannon, BT70 1NJ

From: [redacted]
Sent: Wednesday, April 24, 2024 3:54 PM
To: [redacted]
Subject: Odour complaint 24/4/24 at 10am

Hi [redacted]

I hope you are well.

I understand you received an odour complaint from [redacted] today, he also contacted IPRI. Could you please send me a copy of your odour survey and your weather data showing the wind direction for approx. 10am – 11am today please for our records.

Thanks
[redacted]

[redacted]
Senior Chemicals Inspector
Chemicals Team
Industrial Pollution and Radiochemical Inspectorate
17 Antrim Road
Lisburn
BT28 3AL
T: [redacted]
E: [redacted]

A close-up of a logo Description automatically generated

From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: RE: P0413 12A Granville Ecopark - Visible Oils and Grease SW1 - 17.05.25
Date: 27 January 2025 09:52:00
Attachments: image001.png
image002.png

Morning [redacted]

No water samples have been lifted.

I appreciate you are still investigating but we will require a Schedule 6 for this discharge.

Hopefully you have got through the stormy weather, OK? How has your facility coped with the serve wind on Friday, any issues to report?

Regards
[redacted]

From: [redacted]
Sent: 24 January 2025 10:18
To: [redacted]
Cc: [redacted]
Subject: RE: P0413 12A Granville Ecopark - Visible Oils and Grease SW1 - 17.05.25

Hi [redacted]

Thank you for chasing this up. I can confirm the previously agreed measures (with [redacted] are in place and are believed to be sufficient to prevent any unauthorized discharges off site. Currently we are investigating all associated infrastructure to pin point what might be causing this. I can confirm the discharge appears to have stopped. We are monitoring this closely.

Can I ask if the NIwater have returned to site on the Friday and collected samples? We didn't see them, and we were left wondering if samples had been collected or not.

Speak soon

[redacted]
Environmental & Sustainability Manager
BIO CAPITAL LIMITED
T: [redacted]
E [redacted]
A: The Corn Store, Hyde Hall Farm, Buntingford, Hertfordshire, SG9 0RU

From: [redacted]
Sent: 22 January 2025 16:15
To: [redacted]; [redacted]
Cc: [redacted]; [redacted]
Subject: P0413 12A Granville Ecopark - Visible Oils and Grease SW1 - 17.05.25

Hi [redacted]

I am looking for an update regarding the discharge into the waterway to the rear of your plant SW1 as discussed on the 17.02.25.

Have you managed to stop the discharge and when do you expect to supply the required Schedule 6?

Regards
[redacted]

[redacted]
Industrial Pollution and Radiochemical Inspectorate
Northern Ireland Environment Agency
17 Antrim Road
Lisburn
BT28 3AL
Tel: [redacted]

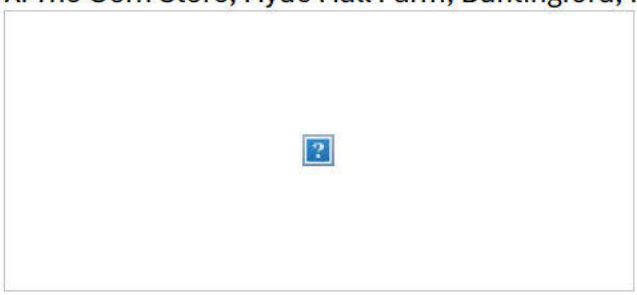
From: [redacted]
To: [redacted]
Cc:
Subject: RE: Report of Odour - 14th & 15th February 2026
Date: 23 February 2026 12:54:08
Attachments: image001.png
image002.png
Screenshot AD-1 14-02-2026 To 15-02-2026.png
Screenshot AD 2 14-02-2026 To 15-02-2026.png

Hi [redacted]

Apologies for the delay in getting back to you. I am still waiting on some details from the team.
In the meantime, I have attached the AD trends for your reassurance. There was no venting from the tanks at the time of the odour complaints.
I would be thankful if I can have until Wednesday to finish the investigation please.

Speak soon

[redacted]
Environmental & Sustainability Manager
BIO CAPITAL LIMITED
T: [redacted]
M: [redacted]
E: [redacted]
A: The Corn Store, Hyde Hall Farm, Buntingford, Hertfordshire, SG9 0RU



From: [redacted]
Sent: 23 February 2026 11:50
To: [redacted]
Cc: [redacted]
Subject: FW: Report of Odour - 14th & 15th February 2026

open attachments unless you recognize the sender and know the content is safe.

Hi [redacted]

I don't think I have had a reply from yourselves regarding this. Is there a reason why it is taking so long to respond?

Please provide a copy of your complaint's procedure as part of the investigation.

Regards
[redacted]

From: [redacted]
Sent: 17 February 2026 08:38
To: [redacted]
Cc: [redacted]
Subject: RE: Report of Odour - 14th & 15th February 2026

Hi [redacted]

Trust all is well. I will have a look and get back to you.

Speak soon

[redacted]
Environmental & Sustainability Manager
BIO CAPITAL LIMITED
T: [redacted]
M [redacted]
E [redacted]
A: The Corn Store, Hyde Hall Farm, Buntingford, Hertfordshire, SG9 0RU

From: [redacted]
Sent: 16 February 2026 14:38

To: [redacted]
Cc: [redacted]
Subject: Report of Odour - 14th & 15th February 2026

Hi

We have received multiple reports of nuisance odour emanating from the Granville Estate 14th Feb 9.30am, 15th Feb 10.45am & again 15th Feb pm.

Has your facility suffered any issue, malfunction, carried out maintenance or otherwise on the 14th and or 15th Feb which could have results in the release of odour?

Please investigate and report back any findings along with any odour assessments carried out during those two days.

Regards
[redacted]

[redacted]
Industrial Pollution and Radiochemical Inspectorate
Northern Ireland Environment Agency
17 Antrim Road
Lisburn
BT28 3AL
Tel: [redacted]

From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: RE: Report of Odour
Date: 28 March 2025 18:27:36
Attachments: image001.png
image002.png
LDAR Emissions Report .xlsx

Hi [redacted]

Trust all is well. Please find attached the information on the leaks, with photos and emissions rates included. Please let us know if you have any queries on this.

Regarding the works that took place yesterday (27th) in AD2, the team has confirmed the following took place:

- Prior to any repairs being carried out a thorough assessement was required to confirm the exact location, extent of the leak and safe methods for repair.
- Access was provided to the tank via 2 stage scaffolding erection – scaffolding was built in 2 stages to allow monitoring of LEL levels. Scaffolding was started on Tuesday and finished on Wednesday.
- The inspection was limited to the lip of the roof of AD2.
- Given the potential for biogas to be present in the same area people will need accessing, BioC has deemed a Rescue Team would be needed. This then triggers contractors to be on site and the apparatus&people presence around the tank is much bigger (like the member of the public has highlighted)
- Feed to AD2 was controlled and reduced in the hours prior to PRV access to reduce biogas production as much as possible (feeding cannot be stopped completely to avoid having foaming issues once the feeding is resumed)
- Once gas levels were deemed low, the PRV was removed, this allows inspection of the lip area to take place.
- All required personal were using BA and gas monitors to access the scaffolding
- A Bluetooth gas monitor installed close to the lip area confirmed access was safe prior to any inspections took place, the engineer was then given the okay to enter the zone and have a closer look to the affected area (the engineer was using a rescue pack).
- Once the inspection was completed, the PRV was reinstated and confirmed fit for purpose.
- Once all installation was deemed secure and safe the feeding was resumed.

The best method for an appropriate repair on AD 2 will now be agreed and booked in, the remaining leaks will follow a similar approach based on their priority. Firstly, an inspection to confirm leak extent and identifying a suitable method for the repair, followed by the repairs themselves. Unfortunate we cannot presume the method chosen for AD 2 will be suitable for the other affected areas.

Please let me know if you have any further questions

Speak soon

[redacted]
Environmental & Sustainability Manager
BIO CAPITAL LIMITED
T: [redacted]
E: [redacted]
A: The Corn Store, Hyde Hall Farm, Buntingford, Hertfordshire, SG9 0RU

From: [redacted]
Sent: 27 March 2025 17:42
To: [redacted]
Cc: [redacted]; [redacted]; [redacted]; [redacted]; [redacted]
Subject: RE: Report of Odour

Hi [redacted]

Apologies, I was in a meeting during most of the afternoon, please find attached both internal and external odour survey. The external survey started at 13:46, and the internal survey at 11:20. In both surveys no Ammonia odour was detected. Prevailing winds were from SW for both 26th & 27th. I would've expected for the odours at the locations 5 & 4 to be the most sensitive to any odours from the AD site, as per the external odour survey, the odours present were "rotten meat & paint".

I can confirm the works have finished around 14:30 and currently there are no other works of the same nature scheduled in. I have a meeting booked in for tomorrow to gather more details for you.

Speak soon

[redacted]
Environmental & Sustainability Manager
BIO CAPITAL LIMITED

T: [redacted]
E [redacted]
A: The Corn Store, Hyde Hall Farm, Buntingford, Hertfordshire, SG9 0RU

From: [redacted]
Sent: 27 March 2025 15:16
To [redacted]
Cc: [redacted]; [redacted]; [redacted]
Subject: RE: Report of Odour

Caution: This email originated from outside of your organisation. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi [redacted]

Can I get more information relating to the works that have started this week on the AD tanks, such as, but not limited to, a copy of the work plan?

Previously it was suggested that gas could be vented to air during these works, could this be causing the odour issues?

Regards
[redacted]

From: [redacted]
Sent: 27 March 2025 14:03
To: [redacted]
Cc: [redacted]; [redacted]; [redacted]
Subject: RE: Report of Odour

Hi [redacted]

Thank you for reaching out. We since have spoken with [redacted] over the phone today [redacted], he mentioned a 2nd complaint referring an ammonia smell was received by the NIEA today with odour being intermittent since 11:40. We are carrying out an internal and external odour survey that we aim to be sharing with you by end of play today.

Speak soon

[redacted]
Environmental & Sustainability Manager
BIO CAPITAL LIMITED
T: [redacted]
E: [redacted]
A: The Corn Store, Hyde Hall Farm, Buntingford, Hertfordshire, SG9 0RU

From: [redacted]
Sent: 27 March 2025 13:59
To: [redacted]; [redacted]
Cc: [redacted]; [redacted]
[redacted]
Subject: Report of Odour

Hi [redacted] / [redacted]

We received a report of odour yesterday afternoon, alleging its source as Granville Ecopark with nuisance odour detected around 4.30pm 26th March at a resident's property.

My colleague [redacted] contacted your office via telephone around 5pm asking you to investigate. As [redacted] was unable to talk directly with either of you at the time can you please

confirm you are aware of the report and what have your investigations found?

Thanks
[redacted]

[redacted]
Industrial Pollution and Radiochemical Inspectorate
Northern Ireland Environment Agency
17 Antrim Road
Lisburn
BT28 3AL
Tel:[redacted]

From: [redacted]
To: [redacted]
Cc: Lewis, Helen [redacted]
Subject: RE: Review of Granville Ecopark Odour Management Plan and Additional Proposed Improvement Conditions to be added to Variation 3 draft following site walkover 19-20 June 2024.
Date: 09 August 2024 17:08:35
Attachments: image002.png
image004.png
image005.png
image003.png
EP05 - Odour Management Plan V8 July24.pdf

CAUTION – This email has been received from outside the NICS network. If you have any concerns, please report for investigation.

Hi [redacted]

Please see attached the updated v8 of the OMP.

Kind Regards,

[redacted]

SHEQ Manager Northern Ireland
BIO CAPITAL LIMITED
T: [redacted]
E: [redacted]
<!--[if !vml]--><![endif]>A: The Corn Store Hyde Hall Farm Buntingford Hertfordshire SG9 0RU

From [redacted]
Sent: Friday, July 5, 2024 11:06 AM
To: [redacted]
Cc: Lewis, Helen [redacted]
Subject: Review of Granville Ecopark Odour Management Plan and Additional Proposed Improvement Conditions to be added to Variation 3 draft following site walkover 19-20 June 2024.

Hi [redacted]

Thank you for supplying V7 of the Odour Management Plan for Granville Ecopark.

Our team have completed a review, please make a revision to include detail as requested below by Friday 27 July 2024, and resubmit for evaluation – some of the detail maybe covered off by the procedures requested earlier today. The details can be discussed during the meeting next week for any clarifications required.

Please find attached EA template V2 which may assist you. The following references are heading in the EA V2 template, with corresponding references to GECO OMP V7 headings in brackets. You may find it useful to follow the headings as they are laid out in the EA template.

Contents page (not present in GECO OMP V7):

- Please add a table of contents listing the main headings and the page numbers.

1.2 Maintenance and review of the OMP: (GECO Section 3.0: Responsibility)

- Please provide detail in the OMP of when the Technically Competent Person (TCP) is to attend the site, and where this is recorded (i.e. site diary), and the responsibilities attributed to the TCP.

(GECO Section 5 0 Training):

- Please update the OMP to include detail of who carries out the training in the OMP, by grade level and provide assurance that they are suitably qualified to do this.

(GECO Section 5 Review):

- The document must be reviewed annually, if something on site changes, or following a pollution incident. Please update the wording of the OMP accordingly.

Section 2.0 Receptors: (GECO OMP V7 Section 8.1)

- The Windrose data provided is for 2015-2019 (now 5 -9 years out of date). Please update the windrose data with more recent windrose data from 2018-2023, as there may be fluctuations, changes due to climate change or changing wind patterns over time.

Section 3 0 Sources of Odour and site processes

- Please provide a process flow diagram in the OMP of the whole process, showing parts of the process that are inside, those that are outside, and those that are covered by the Odour Abatement System.
-
- Please provide details of all cleaning regimes (including all areas, and fixed and mobile plant) and general housekeeping in the OMP, i.e. define actual time periods for cleaning of each area, ie daily, what these are cleaned with, and where this is recorded. Who does it and who checks i.e. TCP (technically competent person/site manager?)
- Please confirm in the OMP which areas are covered by CCTV in the installation.

- Please include in the OMP the titles of the manufacturers specification and operating manuals that are used for each piece of equipment.

3 1 Odorous materials entering and leaving site

- The pre-acceptance of waste section in table 9.0 of the OMP states that load deliveries are spread across the day. Please provide a description in the OMP of the measures taken to ensure that vehicles will not be permitted to queue outside the facility (to reduce potential for odour impact).
- Please provide an inventory in the OMP of all of the waste types entering the site including EWC code, and their nature i e. solid, liquid, and the types of containers they come into the site in.

<!--[if !supportLists]-->• <!--[endif]-->Please provide details in the OMP of special instructions provided to customers / vehicle drivers about odorous loads.

- Please provide detail in the OMP of how bespoke wastes are assessed before entering the site, and where this is recorded.
- Appropriate measures guidance section 6.4 requires AD operators to characterise the feedstock to understand its effect on the biological process. please insert a section into the OMP to explain how you do this.
- Please insert details into the OMP providing information regarding the maximum time waste in held is in reception area, and how this is monitored to ensure it is complied with.
- Please explain in the OMP where the quarantine area is and what the process is for rejecting materials that are not accepted. You have cross referenced a Waste Rejection Procedure – this must be supplied with the OMP, or the detail must be inserted into the OMP.
- Please provide detail in the OMP to confirm that waste is only to be tipped when roller shutter doors are closed and negative pressure is restored. (Where this is not possible immediately this will be added to draft permit V3 as an IC -please confirm).

(GECO OMP Table 9.0)

Section 3.2 Odorous materials

(GECO OMP Table 9.0)

From the EA V2 template Under the 'Odorous material' heading in the table below, include all odorous material (any solid, liquid or gas delivered to site) and all material with the potential to become odorous as a result of processes on site List the odorous materials in the order that they appear or are generated by the process i.e. start with deliveries of inputs or feedstocks, then describe materials generated during processing, then list outputs, in other words, follow the odorous materials through the site from delivery through to dispatch. Some materials will be more odorous than others and have the potential to become odorous more quickly than others e.g. those containing organic content. For example, materials accepted by a waste transfer station will vary from municipal waste (High Risk), to green woody waste (Medium Risk) to clean cardboard and glass (Low Risk). As an operator, you should be aware of the materials you process on site and the risk associated with these materials and the measures you put in place to minimise and / or eliminate associate odour. The quantities on site will vary so consider Bank Holiday weekends and seasonal variations.

You must address all of the requirements detailed in Table 3.2 in the EA V2 OMP template. You have not detailed all odorous material on site in V7 of the OMP. Please do this by way of an inventory. Using the headings in EA Table 3.2 as shown below.

You have not considered for example – animal by-products, liquid wastes, gas upgrader, any chemicals used in the gas upgrader etc. Please review and add in all odorous and potentially odorous materials, at all stages of the process.

Odorous and potentially odorous material (any solid, liquid or gas)	Odour potential High Risk / Medium Risk / Low Risk	Maximum quantity on site at any given day (tonnes per day or litres per day)	Maximum time held on site (hours or days)	Location of odorous materials on site	Additional comments
Municipal waste	High	100 tonnes	24 hours	Reception hall	Single source waste with contract in place

NIEA does not agree with GECO that the odour potential for all activities is low. NIEA is of the opinion that odour potential is likely to be high in almost all activities, given the odorous nature of food waste, AD processes and biogas production. Please review appropriately.

**Odorous material is any solid, gas or liquid delivered to site and all material on site with the potential to become odorous as a result of processes on site.*

Section 3.3 Overview of odorous processes and emissions

(GECO OMP Table 9.0)

- please provide a list of the name and type of buildings and structures in the OMP, along with a brief description of the specification and control measures in place to prevent emissions of odour. Please include monitoring frequencies, where this is recorded and by whom (job title).
- Please explain in the OMP how you manage the optimal operation of the whole process with different feedstocks.
- Please explain in the OMP how you ensure that the whole process (each stage) has adequate capacity to process the quantities of incoming wastes into the process and the resultant biogas generation.

(GECO Section 9.1 -Odour Control System).

Please review this section of the OMP and add in additional detail as highlighted below:

- Please provide a process flow diagram (PFD) in the OMP of the odour control system showing where odorous air is drawn from and the linkage between the scrubbers and the carbon filter, to include all potential emission points of odour (valves etc).
- What processes are covered by the Odour Control System?
- How is effective treatment monitored and maintained?
- Please make a commitment in your OMP that an efficiency assessment of the abatement system will be carried out annually.

- **Scrubbers:**

  Please provide information in the OM to address the following**:**
- What are the two packed scrubbers packed with -what is packing material?
- How is performance monitored?
- How often is the packing material inspected and changed? What does the supplier specification say?

- What happens when there is routine maintenance on the scrubbers and they are taken off-line? (*supplier, specification required*)
- What happens if the scrubbers break down?
- How often are checks carried out, by whom, what is the maintenance schedule?
- What concentration is the sulphuric acid in the first scrubber? Is this topped up automatically, is it monitored continuously as the plant operates 24/7? If not, please provide explanation as to why this is not necessary. The concentrations required within the liquid will depend on the concentrations of ammonia within the gas stream. Have you measured what the concentration range in the inlet is?
- What does the manufacturer's specification of the scrubber state? What is the operating pH required to be maintained at? The OMP states low pH. Please specify an operating range for pH i.e. 2-3 which will ensure maximum uptake of ammonia.
- How is the pH maintained on an ongoing basis? Who does this? What training do they have? There are also H&S considerations if this is being done manually, depending on the concentration of the H_2SO_4.
- How often is the H_2SO_4 replenished, requiring the scrubber to be taken off-line?
- What happens to the odorous gases from the odour extraction system then?
- What are the dimensions and capacity of the scrubber?
- How do you know the capacity and amount of packing material is sufficient to remove the maximum quantity and concentration of ammonia entering at the inlet?
- Is the outlet measured to ensure all of the ammonia has been removed? Is this continuous? If not, please provide rationale.
- Are there audible alarms and is this linked to the SCADA?
- What does the manufacturer of the scrubber specify should be used to remove mercaptans an H_2S , in what concentration?
- Is the mercaptans and H_2S measured at the outlet of this stage to ensure they have been effectively removed?
- When is the saturation point of the hypochlorite? The hypochlorite will need to be changed regularly to avoid saturation. Is this done automatically? If not, why not? Who does it. How is it checked and monitored?
- Are oxidising agents such as hydrogen peroxide used to enhance VOC absorption – such as fatty acids (very odorous). Please include detail in the OMP of how fatty acids are removed from the gas stream?
- What are the levels of contaminants going into and out of the carbon adsorber? What is being measured at the inlet and outlet? What is the specification of the material? How often should it be changed? Is it affected by other operational parameters such as moisture (can lead to dense packing and preferential pathways)? What happens when this stage of the odour control system is taken off-line for maintenance? When does the carbon material become saturated? How often is it changed?
- Provide detail in the OMP of routine scrubber performance monitoring which should include:
  - <!--[if !supportLists]--><!--[endif]-->Gas flow rate (inlet and outlet)
  - <!--[if !supportLists]--><!--[endif]-->Gas temperature (inlet and outlet)
  - <!--[if !supportLists]--><!--[endif]-->Pressure drop across the scrubber
  - <!--[if !supportLists]--><!--[endif]-->pH of the scrubbing liquid
  - <!--[if !supportLists]--><!--[endif]-->Inlet and outlet concentrations of ammonia & hydrogen sulphide
  - <!--[if !supportLists]--><!--[endif]-->Inlet and outlet concentrations of odour concentration to determine the system's odour removal efficiency
  - <!--[if !supportLists]--><!--[endif]-->An annual analysis of the scrubber exhaust gases to determine characteristics and quantity of odorous elements
- Carbon filter performance monitoring:
  - <!--[if !supportLists]--><!--[endif]-->Pressure drop across the media
  - <!--[if !supportLists]--><!--[endif]-->Temperature of gas streams
  - <!--[if !supportLists]--><!--[endif]-->Humidity content of inlet gas stream
  - <!--[if !supportLists]--><!--[endif]-->Monitoring the concentration of VOCs / odour before and after the system
  - <!--[if !supportLists]--><!--[endif]-->A qualitative and quantitative analysis of the emissions by GC/MS

Mobile plant: it is understood from the site walkover on 18/19 June that GECO uses a small vehicle to pump out the drainage system, and return the digestate mixed with water into the process. Please provide description of this activity in the OMP. How often is this done, and how are emissions monitored?

4.0 Control Measures and process monitoring (GECO OMP V7 Table 9.0)

- Please update the OMP to include all of the control measures and process monitoring that is undertaken, whether this is continuous and the method used, or periodic (include timeframes) to include all areas with the potential for odorous emissions. Please include trigger levels and emission limit values.
- Please make a commitment in the OMP to review the integrity and containment effectiveness of any building, covers and contained air systems periodically following manufacturers guidelines, or at least every 2 years to recognised standards, for example BS EN ISO 9972:2015.
- Please make a commitment in the OMP to stop using any vessel or tanks immediately if their integrity is compromised.
- Please include detail in the OMP for checking the drainage system, cleaning and transfer of the material within the site. Please confirm is this is recorded manually in the site diary.

5.0 Responding to reports of odour (GECO OMP section 11)

- The OMP does not say that GECO will notify NIEA of any reports of odour they receive from 3rd parties. Only that a Schedule 6 notification will be submitted when their own investigations determine that the source of the odour is coming from GECO. Please include this as best practice.
- Section 11.2 details that local residents, businesses etc can reach out to GECO at any time. There is nothing in this section that details what their proactive measures are.
- Please identify in the OMP how adaptation is taken account of

6.0 Abnormal events (GECO OMP V7 Section 10**)** Not all issues considered, and not all measures that should be employed have been written down in the OMP.

- Please amend this section to provide for all potential abnormal events and contingency measures that will be employed, including timeframes.

Improvement programme requirements to be considered for insertion into v3 draft, which are considered best practice, and in compliance with

appropriate measures and BAT Conclusions:

- Feed hoppers must be enclosed (have lids) with direct extraction to the Odour Abatement System within 12 months of permit variation issue;
- Improve the odour management and control techniques by interlocking the external and interior doors, so only one of them can be opened at any time to reduce the impact of fugitive emissions when an exterior door is opened within 12 months of permit variation issue;
- All key process areas to be monitored by CCTV within 12 months of permit variation issue;
- Implement additional control techniques for the plastic removal plants to prevent blockages that could lead to spillages within 12 months of permit variation issue;
- Implement additional process control by monitoring the pasteurisation duct pressure and/or extraction rate or surrogate (e.g. fan amps) with continuous monitoring and with an alarm to alert the operator within 12 months of permit variation issue;
- Improve the odour management and control by continually monitoring and recording key chemical scrubber and carbon filter parameters on the SCADA with alarms to require operator interventions within 12 months of permit variation issue;
- Include monitoring of the PRVs in the SCADA system, with alarms to require operator interventions within 12 months of permit variation issue.

The OMP V7 states that air quality monitoring at inlet and outlet of the odour abatement system is carried out fortnightly, the odour abatement system is tested by an external contractor (6 monthly), and leak detection is carried out annually.

- Implement automated feed of acid into the scrubber within 6 months of permit variation issue.

[redacted]
Senior Chemicals Inspector
Chemicals Team
Industrial Pollution and Radiochemical Inspectorate
17 Antrim Road
Lisburn
BT28 3AL
T: [redacted]
E [redacted]

From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: RE: SW1 sampling by NIEA
Date: 21 March 2024 16:58:27
Attachments: image002.png
image004.png
image005.png
image001.png

CAUTION – This email has been received from outside the NICS network. If you have any concerns, please report for investigation.

Hi [redacted]

Thank you for your email. Yes, we agree we shouldn't be, and to our knowledge we are not discharging from SW1.
We will be carrying out an investigation into this and will be in touch with schedule 6 in the next few days.

Kind Regards,

[redacted]

SHEQ Manager Northern Ireland
BIO CAPITAL LIMITED
T: [redacted]
E: [redacted]
<!--[if !vml]--><!--[endif]-->**A:** The Corn Store, Hyde Hall Farm, Buntingford, Hertfordshire, SG9 0RU

From: [redacted]
Sent: Thursday, March 21, 2024 10:28 AM
To: [redacted]
Cc: [redacted]
Subject: SW1 sampling by NIEA
Importance: High

Good morning

Please see attached sampling results carried out by NIEA.

The downstream BOD and ammonia results are breaching your limits for SW1, can you please complete a Schedule 6 notification.

From our previous discussions around SW1, I was under the impression that there were no surface water discharges arising from the site.

Thanks

[redacted]

[redacted]
Senior Chemicals Inspector
Chemicals Team
Industrial Pollution and Radiochemical Inspectorate
Klondyke Building
Gasworks Business Park
Ormeau Road
Malone Lower
Belfast BT7 2JA

T: [redacted]
E [redacted]

From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: rejected load GECO
Date: 20 January 2026 17:56:47
Attachments: image001.png
Screenshot_20260120_104035_WhatsApp~2.jpg

CAUTION – This email has been received from outside the NICS network. If you have any concerns, please report for investigation.

Hi [redacted]

Trust all is well. Please find attached a photo of the contaminants present in a load to be tipped at GECO yesterday. We have rejected the load in its entirely, as we do not have the technology to deal with this type of materials in the waste once they are in the mix to be processed. Cardboard can be increasingly dense to shred and we don't want the tanks to became a big papermache playground.

Speak soon

[redacted]
Environmental & Sustainability Manager
BIO CAPITAL LIMITED
T [redacted]
M [redacted]
E [redacted]
A: The Corn Store, Hyde Hall Farm, Buntingford, Hertfordshire, SG9 0RU

From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: Updated financial provision requirements
Date: 21 June 2024 11:57:00
Attachments: MASTER Example FP Calculation template for non-landfill activities 24 05 2022.XLSX
image001.jpg
Importance: High

Hi [redacted]

I hope you are well? In relation to our last correspondence regarding Financial Provision in November of 2023, there have been some changes made to the NIEA Financial Provision policy. NIEA requires the Financial Provision Calculation to made in the format of the template provided, see attachment for an example – I think this is very similar to what you used for your previous calculation so not too many changes required but we need it to be signed and dated at the bottom as indicated on the template. Please transfer details onto the accepted format.

The objectives of FP are;

- To ensure adequate funding is provided to ensure that the requirements of the waste authorisation can be complied with;
- In determining "adequate funding", the operator must ensure all operational obligations, post closure and restoration costs are identified and incorporated within the calculation of financial provision;
- The funding is available and readily accessible when required; and
- The measures in place must be demonstrated, sound and be auditable by NIEA.

Please not that the only accepted methods of providing Financial Provision are:

- **Escrow** - An Escrow Account, is a joint account between the operator and the Agency and is operated under an appropriate Deed of Trust Agreement and bank mandate. Escrow accounts are normally cash based, although government backed security, such as treasury bonds may also be acceptable.
- **Bank/insurance bond (including bank guarantee) -** A bond is a form of guarantee that, in this instance, will involve up to three parties:
  - the party requiring the bond (the operator);
  - the bondsman/surety; and
  - the bond receiver (NIEA or an operator).
- **A Declaration of trust cash deposit -** Deposit of a cash lump or incremental sum into an agreed bank account. It must, however, be secured by way of a legal agreement (normally deed of trust), to ensure that the monies are only accessed for the required purposes. Interest accruing on these deposits may off-set an annual uplift for inflation.
- **PCG** (***Parent Company Guarantee)*** **-** This is a guarantee by a parent company that they will provide the necessary resources to address the clearance and clean up requirements at a site, should their subsidiary not be in a position to do so e.g. the insolvency of the subsidiary.

Please note Credit Reference Check's and Statements of Account are not financial

mechanisms.

Please provide, updated calculation and preferred method of providing FP by close of play Friday 28th June 2024. I will then send you the appropriate template for signature. This is required to be in place prior to NIEA issuing the varied permit. It will be removed as an Improvement Condition from the draft once in place.

As such, may I please request an extension to the timeframe for permit issue to allow us to get this information in place and make changes to the draft permit prior to final issue?

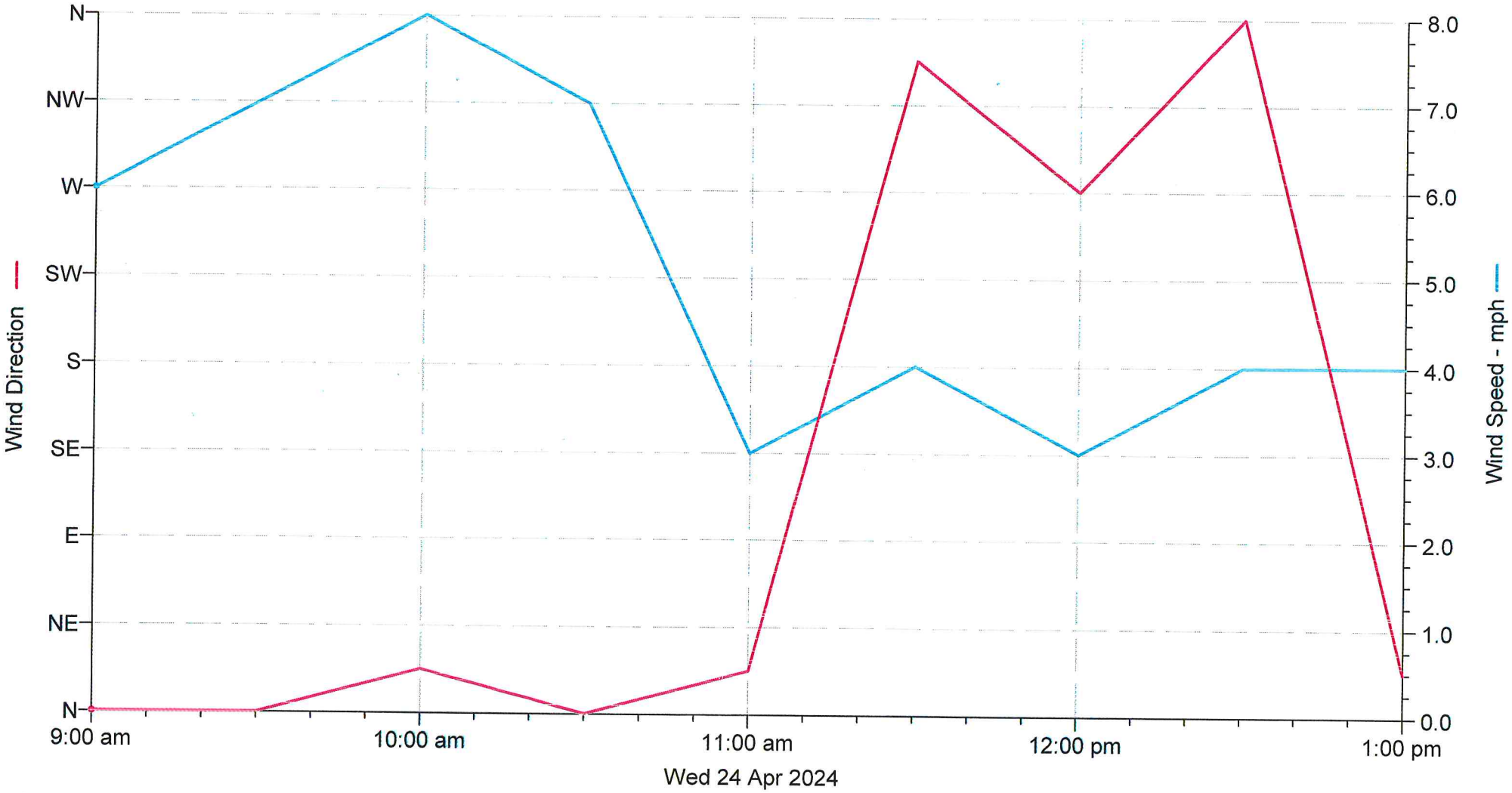
Thanks

[redacted]

[redacted]
Senior Chemicals Inspector
Chemicals Team
Industrial Pollution and Radiochemical Inspectorate
17 Antrim Road
Lisburn
BT28 3AL
T: [redacted]
E [redacted]

A close-up of a logo Description automatically generated

Granville Ecopark



LAWFULNESS, FAIRNESS AND TRANSPARENCY TEST

DAERA/26-148 Freedom of Information Act 2000

"request communications and dates of communications between the NIEA and the B9 Plant operators over these past two years"

Brief description of the Personal Data falling within the scope of the request

The information requested takes the form of e-mails and associated documentation which have been shared between the Department and the operator B9, now named Granville Ecopark Limited and Bio Capital. This would include names, job titles and contact details for officials and third parties.

Please identify the lawful bases for processing

Personal data is processed when it is lawfully disclosed in response to an FOI request.

The lawful basis for processing are set out in Article 6 of the GDPR and the ICO expects at least one of two lawful bases (Consent / Legitimate Interest) to apply before the personal data held can be disclosed.

☐ **Consent:** This will apply when the data subject(s) clear consent exists that allows you to disclose the personal data falling within the scope of this request.

☐ **Legitimate interests:** the processing is necessary for the Department's legitimate interests or the legitimate interests of a third party that overrides the data subject(s) rights and freedoms, particularly their right to privacy.

Consideration of Legitimate Interests

1. PURPOSE

As the disclosure of personal data under FOI is to the world at large doing so on the strength of a requester's private interests alone could constitute a disproportionate and unwarranted level of interference with the data subject(s) rights and freedoms, particularly their right to privacy and family life under the Human Rights Act 1998.

2. NECESSITY

The right of access under FOI does not in itself constitute a **pressing social need**. The Department has considered and not identified any such need for the data subject's right to privacy to be interfered with.

CONCLUSION

There is a legitimate interest in transparency around Departmental engagement with permitted facilitates. Disclosure of the names, job titles and contact details of the persons is not necessary to meet that interest. We are disclosing the name, job title and senior lead official, but not their direct contact details and that disclosure provides the transparency required under 'legitimate interest'.

The individuals are more junior than the lead official and do not act as public spokespeople for their Department. They would not reasonably expect their personal data to be disclosed under FOIA and consent to release their personal data was not requested. This applies equally to third parties who have communicated with the Department. Disclosure would therefore be unlawful under Article 6(1)(f) UK GDPR, unfair, and lacking transparency. The information is exempt under section 40(2) FOIA.

Our reference: **DAERA/26-148**

Jim Maneely via

jim@clarman.com

Industrial Pollution and Radiochemical Inspectorate
17 Antrim Road
Tonagh
Lisburn
BT28 3AL
Email: ipri@daera-ni.gov.uk

23.04.2026

Dear Mr Maneely,

Freedom of Information Act 2000

With regard to your request for information received by the Department on 25th February 2026 which sought the following information:

1. Communications and dates of communications between the NIEA and the B9 Plant operators over these past two years.

In answer the Deparment has understood that the facilitiy refered to as B9 Plant operators, is currently operated by Granville Ecopark Limited, Permit No. P0413 12A and its parent company Bio Captial Group. For the purposes of this return searches were limited to communications to 25th February 2024 – 25th February 2026, and only communcations between NIEA staff and Granville Ecopark Limited and Bio Captial Group directly relating to Permit No. P0413 12A.

Records meeting these criteria have been supplied.

Some of the information held constitutes personal data of which you are not the data subject. In these instances, the Department is required to consider if disclosure would breach the first Data Protection Principle, which states that processing must be lawful, fair and transparent.

The Department has considered this element within the test attached at Annex A and has determined that no lawful basis for disclosure under FOI exists. Please bear in mind that any

disclosure must be considered in terms of disclosure to the “world at large” and not just to you, the requester. Consequently, third party personal data falling within the scope of this request has been withheld.

If you are unhappy with the manner in which your request for information has been handled or the decision to release/withhold information, you have the right to request a formal review by the Department.

If you wish to do so, please contact The Review Section either by e-mailing daera.informationmanager@daera-ni.gov.uk or by post at The Department of Agriculture, Environment and Rural Affairs, Data Protection & Information Management Branch, Floor 2, Jubilee House, 111 Ballykelly Road, Ballykelly, Limavady BT49 9HP, within two months from the date of this letter.

If after such an internal review you are still unhappy with the response, you have the right to appeal to the Information Commissioner at Wycliffe House, Water Lane, Wilmslow, CHESHIRE, SK9 5AF, who will undertake an independent review of the Department’s decision.

Yours sincerely,

Helen Lewis

Principal Scientific Officer

Chemicals Regulation