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Biomass UK No.2 Ltd

Barry Energy Recovery Facility

SITE ENVIRONMENTAL MANAGEMENT PLAN

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1. INTRODUCTION

Biomass UK No.2 Ltd (‘*The Company*’ hereafter) owns and operates an Energy from Waste Plant located at Woodham Road, Barry, CF63 4JE (‘*The Site*’ hereafter).

The Advanced Thermal Treatment (ATT) plant is designed to process shredded mixed waste wood feedstocks to produce heat to raise steam in a convention tube boiler for utilisation in a steam turbine for the production of renewable electricity with an export capacity up to 10MWe.

The Installation has been designed to process approximately 86,400 tonnes of non-hazardous mixed waste wood per annum.

This document forms the working plan and has been prepared in accordance with the following requirements:

- The Environmental Permitting Regulations 2013 (as amended); and
- Environmental Permit (*PPC Permit Reference to be filled in once permit is issued)*

This working plan has been prepared to provide an account of the operational practices and environmental considerations for the reception and handling of waste derived fuel feedstocks and the energy production processes carried out by Biomass UK No.2 Ltd.

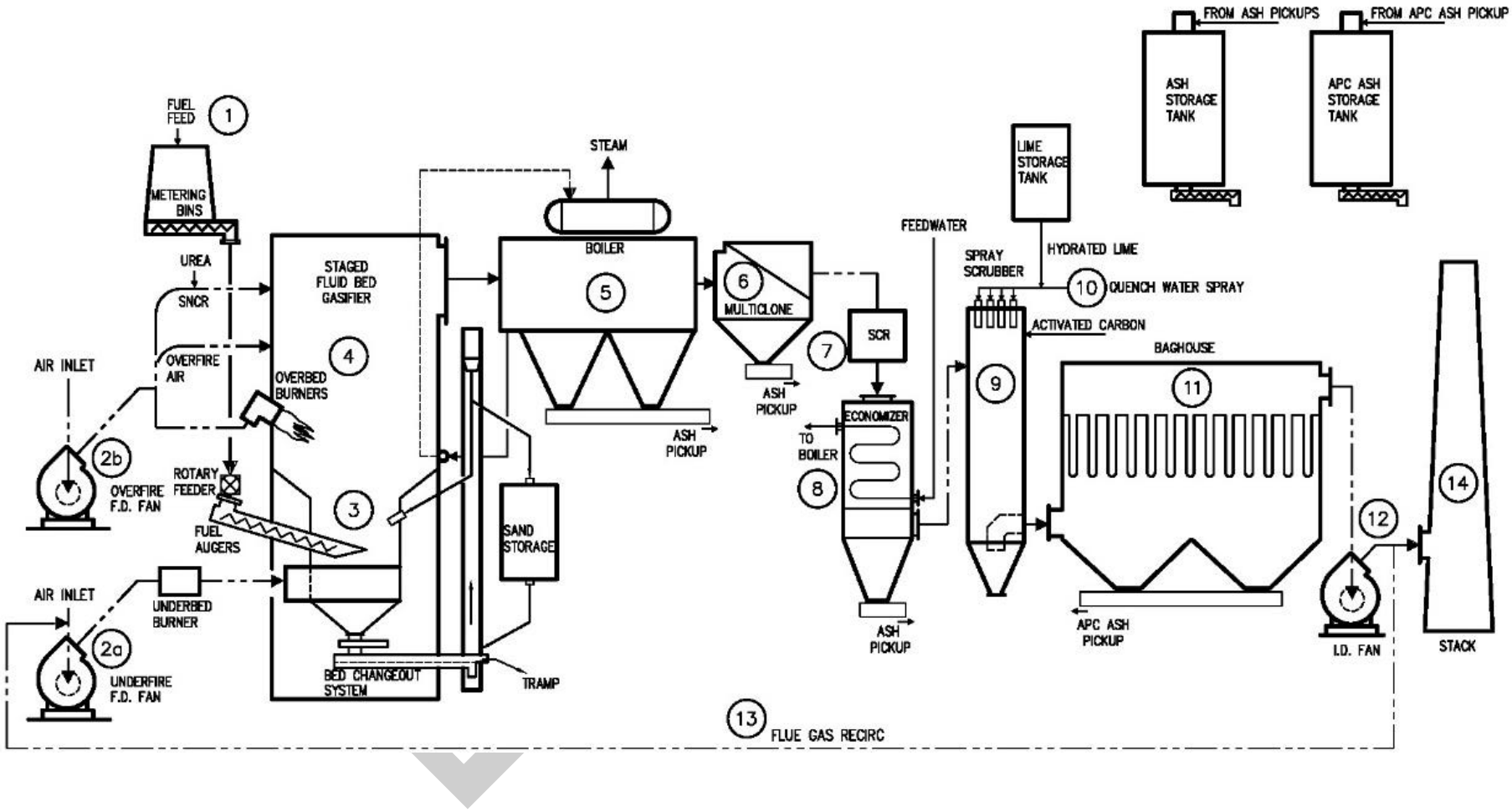
A sign which provides the necessary site and operations information is positioned at the entrance to the site. The sign provides all the necessary site information, contact details and relevant waste codes as required by the sites Environmental Permit.

A copy of the Environmental Permit and the Management System plan will be kept in the site office at all times.

2. PROCESS DESCRIPTION

2.1 Process Schematic

The schematic below (Figure 2.1) provides a broad overview of the process flow through the facility. Further detail of each stage is provided within each of the specific working procedures in use at the sites and within the further sections of this working plan.


FUEL FEED
1
METERING BINS
UREA
SNCR
STAGED FLUID BED GASIFIER
STEAM
BOILER
5
6
MULTICLONE
ASH PICKUP
FEEDWATER
LIME STORAGE TANK
FROM ASH PICKUPS
FROM APC ASH PICKUP
ASH STORAGE TANK
APC ASH STORAGE TANK
SPRAY SCRUBBER
HYDRATED LIME
10
QUENCH WATER SPRAY
ACTIVATED CARBON
BAGHOUSE
9
11
SCR
7
ECONOMIZER
TO BOILER
8
AIR INLET
OVERFIRE AIR
OVERBED BURNERS
4
2b
OVERFIRE F.D. FAN
ROTARY FEEDER
3
FUEL AUGERS
SAND STORAGE
AIR INLET
UNDERBED BURNER
2a
UNDERFIRE F.D. FAN
BED CHANGEOUT SYSTEM
TRAMP
ASH PICKUP
APC ASH PICKUP
12
I.D. FAN
14
STACK
13
FLUE GAS RECIRC

2.2 Site Layout

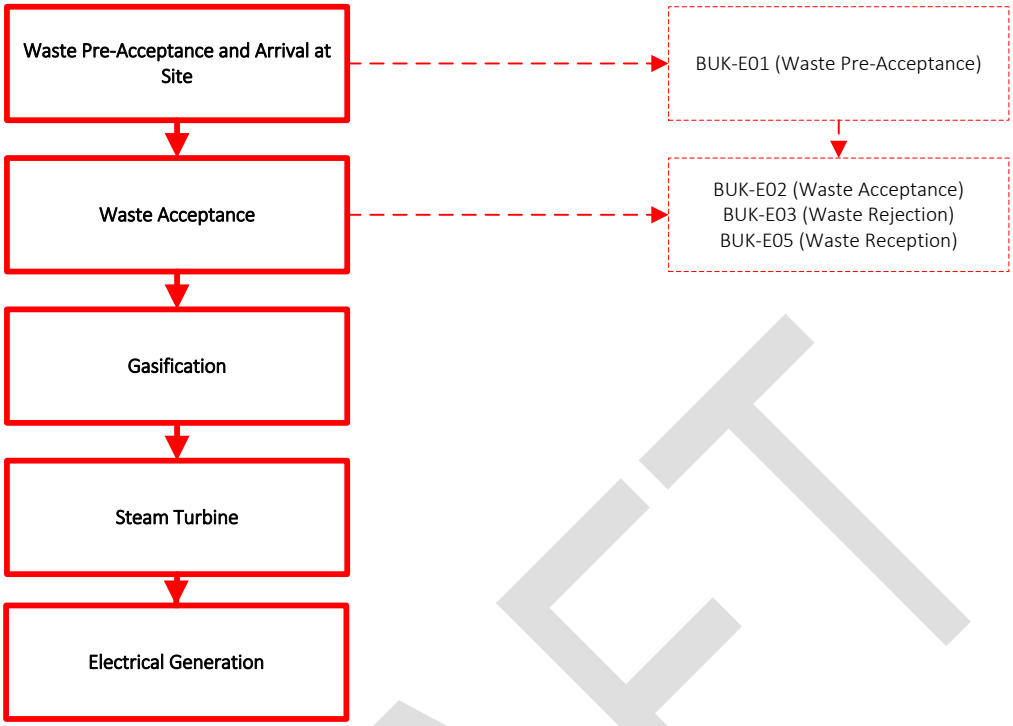
The diagram below (Figure 2.2) shows the site layout.

2.3 Specified Waste Management Activities

The wastes accepted onto site for processing will consist of non-hazardous mixed waste wood.

Table 2.1: Specified Activities	
Site Address	Woodham Road, Barry, CF63 4JE
National Grid Reference	OS X (Eastings) 312610 OS Y (Northings) 167683
Site Manager	(Competent Person)
Permit Reference	TBC
Wastes accepted on site	03 01 01 waste bark and cork 03 01 05 sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04 03 03 01 waste bark and wood 15 01 03 wooden packaging 17 02 01 wood 19 12 07 wood other than mentioned in 19 12 06
Specified Waste Management Activities	R1: Use principally as a fuel or other means to generate electricity R13: Storage of waste pending the operations numbered R1
Throughput	The Installation will typically process 86,400 tonnes per annum of non-hazardous waste wood
Permitted operation hours for waste acceptance/dispatch	07:00 – 19:00 (Monday to Friday)
Planning Permission	Vale of Glamorgan Council

Waste Management Operations can be represented diagrammatically in Figure 2.3 below according to Table 2.2:



Associated procedures for the above site processes are summarised within Table 2.2 overleaf.

Table 2.2: SWP Procedure & Guidance Map		
Reference No:	Title	Purpose
BUK-E01	Waste Pre-Acceptance	This procedure defines the upstream screening, checking and pre-acceptance of all incoming waste prior to its arrival on site.
BUK-E02	Waste Acceptance	This procedure outlines the onsite controls and considerations that need to be applied when waste materials arrive on site for processing.
BUK-E03	Waste Rejection	This procedure outlines the waste rejection process for all non-conforming wastes that cannot be processed on site. Acceptance of non-conforming wastes will be a direct breach of the permitted conditions of the sites Environmental Permit.
BUK-E04	Off Site Waste Transfers	This procedure provides the necessary information to enable the assessment and off site transfer of non-conforming or untreatable waste streams.
BUK-E05	Waste Reception and Storage	This procedure outlines the waste reception, storage processes for all incoming waste.
BUK-E06	Environmental Records	This procedure defines the necessary Environmental Permit and Waste Records that are required to be managed by the site to ensure compliance.
BUK-E07	Environmental Management and Monitoring Programme	This procedure provides an overview of all of the necessary environmental monitoring, management procedures and controls to ensure compliance with the Permit.
BUK-E08	Infrastructure Management and Monitoring Programme	This procedure provides an outline of the inspection and cleaning requirements for the site.
BUK-E09	Accident Management Plan	This procedure refers to the sites emergency plans and response requirements.
BUK-E10	Fire Prevention Plan	This procedure refers to the sites fire prevention measures.

The following associated procedures are appended to this document:

- BUK-E01 – Waste Pre-Acceptance;
- BUK-E02 – Waste Acceptance;
- BUK-E03 – Waste Rejection;
- BUK-E04 – Off Site Waste Transfers;
- BUK-E05 – Waste Reception and Storage;
- BUK-E06 – Environmental Records;
- BUK-E07 – Environmental Management and Monitoring Programme; and
- BUK-E08 – Infrastructure Management and Monitoring Programme.

2.4 Waste Processing

All waste arriving on-site is processed through gasification activities, the key stages of which are summarised below:

- *Waste Acceptance and Reception*: All waste wood will be delivered directly into the wood storage building via electrically operated roller shutter doors. When required, the waste will be discharged onto the feedstock feed system, which will deliver the waste into the gasification building. All waste will be accepted in accordance to the sites waste acceptance procedures.
- *Gasification*: The feedstock feed system will deliver the waste into the fluidised bed gasification system where the waste will be combusted to produce a synthetic gas (syngas). The syngas is then combusted to produce a flue-gas. A steam boiler then processes the flue-gas produced by the gasification process by converting the energy from the flue into steam.
- *Electricity Generation*: The superheated steam then passes to a 10MWe gross output Steam Turbine which converts the steam into electricity. The electricity produced by the steam turbine will then be transferred onto the national grid.
- *Flue-Gas Cleaning*: Flue gas cleaning and pollution control consists of urea injection for De-NOx, lime injection for acid gas neutralisation and activated carbon powder injection for absorption and removal of heavy metals, dioxins, VOCs and other harmful substances. The stream will have a baghouse system, which is designed to have the capacity to remove submicron dust particles within anticipated emission levels of the IED.

3 ENVIRONMENTAL SETTING

3.1 Geology and Hydrogeology

According to the BGS Geology of Britain Viewer, the site is directly underlain by superficial deposits of Tidal Flat Deposits made up of clay, silt and sand. The superficial deposits are further underlain by the Bedrock Geology of Mercia Mudstone Group.

The site is considered to be situated in an area of low sensitivity with respect to groundwater resources due being located on unproductive strata, the absence of any groundwater abstraction (sensitive or otherwise) within 1.4km of the site and the site not being directly located in a Groundwater Source Protection Zone.

3.2 Surface Water Features

Barry Dock is located approximately 40m to the south of the site.

There are no main rivers located within 500m of the site.

3.3 Sensitive Environmental Receptors

The habitat receptor designations and locations relevant to the assessment are shown in the table below.

Table 2.2: Location of Sensitive Habitat Receptors

ID	Receptor	Status
H1	Cadoxton River SINC	690m east
H2	Cadoxton Wetlands SINC	780m northeast
H3	Fields at Merthyr Dyfan SINC	1.9km northwest
H4	Friars Point SINC	1.98km southwest
H5	Gladstone Road Pond SINC	1.2km west-northwest
H6	Nells Point East SINC	1.1km northeast
H7	North of North Road SINC	1.98km northeast
H8	Cadoxton Ponds Wildlife Trust Reserve	780m northeast
H9	Severn Estuary Ramsar	3.9km east
H10	Severn Estuary SPA	6.2km east
H11	Ancient Woodland (Hayes Lane)	1.1km east

The site is not considered likely to have any significant effects on this designated site due to the limited nature of emissions from the site.

4 SITE INFRASTRUCTURE

4.1 Building Design and Layout

The facility is to be constructed in its entirety including all drainage, foundation works, steel structure and structural slabs, intermediate floors, stairs, external clad walls, roof system, glazing and external doors.

The facility will consist of the following:

- Wood Storage and Feed Building (52.4 x 21.6 x 13.7m high) – providing fuel reception, storage and an enclosed transfer system;
- Turbine, Welfare & Ancillaries Building (29.1 x 17.9 x 11m high) – incorporates the electrical switchgear, the main control room and a turbine room to house the steam turbine;
- Main Processing Building (41.4 x 20.4 x 23m high) – this building will house the fluidised bed gasification equipment;
- An Air Cooled Condenser Unit (32 x 14.5 x 20m high);
- Ash silos – ash residue from the combustion process will be stored in two externally located silos (18.4m high x 6.7 diameter. Flue Gas Treatment (FGT);
- A boiler feed system including a deaerator incorporated in a feed tank, feed pumps and a water treatment facility;
- A water distribution storage and waste water pH correction system incorporating a drainage system;
- A control system to provide automated operation of the plant;
- A syngas monitoring and measurement system;
- A flue gas cleaning system incorporating SNCR including dry mixing urea system, SCR, flue gas treatment (removal of contaminants and dust), flue gas fan and flue gas recirculation;
- Continuous Emission Monitoring System; and
- A 44m high exhaust stack.

4.2 Site Drainage System

There will be no direct process effluents discharged to controlled waters from site. All process effluents are discharged to Welsh Water sewer which discharges to Barry Sewage Treatment Works. All emissions from the Sewage Treatment Works ultimately discharge to Sully Brook.

The buildings on site are all provided with both secondary and tertiary containment. Any spillages, leaks or incidents arising within the process areas will be effectively contained and captured within the footprint of the main building.

Roof drainage will be collected through a Syphonic rainwater collection system. Any uncontaminated rainwater runoff and surface water runoff will be discharged to surface water drain via the sites

attenuation tank (design to be confirmed). All discharges are via oil separators to discharge to the Welsh Water drainage system.

Foul drainage from the office / administration area will be discharged into a packaged treatment plant before being discharged to sewer.

Any effluent and blow down from the process will be discharged to the sites attenuation tank.

Above ground drainage shall be designed in accordance with BS EN 12056.

All of the site drains have the ability to be isolated in the event of an emergency for the purposes of preventing any off site release of fire water or contamination.

The following has been designed in the event of a fire:

- An actuated penstock to isolate the surface water drainage system in the event of a fire;
- All fire water will enter the drainage system and overflow into the attenuation tank;
- The fire water will be tested to allow discharge to the surface water connection point;
- If not suitable, all fire water is to be pumped and tankered away to a suitable water treatment facility.

All site surface water drainage systems are ultimately connected to the surface water drainage system and equipped with shut off valves to ensure the site can be isolated in the event of a major fire / incident.

4.3 Site Security

A secure fence is erected around the parameter of the site to ensure security.

The site manager will inspect the site security at the start of each working day. Any defects or damage shall be made secure by temporary repair by the end of the working day and a permanent repair effected within seven working days and noted in the site diary.

The site entrance is equipped with lockable gates and an intruder alarm and is secured outside operating hours.

The entire site is equipped with digital Closed Circuit Television (CCTV) with pan, tilt and zoom capabilities. The CCTV system operates on a 24/7 basis, covers all process areas of the site and is monitored by the Site Manager.

Offices within the facility will be adequately secured out of operating hours.

4.4 Infrastructure Monitoring

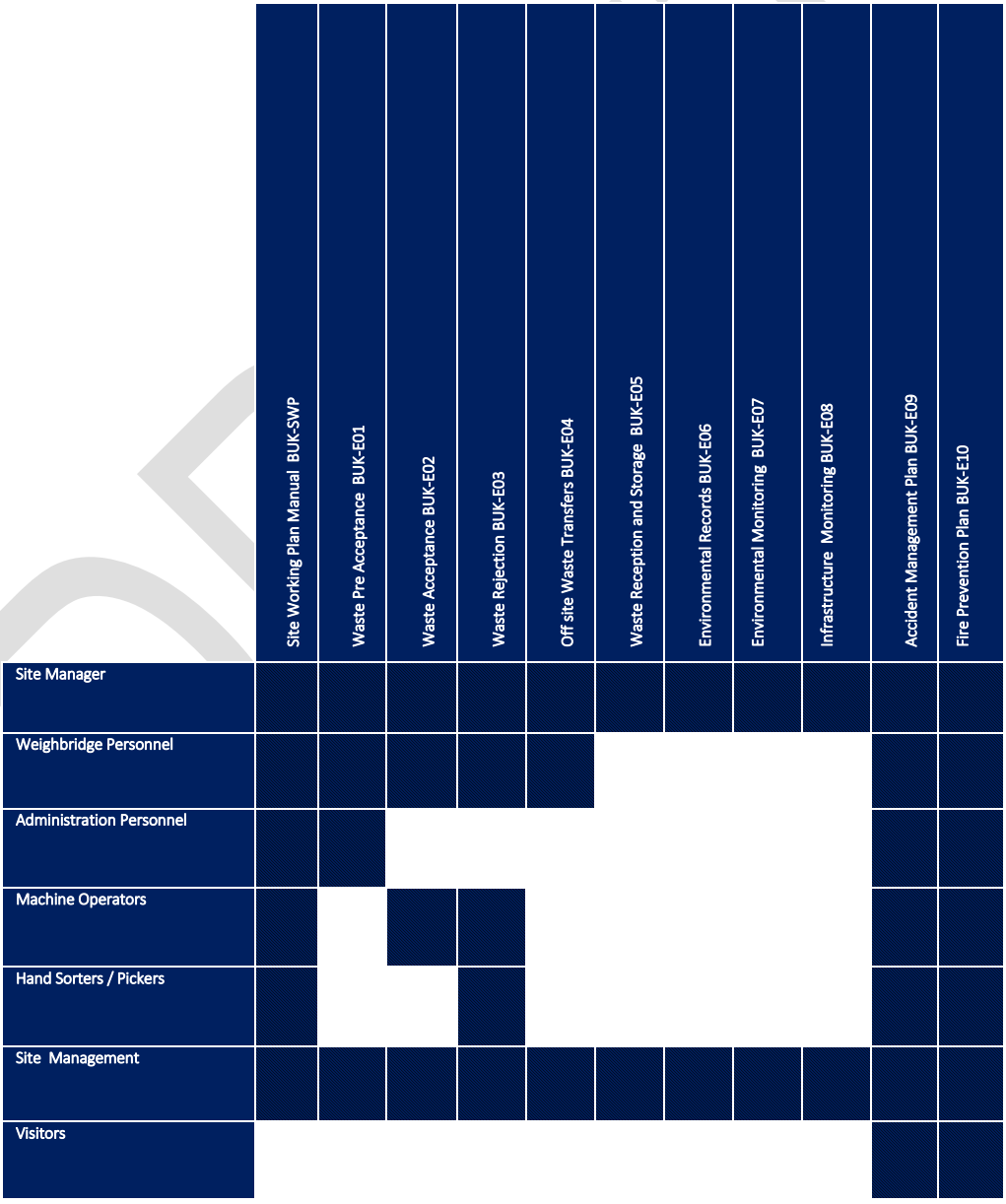
The infrastructure monitoring of the site will take place in accordance with procedure BUK-E08 Infrastructure Monitoring and Cleaning Programme.

5 TECHNICAL COMPETENCE & TRAINING

The Manager is defined as the Technically Competent Person for the site. The site manager holds all necessary qualifications to be defined as 'Technically Competent' as defined by the Environment Agency Operator Competence Scheme and WAMITAB Certificate of Technical Competence Schemes.

All personnel on site have been trained in the site operation procedures and Working Plan according to Table 5.1 below.

The site manager is responsible for insuring that all operators and personnel receive training as required.



Appendix 1

Draft Operating Procedures

Overview

The control of wastes and the prevention of unsuitable wastes being bought and accepted on site is a key management requirement to ensure quality control of the processes at Barry Energy Recovery Facility. The uncontrolled acceptance of unsuitable or contaminated wastes can lead to adverse reactions, uncontrolled emissions or product liability issues resulting from their treatment and recovery.

This procedure defines the upstream screening of all incoming waste prior to its arrival on site and involves the provision of relevant information and representative samples of the waste. This is to ensure that the site determines the suitability of the waste for the gasification procedures, before arrangements are in place to accept the waste.

1. Pre-acceptance process

1.1 Initial Order/Enquiry

Prior to the delivery of any loads, the operator shall obtain and agree a written supply agreement for the input materials with each input material supplier. The written agreement shall provide the following;

- The waste type and specific source location(s) of the material;
- A brief description of the source type, physical form and the specific process producing the waste (usually defined by SIC Code)
- Details of the supplier's quality management system and a statement from the supplier confirming their duty of care and commitment to quality control (consistency of waste type, source, handling requirements, presence of hazards within the materials etc.);
- European Waste Catalogue (EWC) code.

Such information shall be obtained by issuing a "Producer Declaration Form". This process should occur for all new waste streams introduced to site.

Under the conditions of the site Environmental Permit (REFERENCE TO BE INSERTED HERE) the operator is only allowed to receive specific wastes. A list detailing all permitted waste codes is detailed in Table 1.1 overleaf.

1.2 Long Term Supply Agreements

In the case of long-term supply arrangements with clients / suppliers, the above details are only required to be obtained once for each particular waste stream received, excepting quantity of waste which must be recorded in the Site Diary per individual load and the relevant Duty of Care documentation (Waste Transfer Notes).

However, different waste streams from the same supplier must be accompanied with the above information should they have a different composition or be derived from a different process to previous wastes received.

The Producer Declaration Form, upon receipt, is signed by the Site Manager (and / or their delegate).

No materials will be authorised for processing without sufficient / representative sampling data.

1.3 Sampling

Unless sampling and analysis of the waste streams has already been completed by a third party and Biomass UK have sufficient information regarding the waste, Biomass UK will obtain representative samples of the waste used on site and compare it against the written description to ensure that it is consistent.

Biomass UK will ensure that the sample is representative of the waste and that it has been obtained by a person who is technically competent to undertake the sampling process. The analysis will be carried out by a laboratory with robust quality assurance, quality control methods and record keeping. Results of the analysis of the waste will be kept within the waste tracking system. The results will include the following;

- All hazardous characteristics of the waste;
- The physical appearance of the waste;
- The colour of the waste;
- The pH of the waste;
- If any odour present, a description and strength of the odour; and
- Whether the constituents declared by the waste producer match the sampling results to ensure permit compliance.

1.4 Inadequate Information

In the event of the receipt of a Producer Declaration Form with insufficient information (e.g. compositional details etc.), all associated waste materials will not be accepted by Biomass UK under the site waste rejection procedure (BUK-E03).

Each individual Waste Stream must be allocated an individual reference number which can be re-used in future transactions.

This will allow for the technically competent person(s) to adequately prepare for acceptance / rejection of the waste (see Procedure BUK-E02) as each reference number refers to a specific waste whose characteristics (composition, individual concentrations etc.) must remain the same.

The information relating to each waste stream shall be filed under its individual reference number on the producer declaration form, detailing the information above and stored in the site office.

Table 1: Feedstock EWC Codes and Types	
Waste Code	Description
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURITURE, PULP, PAPER AND CARDBOARD**
03 01	**wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
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 03	wooden packaging
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	**wood, glass and plastics**
17 02 01	wood; would be typically used for any general non-hazardous wood emanating from building/construction sites
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 07	wood other than that mentioned in 19 02 06

2. Documentation and Records

All records relating to the pre-acceptance for each approved waste stream should be retained by the company secretary for a minimum of three years, or indefinitely for ongoing supply arrangements.

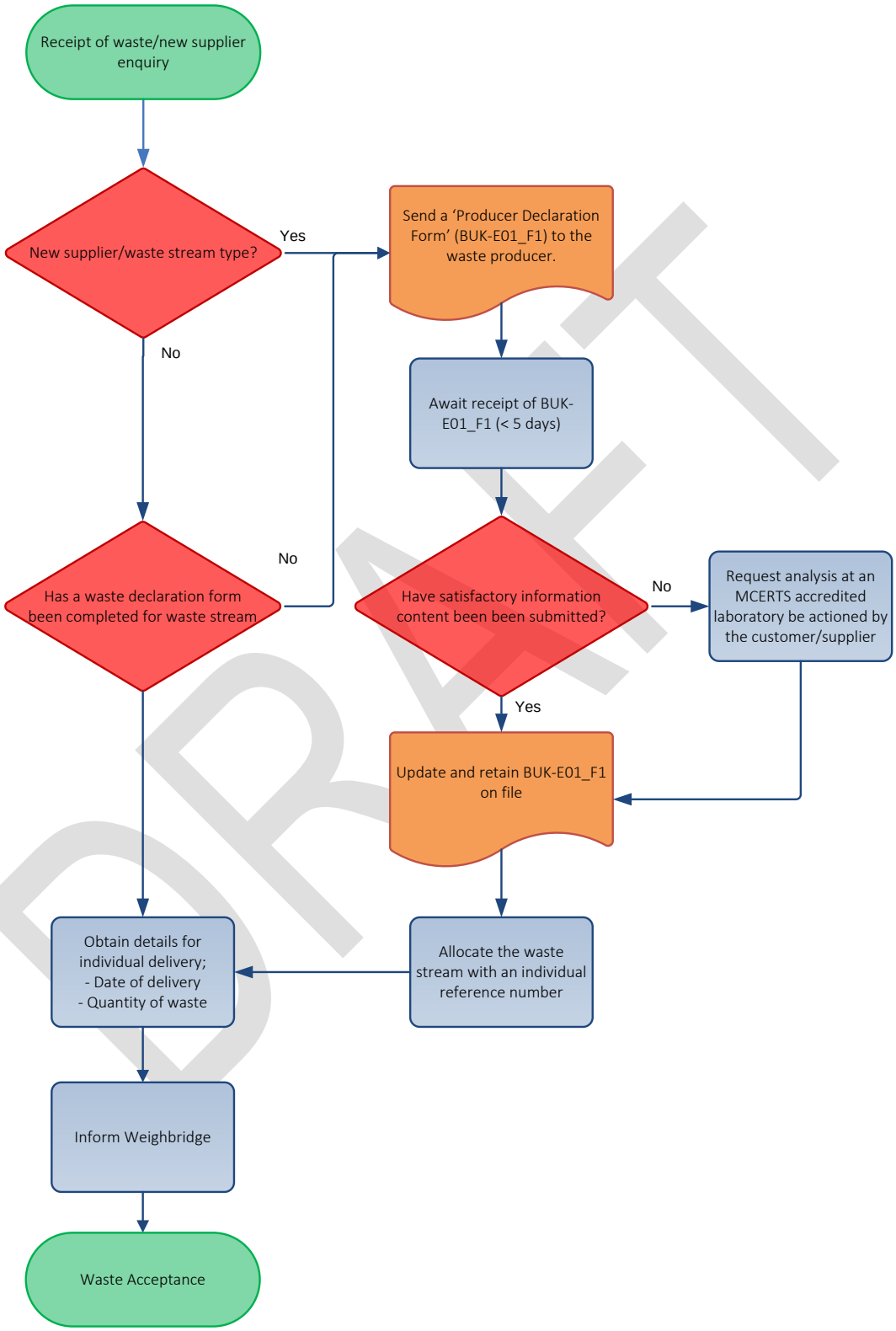
Hardcopies of the transferred waste will be kept in the site office as well as electronic files on the company computer system and will be available for inspection on request.

Each approved waste stream shall be documented under its individual reference number with the information detailed above.

Table 2.1; Internal Record Retention

Record	Retained by	Location	Hardcopy (✓/✗)	Electronic (✓/✗)	Retention Period
Form BUK-E01_F1	Site Manager	Site Office	✓	✓	3 years
Correspondence with EA/Consignors	Site Manager	Site Office	✓	✓	3 years

3. Process flow chart: BUK-E01 Pre-Acceptance



4. Training Record

The below signatories have received training and understand all aspects of procedure BUK-E01.

Table 4.1: Training

PRINT EMPLOYEE NAME	EMPLOYEE SIGNATURE	DATE	MANAGER INITIALS	UN-CONTROLLED COPY ISSUED (✓)

Producer Declaration Form Section 1 (to be completed by supplier)	
Name of Supplier:	
Address of Supplier:	
Supplier Number (if allocated):	
Description of Waste:	
Waste Code: (shown in Appendix 1)	
Hazard Code:	
Waste Analysis Information: (if not available a sample MUST be requested for analysis)	
Quantity: (per batch)	
Quantity: (per annum)	
Description of Odour Characteristics:	Odour Intensity Scale:

Intensity	Tick Relevant Intensity
0 – No Odour	
1 – Very Faint Odour	
2 – Faint Odour	
3 – Distinct Odour	
4 – Strong Odour	
5 – Very Strong Odour	
6 – Extremely Strong Odour	

Hedonic Tone Scale:

Perceived Hedonic Scale	Tick Relevant Hedonic Tone
+4 – Very Pleasant	
+3 – Pleasant	
+2 – Moderately Pleasant	
+1 – Mildly Pleasant	
0 – Neutral Odour / No Odour	
-1 – Mildly Unpleasant	
-2 – Moderately Unpleasant	
-3 – Unpleasant	
-4 – Very Unpleasant	

Signed:	
Date:	

Producer Declaration Form Section 2 (to be completed by Biomass UK No.2 Ltd)	
Name of Person Completing the Form:	
Sample of Waste Received: (Yes / No)	
Analysis of Waste Received: (Yes / No) (please attach to the form)	
Is Supplier Assessment Accurate / Representative of Sample Received? (Yes / No)	
Is Waste Deemed Acceptable for Processing? (Yes / No)	
Approved for Acceptance and	

Processing? (Yes / No)	
Signed:	
Date:	
Unique Customer Code:	
Unique Waste Code:	

Table 1: Feedstock EWC Codes and Types	
Waste Code	Description
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURITURE, PULP, PAPER AND CARDBOARD**
03 01	**wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
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 03	wooden packaging
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	**wood, glass and plastics**
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19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 07	wood other than that mentioned in 19 02 06

Overview

The control and acceptance of wastes when they arrive at site is a key process in avoiding potential contribution to system inefficiency through introduction of unsuitable waste streams.

This procedure outlines the onsite controls and considerations that need to be applied when waste materials arrive on site for processing.

1. Waste Acceptance

A check shall be made that the waste type and source has been Pre-Accepted in accordance with procedure BUK-E01 Pre-Acceptance.

Where a waste has not been Pre-Accepted the Site Manager shall be contacted and the waste assessed on specification. The decision of whether the waste can be accepted lies with the Site Manager.

The following details will be recorded for each individual load accepted on site: -

- Date and time of delivery of the load
- Details and description of the vehicle delivering the waste, the driver's name, and the operator of the vehicle; and
- A description of the waste including type and quantity.

Wastes will only be accepted on site that conform to the following EWC Waste Codes detailed in Table 1.1 overleaf.

There will be an internal tracking system in place for all wastes which will be cross-referenced to the unique reference number which was given to the waste at the pre-acceptance stage. The tracking system will consist of all information generated during pre-acceptance, acceptance, storage and treatment and will be kept up to date on an ongoing basis.

Any wastes that do not meet with the above description and requirements should be refused entry to the site in accordance with procedure BUK-E03 Waste Rejection.

Rejected wastes shall be recorded in the site diary.

It is the responsibility of the weighbridge personnel to inform the site manager of any wastes that do not or potentially do not meet the above specification.

Table 1: Feedstock EWC Codes and Types	
Waste Code	Description
03	WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURITURE, PULP, PAPER AND CARDBOARD
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19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 07	wood other than that mentioned in 19 02 06

2. Waste Reception

The Weighbridge personnel shall inform the site manager and respective staff of the vehicle arrival.

Vehicles delivering to the main building will be directed to follow the designated access.

Vehicles will offload using a trailer docking system connected to a conveyor which will then transfer the waste into the fuel store (in accordance with BUK-E05).

The waste will be checked to ensure compliance with the permitted wastes in accordance with the sites EPR Permit and as defined above.

Any non-conforming material will be segregated and disposed of in accordance with Procedure BUK-E03 Waste Rejection.

Once the delivery is complete vehicles will then be directed to leave the site via the weighbridge, having had their TARE weight recorded.

2.1 Load Inspection

All waste will undergo a visual inspection immediately upon offloading at site. All wastes will be visually inspected to ensure the following:

- Waste meets the EWC Code definition;
- Waste does not contain excessive extraneous materials (metals, glass etc);
- Wastes do not exhibit malodorous properties;
- Wastes comprise of solid materials and not liquids; and
- Wastes do not consist of mainly dusts, powders or loose fibres.

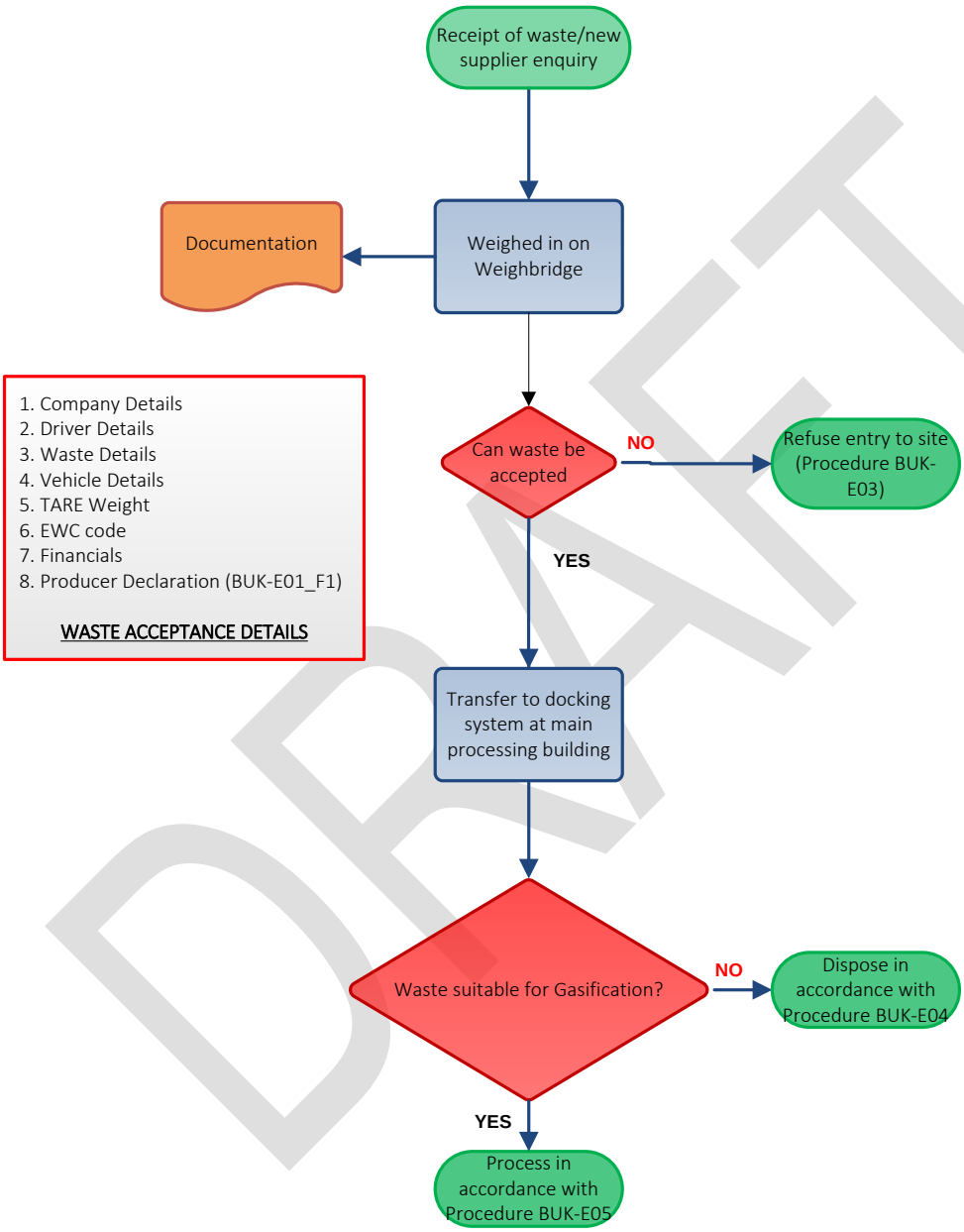
The Site Manager will ensure that the waste delivered to the installation is accompanied by a written description of the waste which will describe the following:

- The physical and chemical composition of the waste;
- Hazard characteristics and handling procedures;
- Compatibility issues; and
- Information specifying the original waste producer and process.

On-site verification and compliance testing will take place in order to confirm:

- The identity of the waste;
- The description of the waste;
- Consistency with the pre-acceptance information and sampling; and
- Compliance with the permit.

3. Process flow chart: BUK-E02 Waste Acceptance



4. Training Record

The below signatories have received training and understand all aspects of procedure BUK-E02.

Table 4.1: Training

PRINT EMPLOYEE NAME	EMPLOYEE SIGNATURE	DATE	MANAGER INITIALS	UN-CONTROLLED COPY ISSUED (✓)

Overview

This procedure outlines the waste rejection process for all non-conforming wastes that cannot be processed on site.

Acceptance of non-conforming wastes is a direct breach of the permitted conditions of the sites Environmental Permit.

1. Rejection at the Weighbridge

Any waste coming across the weighbridge that does not meet the EWC code description below MUST BE REFUSED ENTRY to the site. The site can only accept materials that conform to the EWC Waste Codes provided in Table 1.1 overleaf.

If any waste arriving at site is observed to contain any of the following IT MUST BE REFUSED ENTRY TO THE SITE.

- Explosive Materials;
- Infectious materials;
- Wastes containing extraneous materials;
- Drummed waste;
- Waste consisting solely or mainly of dusts, powders, loose fibres or liquids;
- Wastes that are malodorous; and
- Liquids.

Any waste that is rejected or may be subject to rejection should be bought to the attention of the Site Manager.

The consignor of the waste must be contacted by the Site Manager and be made aware that the waste has been rejected.

The Site Manager holds the responsibility for the acceptance / rejection of all wastes onto site.

It is the responsibility of the weighbridge personnel to inform the Site Manager of any wastes that do not or potentially do not meet the above specification.

If a non-conforming waste has not entered the site i.e. identified at the weighbridge, the haulier is refused entry into the site and a waste rejection form (BUK-E03_F1) is completed.

All Waste Rejections shall be recorded in the Site Register.

Table 1: Feedstock EWC Codes and Types	
Waste Code	Description
03	WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURITURE, PULP, PAPER AND CARDBOARD
03 01	wastes from wood processing and the production of panels and furniture
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	wastes from pulp, paper and cardboard production and processing
03 03 01	waste bark and wood
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 03	wooden packaging
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)
17 02	wood, glass and plastics
17 02 01	wood; would be typically used for any general non-hazardous wood emanating from building/construction sites
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 07	wood other than that mentioned in 19 02 06

2. Rejection at the Reception Area

Any wastes delivered to the Fuel Storage Building must be visually inspected for the following:

- Material is able to be processed;
- Wastes do not contain extraneous materials;
- Wastes do not consist solely or mainly of dusts, powders, loose fibres or liquids; and
- Wastes are not malodorous.

Any materials that do not meet the above requirements shall be rejected from site.

Any waste that is rejected or may be subject to rejection should be bought to the attention of the Site Manager.

The consignor of the waste must be contacted by the Site Manager and be made aware that the waste has been rejected.

The Site Manager holds the responsibility for the acceptance / rejection of all wastes onto site.

The installation supervisor will check each load visually as it is deposited to ensure that it does not contain any unacceptable waste(s). The supervisor may quarantine the waste load whilst investigations take place.

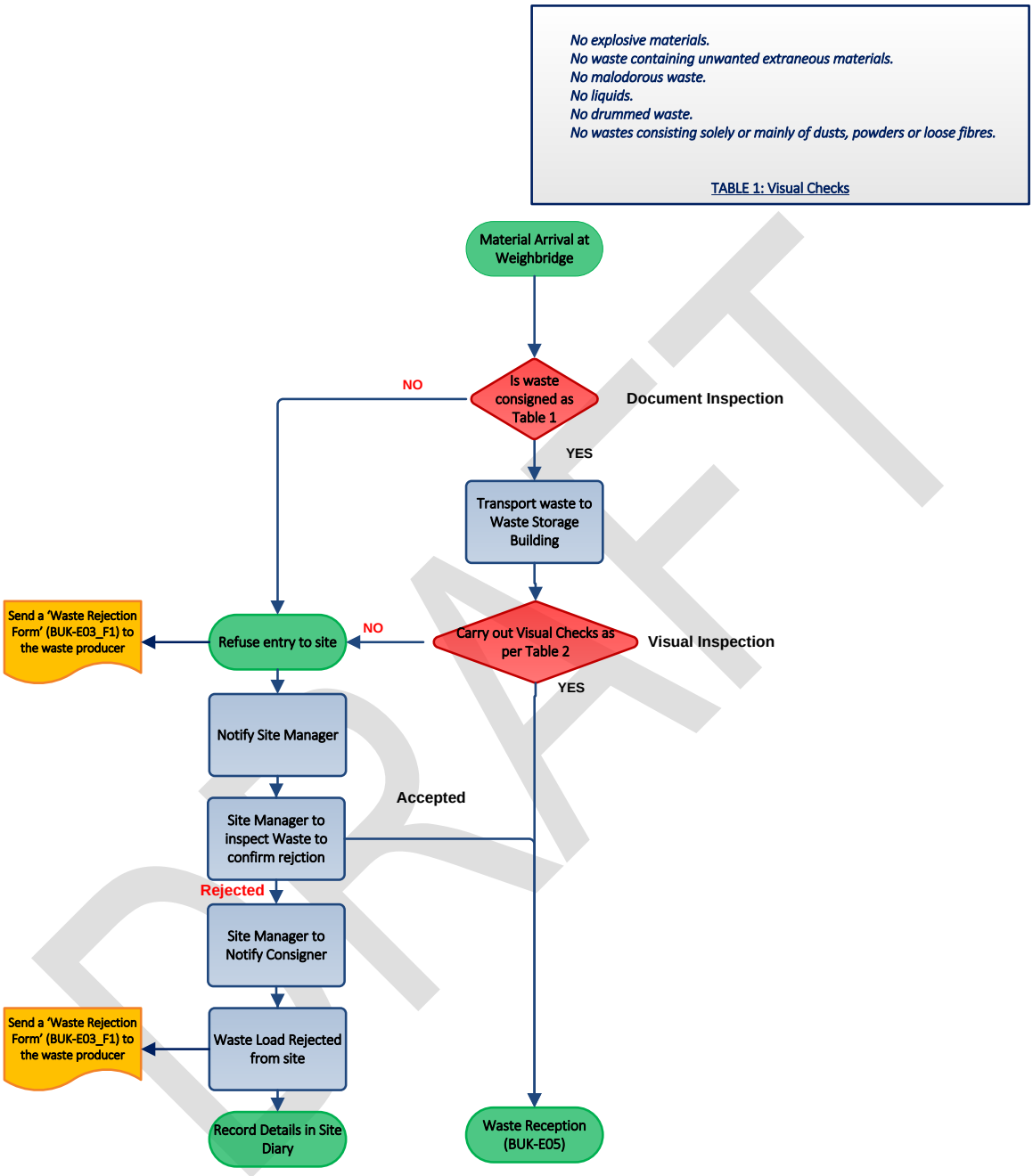
It is the responsibility of the supervisor/site personnel to inform the site manager of any wastes that do not or potentially do not meet the specification.

If a non-conforming waste is to be temporarily quarantined on site, it is placed in the maintained, contained and labelled waste quarantine area.

If the non-conforming waste has entered the site, and is subsequently rejected, a waste rejection form, (BUK-E03_F1) is completed. However, if the non-conforming waste has not entered the site, i.e. identified at the weighbridge, the haulier is refused entry into the site.

All Waste Rejections shall be recorded in the Site Register.

3. Flow Chart: BUK-E03 Waste Rejection



4. Training Record

The below signatories have received training and understand all aspects of procedure BUK-E03.

Table 4.1: Training

PRINT EMPLOYEE NAME	EMPLOYEE SIGNATURE	DATE	MANAGER INITIALS	UN-CONTROLLED COPY ISSUED (✓)

Waste Rejection Form	
Delivered On:	
Delivered By:	
Consignment Batch Identity / Waste Transfer Note Number:	
Reason for Rejection / Quarantine:	
Date to be Removed from Site:	
Arranged by:	
Contact Details:	
Further Action:	

Overview

This procedure provides the necessary information to enable the assessment and off site transfer of non-conforming or untreatable waste streams.

1. Off Site Waste Transfers

Typical materials that are likely to be transferred from the Barry site on a regular basis include (but are not limited to) the following:

Table 1: Table of Transferred Wastes

Waste Type	EWC Code	EWC Description	Site Management	Disposal Route
Mixed General Waste (office and general wastes) – Non Hazardous	19-12-12	Other wastes (including mixtures of materials)	Stored in segregated waste skip (on concrete hardstanding)	Transferred off site for disposal
Waste oils and greases (workshop and vehicle wastes)	13-02-05	Non Chlorinated Engine /Lubricating Oils	Stored in barrels / drums and stored internally within maintenance shed prior to offsite transfer	Transferred off site for disposal
Bottom Ash	10-01-15	Bottom ash	Stored in segregated waste skip (on concrete hardstanding)	Transferred off site for reuse
Air Pollution Control Residues	19-01-05*	Filter cake from gas treatment	Stored in segregated waste skip (on concrete hardstanding)	Transferred off site for reuse
Oversized Particles	20-03-01	Mixed waste (non-haz)	Stored in segregated waste skip (on concrete hardstanding)	Transferred off site for reuse
Metals	02-01-10	Metal – scrap	Stored in segregated waste skip (on concrete hardstanding)	Transferred off site for reuse
Used Bed Material	10-01-15	Bottom ash	Stored in segregated waste skip (on concrete hardstanding)	Transferred off site for reuse

All of the above materials are classified as wastes in accordance with The List of Wastes (LOW) Regulations 2005, which transpose the European Waste Catalogue (EWC) into domestic legislation, and provide codes for all hazardous and non-hazardous wastes.

All wastes being transferred on site must be consigned to an appropriately qualified carrier. This is legal under the Environmental Protection Act S34 and of the Environmental Protection (Duty of Care Regulations) 1991.

Prior to the offsite transfer of any wastes to a third party a check should be made to ensure that the carrier is appropriately licensed. The link to the national database is provided below: (https://www.gov.uk/access-the-public-register-for-environmental-information).

Each consignment should be accompanied with an appropriately completed Waste Transfer Note.

The following details will be recorded for each individual load transferred from on site: -

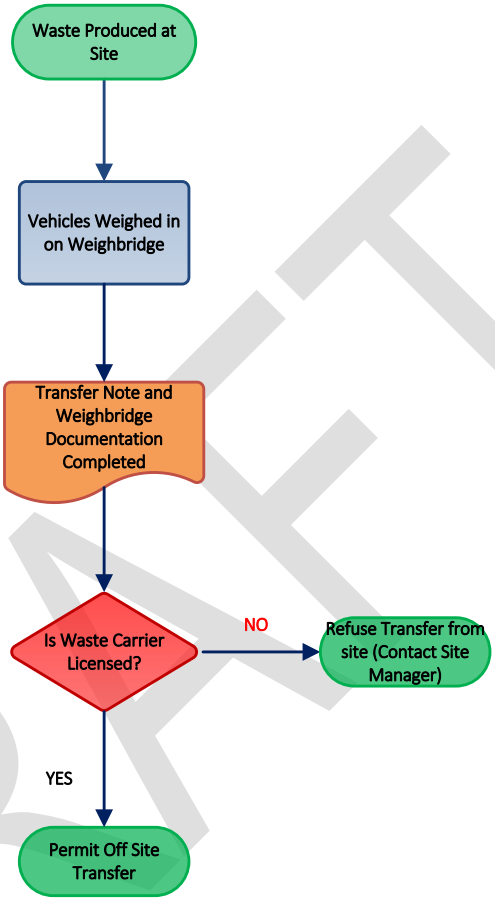
- Date and time of transfer of the load;
- Details and description of the vehicle accepting the waste, the driver's name, and the operator of the vehicle; and
- A description of the waste including type, EWC code and quantity.

The Site Manager holds the responsibility for the correct description of all consigned wastes from site.

It is the responsibility of the weighbridge personnel to correctly log and record any waste transfers from site, ensure that the Carrier is appropriately licensed and that all relevant information is recorded.

All waste transfers should be recorded in the site diary by the Site Manager.

2. Flow Chart BUK-E04 Off Site Waste Transfers



Mixed General Waste (Non-Hazardous)	19-12-02
Waste Oils and Greases	13-02-05
Bottom Ash	10-01-02
Flue Gas Cleaning Residues	19-01-05
Oversize Particles	20-03-01
Metals	02-01-10
Used Bed Material	10-01-15

TRANSFERRED WASTES

3. Training Record

The below signatories have received training and understand all aspects of procedure BUK-E04.

Table 3.1: Training

PRINT EMPLOYEE NAME	EMPLOYEE SIGNATURE	DATE	MANAGER INITIALS	UN-CONTROLLED COPY ISSUED (✓)

Overview

The inspection of wastes when they arrive at site is a key process in ensuring maximum waste yield for the gasification process, whilst minimising the potential contamination issues.

This procedure outlines the initial screening and decision making process that needs to be applied in order to determine the most suitable treatment method for incoming wastes.

1. Waste Delivery and Inspection

Vehicles will be directed from the weighbridge area by following the designated access route.

Once waste is accepted on-site, in accordance with BUK-E02, it shall be delivered to the reception area of the fuel storage building.

The vehicles will offload using the trailer docking system which is connected to a conveyor which will transfer the waste into the fuel store.

All vehicles will be directed from the weighbridge to the fuel storage building via electrically operated roller shutter doors. Waste will then be deposited into the reception area of the building.

The Site Manager will be responsible for the inspection of all waste deliveries to ensure compliance with Waste Acceptance criteria (BUK-E02).

All waste will be inspected to ensure that any non-conforming material (i.e. high levels of plastic, glass metals, treated or painted materials etc.) can either be removed or necessitate rejection of the load.

Rejected loads shall be managed in accordance with procedure BUK-E03 Waste Rejection.

All extraneous material shall be segregated and deposited in skips as required.

2. Waste Storage

Segregated storage is necessary to prevent incidents from incompatible substances and to prevent escalation should an incident occur.

In order to ensure that the correct storage areas are used, offloading/discharging of wastes will be supervised by all site staff.

All offloading and quarantine points will be on impervious surface with self-contained drainage, to prevent any spillage entering the storage systems or escaping off-site.

All storage areas will be clearly marked and will state the quantity and hazardous characteristics of the waste stored within. All waste containers within the storage areas will be clearly marked with:

- The date of arrival;
- Relevant hazard codes;
- Chemical identify and composition;
- The unique reference number given at the pre-acceptance stage.

The storage areas will be regularly inspected in accordance with procedure BUK-E09 Infrastructure Management and Monitoring Programme. Drums will not be stored more than two high and access will be available on all sides for inspection.

Any hazardous waste spillages will be recorded in the site diary.

Waste will be treated as soon as possible and will be stored in the relevant reception areas for a maximum of five working days.

3. Traceability

Each waste load shall be allocated an individual reference number and recorded in the Site Register. Reference numbers shall adopt the following nomenclature;

LA - 200611 - A

(Supplier; LA) (Date received; ddmmyy) (sequential lettering; batches per day)

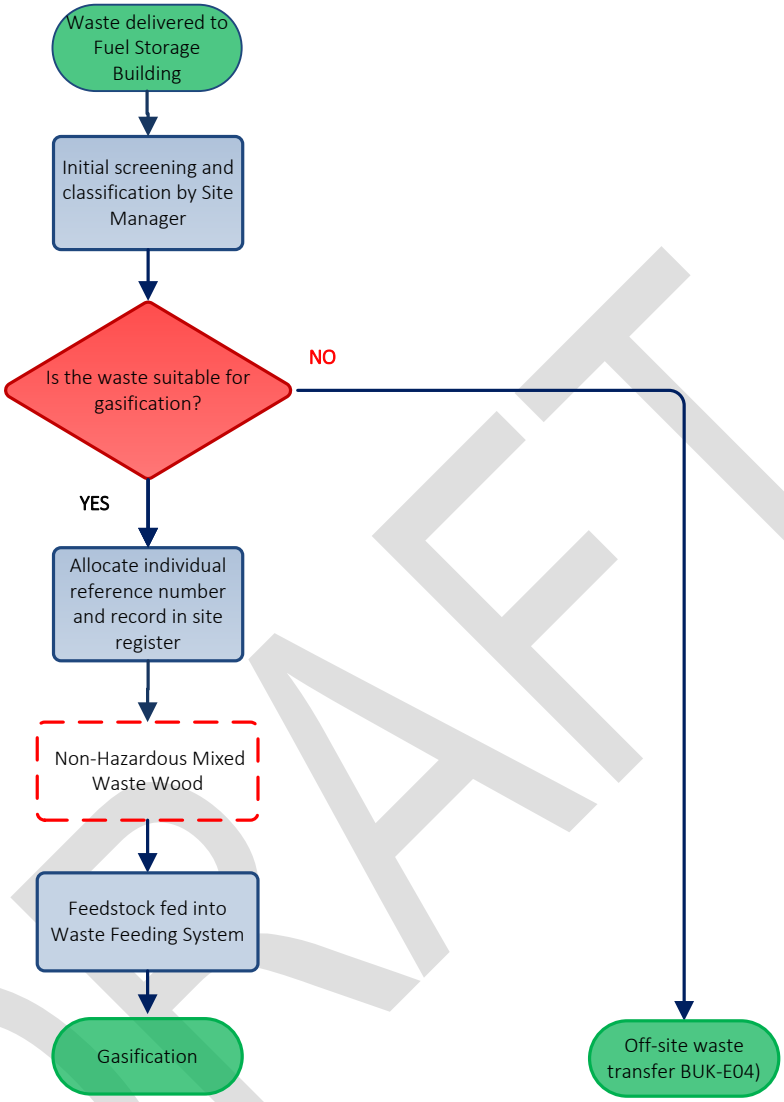
All material received at the facility will be accompanied by details of the date, time, quantity, waste type and the supplier. Records of each delivery will be maintained on-site for a minimum of two years after inspection.

In accordance with this procedure the date, time, quantity and supplier of waste material processed will be recorded.

Waste that is determined as suitable for processing must be screened by the Site Manager in order to determine whether any pre-treatment is required.

ANY WASTE THAT IS CONSIDERED TO POSE A RISK TO THE GASIFICATION PROCESS CAN NOT BE SUBMITTED FOR GASIFICATION

3. Process flow chart: BUK-E05 Waste Reception



5. Training Record

The below signatories have received training and understand all aspects of procedure BUK-E05.

Table 5.1: Training

PRINT EMPLOYEE NAME	EMPLOYEE SIGNATURE	DATE	MANAGER INITIALS	UN-CONTROLLED COPY ISSUED (✓)

Overview

In order to demonstrate compliance with Waste Duty of Care Requirements and Environmental Permitting Requirements, Biomass UK is required to record a number of environmental parameters and data.

This procedure defines the necessary Environmental Permit and Waste Records that are required to be managed by the site to ensure compliance.

1. Incoming Waste Records

A record of the types, quantities and dates of wastes deposited at the site will be maintained in a format as specified below and be made available to Natural Resources Wales as required by the permit.

The following information shall be collected for each consignment arriving at the site:

- Date and time of delivery of the load;
- Details and description of the vehicle delivering the waste, the drivers name and the operator of the vehicle;
- Source of the waste (name and address of the originator); and
- A description of the waste including the type and quantity.

A record of all documents including waste transfer notes and weighbridge tickets will be maintained at the site office.

2. Outgoing Waste Records

A record of the types, quantities and dates of wastes transferred from the site will be maintained in a format as specified below and provided to Natural Resources Wales as required by the permit.

The following information shall be collected for each consignment arriving at the site:

- Date and time of dispatch of the load;
- Details and description of the vehicle carrying the waste, the drivers name and the operator of the vehicle and Waste Carriers License;
- A description of the waste including the type and quantity;
- Destination of the waste with associated waste management license details;
- Copy of the completed Transfer Note relating to the consignment.

A record of all documents including transfer notes and weighbridge tickets will be maintained at the site office.

3. Site Diary and Site Records

The site diary will be maintained and updated to include the following:

- The name of the site manager;
- Details of all visitors, including status and times of arrival and departure;
- Damage to vehicles, fences, gates etc. and incidents of trespass;
- Details of maintenance, modification, repair, replacement, delivery and return, and breakdown of any plant and machinery;
- Consignment details of incoming and outgoing wastes;
- Cleaning regimes;
- Daily weather records; and
- Any complaints received.

The following records will also be maintained by the site manager:

- Correspondence with Natural Resources Wales;
- Pest Control records; and
- Environmental Monitoring (dust, air, noise etc.)

4. Site Permits and Regulatory Liaison

A copy of the Environmental Management Plan and Site Permits will be available at all times within the office.

Copies of all regulatory notifications, letters and correspondence will be kept on file within the office.

The site diary will be kept in the office and updated daily.

5. Training Record

The below signatories have received training and understand all aspects of procedure BUK-E06.

Table 5.1: Training

PRINT EMPLOYEE NAME	EMPLOYEE SIGNATURE	DATE	MANAGER INITIALS	UN-CONTROLLED COPY ISSUED (✓)

Overview

This procedure provides an overview of all the necessary environmental monitoring procedures and controls to ensure compliance with the Site Environmental Permit.

1. Noise

The site is located in an industrial area, therefore, noise is not considered to be a problem. Operation hours are restricted to daytime only.

The design of the Installation has taken into account the potential impacts on the environmental and neighbouring receptors in regards to noise.

The plant and building have been designed to abate and control noise, odour and fugitive emissions. The building is sealed and nominally air tight, with no high level openings or ventilation louvers.

The processing plant and associated equipment has been designed in accordance with best practice and to ensure that internal noise does not present an issue to the employees at the site under the Control of Noise at Work Regulations and to ensure that noise breakout does not lead to noise nuisance at the identified sensitive receptors.

The main source of noise at the site will include:

- Delivery/collection vehicles;
- Gasifier;
- Steam Turbine;
- Air Cooled Condensers;
- Stack; and
- Site vehicles.

The following procedures will help minimise noise emissions:

- All machinery on site will be fitted with effective silencers;
- All machinery will be turned off when not in use; and
- Operation of plant and machinery will take place during permitted hours only.

1.1 Environmental Noise Monitoring

There are no requirements to monitor noise at the site.

Detailed noise monitoring shall be carried out in the event of an internal or external complaint.

Noise monitoring shall only be carried out by a competent person (as defined by the Institute of Acoustics) to a scope that is determined by the nature of the complaint.

The site has a simple indicative noise meter on site for the monitoring of equipment and plant noise. This equipment shall be used on an "as required" basis.

1.2 Occupational Noise Monitoring

Occupational noise and vibration presents a significant health and safety risk to all personnel on site.

Occupational monitoring of Significant Exposure Groups (SEGs) will be carried out periodically (at least bi-annually) to monitor and risk assess the exposure levels of the personnel.

2. Odour

The site does not includes any activities that may give rise to odour. However it is acknowledged that any site involving the processing of any wastes can give rise to odour impacts in the event that odourous materials are brought onto site.

All loads shall be inspected prior to acceptance. No malodourous wastes will be accepted onto site.

Odour shall be monitored daily at points around the site boundary and observations shall be noted in the site diary and/or on a daily monitoring document.

If any odour is detected and is judged to be moderate (Odour Intensity Rank 3) then the Site Manager will be notified immediately and the olfactory survey will continue to attempt to determine the scope and extent of the odour plume, as follows:

- A suitable location downwind of the site and potentially sensitive receptor at which the odour plume is unlikely to extend will be selected for assessment;
- Survey will continue toward the facility until a site-related odour is perceived; and
- Assessment points perpendicular to the plume axis and equidistant from the site will then be monitored, subject to access requirements.

The main aim of monitoring will be to test if any odours emitted from the site will be causing the nearest receptors nuisance. In scenarios where nuisance is being caused then operations will be suspended until the conditions improve. The Site Manager may deem it necessary to find the precise source of the odour and attempt to eliminate it or neutralise it immediately.

Daily records shall be maintained and include the following details:

- Results of inspections and olfactory monitoring carried out by site personnel;
- Weather conditions including wind speed and wind direction;
- Operational problems including date, time, duration, prevailing weather conditions and cause of problem;
- Complaints received including address of complainant (if available);
- Details of corrective action taken, and any subsequent changes to operational procedures; and
- An evaluation of the effectiveness of control and abatement techniques used.

3. Weather Monitoring

The following meteorological conditions will be recorded daily:

- Temperature;
- Prevailing wind direction; and
- General weather conditions.

All weather conditions shall be recorded within the Site Diary.

4. Visual Inspection

All areas of the site shall be visually inspected and monitored for the following:

- Evidence of site security breaches;
- Escape of waste;
- Escape of dust / dust nuisance;
- Presence of elevated fire risk / storage issues;
- Presence of litter;
- Presence of vermin; and
- Control of waste stock piles (height, location etc).

Table 4.1: Site Environmental Monitoring Summary

Parameter	Purpose	Freq	Location	Responsibility	Comment
Noise	Only required in cases of specific internal or external noise complaint	As required	TBC	Site Manager	The noise monitoring shall only be carried out by a competent person (as defined by the Institute of Acoustics) to a scope that is determined by the nature of the complaint.
Odour	Monitoring required to ensure that there are no odour emissions resulting from the processing activities on site.	Daily	TBC	Site Manager	Recorded in the site dairy.
Groundwater	None required	None	N/A	N/A	No physical groundwater monitoring required.
Surface Water	Visual inspection required to ensure that site drainage is not being impacted by processing activities on site.	Daily	Drainage channels	Site Manager	No physical sampling required. Visual inspection only.
Weather	General weather conditions to be recorded on site.	Daily	Not specified	Site Manager	Recorded in the site dairy.
Visual	Visual inspection of: • Evidence of site security breaches; • Escape of dust / dust nuisance; • Presence of elevated fire risk / storage issues; • Presence of litter; • Presence of vermin; and • Control of waste stock piles.	Daily	Site wide	Site Manager	Recorded in the site dairy.

5. Training Record

The below signatories have received training and understand all aspects of procedure BUK-E07.

Table 5.1: Training

PRINT EMPLOYEE NAME	EMPLOYEE SIGNATURE	DATE	MANAGER INITIALS	UN-CONTROLLED COPY ISSUED (✓)

Overview

This procedure provides an overview of all the necessary infrastructure monitoring and inspection programmes that need to be carried out in order to ensure compliance with the Site Environmental Permit.

1. Monitoring

The Site Manager will monitor the key characteristics of the operations and activities that could have a significant impact on the environment.

The Site Manager will visually inspect the site on a daily basis. If spillages or strong odours are detected, then action will be taken accordingly.

Monitoring duties include:

- Checking roadways for any spills of delivered materials;
- Checking all security measures including the integrity of the site fence;
- Checking the integrity of all concrete hardstanding and bunds.

All details are logged in the site diary along with any comments and actions taken.

2. Checks and Tasks

There will be daily checks to ensure that all equipment is working properly and that the reception areas are cleaned down and free of waste. An example of a check sheet used for this is shown in Form 1.

All activities carried out in relation to plant maintenance will be recorded within the plant maintenance records.

Further to the PPM programme there will be series of daily checks by the operators to ensure that all equipment is working properly and that the reception area is cleaned down and free of waste.

There will be regular inspection of storage areas including:

- Fuel Storage Building;
- Reception Area;
- Conveyors;
- Gasifier;
- Steam Turbine;
- Hardstanding;

- Containment System;
- Tanks and Bunds; and
- Site Boundary.

Inspections will pay particular attention to signs of damage, deterioration and leakage. If any damage is noted, it will be recorded in the site dairy and will be repaired as soon as possible. If containment capacity or the capability of bunds is compromised, then waste will be immediately removed until repaired.

Tank Inspections shall form part of the routinely PPM programme which will include periodic thickness and integrity testing. If significant deterioration is detected, then the contents will be transferred to appropriate storage. These inspections will be carried out by independent expert staff and written record will be maintained of the inspection and any remedial action taken.

If there is any incident or accident that causes or could cause significant pollution Natural Resources Wales will be contacted straight away.

Monitoring will be carried out in line with the relevant Regulations and Legislations and cover the whole site as detailed on the site plan. If the measures identify a breach of requirements an action plan will be raised and implements. When relevant, Natural Resources Wales will be notified in writing.

3. Training Record

The below signatories have received training and understand all aspects of procedure BUK-E08.

Table 3.1: Training

PRINT EMPLOYEE NAME	EMPLOYEE SIGNATURE	DATE	MANAGER INITIALS	UN-CONTROLLED COPY ISSUED (✓)

Daily Check-Sheet

Week Beginning		
Fuel Storage Building		
Monday	Checked	Signed
Tuesday	Checked	Signed
Wednesday	Checked	Signed
Thursday	Checked	Signed
Friday	Checked	Signed
Reception Area		
Monday	Checked	Signed
Tuesday	Checked	Signed
Wednesday	Checked	Signed
Thursday	Checked	Signed
Friday	Checked	Signed
Conveyor		
Monday	Checked	Signed
Tuesday	Checked	Signed
Wednesday	Checked	Signed
Thursday	Checked	Signed
Friday	Checked	Signed
Gasifier		
Monday	Checked	Signed
Tuesday	Checked	Signed
Wednesday	Checked	Signed
Thursday	Checked	Signed
Friday	Checked	Signed
Steam Turbine		
Monday	Checked	Signed
Tuesday	Checked	Signed
Wednesday	Checked	Signed
Thursday	Checked	Signed
Friday	Checked	Signed
Hardstanding		
Monday	Checked	Signed
Tuesday	Checked	Signed
Wednesday	Checked	Signed
Thursday	Checked	Signed
Friday	Checked	Signed
Containment System		
Monday	Checked	Signed
Tuesday	Checked	Signed
Wednesday	Checked	Signed

Thursday	Checked	Signed
Friday	Checked	Signed
All Storage Tanks		
Monday	Checked	Signed
Tuesday	Checked	Signed
Wednesday	Checked	Signed
Thursday	Checked	Signed
Friday	Checked	Signed
Site Boundary		
Monday	Checked	Signed
Tuesday	Checked	Signed
Wednesday	Checked	Signed
Thursday	Checked	Signed
Friday	Checked	Signed