



## Operational Techniques and Monitoring Plan Version 2 EPR/GB3490HG /A001

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Nine Mile Point Waste Processing Facility

for:

**Hazrem Environmental Ltd**

CRM 083 002



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## Operational Techniques and Monitoring Plan CRM 083 002 PE R 006 B

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For:	Hazrem Environmental Ltd
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## 1.0 INTRODUCTION

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### 1.1. Overview

- 1.1.1. This document provides information to support an Environmental Permit Application reference **EPR/GB3490HG/A001** to provide details of the operational techniques that will be used to minimise and control emissions from the proposed Nine Mile Point waste processing facility. It has been revised following receipt of Schedule 5 notice dated 10/03/2016 in response to question references 9-16.
- 1.1.1. The Facility is to occupy an area of 1.09 hectares within the approximately 16 hectare Nine Mile Point industrial estate. The site is bordered by industrial unit to the east, a road to the west beyond which are more industrial units, a road to the south beyond which is woodland and the Sirhowy River, and to the north by woodland.
- 1.1.2. The nearest residential properties are on New Road, approximately 470m northeast of the eastern edge of the site boundary and William Street, approximately 478m west of the western edge of the site boundary.
- 1.1.2. The Operator of the Facility will be Hazrem Environmental Ltd, hereby referred to as “the Operator”.

### 1.2. Site Location

- 1.2.1. The Facility is located at:

Nine Mile Point Industrial Estate,  
Ynysddu,  
Cwmfelinfach,  
Caerphilly,  
NP11 7HZ

- 1.2.2. The site boundary is illustrated in green on the Drawing ‘Installation Boundary’ CRM 083 002 PE D 001. The site is centred at National Grid Reference (NGR) **ST 19235 91305**.
- 1.2.3. The location is shown on Drawing ‘Site Location’ CRM 082 002 PE D 001 in the drawings section of this application.

### 1.3. Regulated Activities

- 1.3.1. The Operator is applying to Natural Resources Wales (NRW) to operate a bespoke Part A Installation Environmental Permit for a Waste Processing facility for the production of Solid Recovered Fuel (SRF) and Refuse Derived Fuel (RDF) accepting up to 100,000 tonnes per annum of waste. As such, a bespoke application has been prepared to fully assess the risks posed by the activity and to fully assess the proposed activity against Best Available Techniques (BAT).
- 1.3.2. Permitted wastes will be limited to the waste codes included in Appendix A, and will generically include non-hazardous commercial, industrial and household waste.

1.3.3. The scope of all proposed regulated activities is summarised in Table 1.3.3 below. The site layout is shown on drawing 'Installation Boundary' CRM 083 002 PE D 001.

**Table 1.3.3: Regulated Activities**

Schedule 1 Activity	Description of the Waste operation	Annex I (D Codes) and Annex II (R Codes()) and Descriptions	
Part A(1) Section 5.4 Part A(1)(b) ii)	Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day involving pre-treatment of waste for incineration or co-incineration. Bulking of recyclable wastes recovered as an incidental part of production of SRF/RDF	<b>Annex II Codes and Descriptions</b>	
		R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).	
		R4: Recycling/reclamation of metals and metal compounds.	
		R5: Recycling/reclamation of other inorganic materials.	
		R13: Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced).	
		<b><u>Total waste Storage Capacity</u></b>	
<b><u>Non Hazardous Waste Treatment Capacity</u></b>		100,000 tonnes per annum which equates to 360 tonnes per day based on 278 operational days per year (5.5 days per week excluding public holidays).	

#### 1.4. Relevant Legislation and Guidance

1.4.1. The proposed activities are subject to a number of National, European and International legislation and statutory and non-statutory guidance documents. Operators are required through the Environmental Permit application process, to demonstrate how they will comply with the relevant requirements of this legislation and guidance.

1.4.2. In relation to the proposed waste operations the following pieces of legislation and guidance are considered relevant:

- Waste Framework Directive;
- Environmental Permitting (England & Wales) Regulations 2010 (as Amended 2015);
- How to Comply with your Environmental Permit 1.00, Environment Agency, June 2013;
- H1 Environmental Risk Assessment, Environment Agency, V2.2 Dec 2011;

- Environmental Permitting Core Guidance, Defra; March 2013;
- Environmental Permitting Guidance: The Waste Framework Directive, Defra 2010;
- Sector Guidance Note S5.06: Guidance on the Recovery and Disposal of Hazardous and Non-Hazardous Waste, Environment Agency 2013;
- BREF, Integrated Pollution Prevention and Control Reference Document on BAT for the Waste Treatments Industries, August 2006;
- Environment Agency, Horizontal Guidance Series; and
- Environment Agency Regulatory Guidance Series.

## **1.5. Scope of Report**

- 1.5.1. This Report considers the operating procedures of the proposed facility, and how they meet relevant guidance and best industry practice. The report also describes the how emissions from the facility will be controlled and monitored, and how the site will be managed to mitigate the environmental impact of the operations and in accordance with the Environmental Permit.

## 2.0 OPERATING TECHNIQUES AND BAT

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### 2.1. Pre-Acceptance Procedures for Incoming Waste

- 2.1.1. Pre-acceptance procedures will be in place prior to commencement of operations at the Nine Mile Point Waste Processing Facility. The Operator will ensure that the requirements detailed in Section 2.1.1 Pre-acceptance procedures to assess waste of Sector Guidance Note '*S5.06: Guidance on the Recovery and Disposal of Hazardous and Non-Hazardous Waste*', Environment Agency 2013 are incorporated into on-site procedures.
- 2.1.2. The Nine Mile Point Waste Processing Facility will have capacity to process up to 100,000 tonnes of waste per annum.
- 2.1.3. A complete list of waste types to be accepted at the facility is provided within Appendix A to this report.
- 2.1.4. All waste will be delivered by road to site and will be weighed using the on-site weighbridge. This will be the only access route into the site for waste delivery vehicles.
- 2.1.5. All deliveries to the site will be subject to pre-acceptance evaluation and delivery schedule as agreed with customers prior to arrival on site.
- 2.1.6. There will be no ad-hoc waste deliveries. In the event that a vehicle arrives on site and it is verified that there has been no prior agreement made to receive that vehicle, the delivery will be refused and vehicle turned away, and the incident recorded in the site diary.
- 2.1.7. The following information will be requested from all customers prior to waste being accepted on site:
- Waste EWC Code (where appropriate);
  - Process generating SIC Code (where appropriate);
  - Delivery container type (where appropriate);
  - Written description of the material to include the composition, quantity and form of the waste;
  - Waste handling requirements;
  - Hazards associated with the waste; and
  - Anticipated date and time of delivery.
- 2.1.8. Waste delivery contracts will not be entered into until the operator is confident that the facility is able to receive the waste, and that the nature of material can also be processed without impacting on operations and impacting on any nearby sensitive receptors.

### 2.2. Acceptance procedures

- 2.2.1. The Operator will ensure that the requirements detailed in Section 2.1.2 '*Acceptance procedures when waste arrives at the installation*' of Sector Guidance Note '*S5.06: Guidance on the Recovery and Disposal of Hazardous and Non-Hazardous Waste*', Environment Agency 2013 are incorporated into on-site procedures.
- 2.2.2. Waste will be delivered to the site during the following operational hours:
- Monday – Friday      07:30 – 18:30

- Saturday 07:30 – 13:00
  - No deliveries will take place on Sundays or Public/Bank Holidays.
- 2.2.3. All delivery vehicles entering the site will park at the cabin by the weighbridge to undertake Duty of Care paperwork checks.
- 2.2.4. Where possible, the Weighbridge Operative Clerk will carry out a visual inspection of the incoming wastes before they are off-loaded in the waste reception hall. The Machine Operator within the tipping area will also visually check each load and escalate to the Shift Supervisor if any malodorous loads or non-conforming wastes are tipped. The vehicle driver will be advised to wait in case the loads needs to be rejected or dealt with separately.
- If wastes are accepted onto the site, details will be entered onto a computer system and a Waste Transfer Note prepared, consistent with fulfilling the company’s responsibilities under the provisions of the Duty of Care;
  - 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 by type and quantity.
- 2.2.5. Waste will only be received on site using sheeted skips/containers and following unloading will be stored within the waste reception building.
- 2.2.6. Waste deliveries will be prohibited from entering the site if the reception area is found to be at full capacity and there is insufficient space for storage of waste or incoming vehicles on site.
- 2.2.7. Any wastes which are found not to comply with the conditions of the Environmental Permit, or do not conform to the description provided by the waste carrier/producer will be rejected with records maintained.

### 2.3. Waste Storage and Handling on-site

- 2.3.1. The Operator will ensure that the relevant requirements detailed in ‘Section 2.1.3 Waste Storage’ of Sector Guidance Note ‘S5.06: Guidance on the Recovery and Disposal of Hazardous and Non-Hazardous Waste’, Environment Agency 2013 are incorporated into on-site procedures. Storage arrangements are detailed below for each generic waste type.
- 2.3.2. All activities will take place within the main reception building including tipping and storage of incoming waste, and storage of recyclable and reject materials with the exception of storage of baled SRF/RDF and the drying of waste to produce the SRF/RDF.
- 2.3.3. Within the building, a reception bay, which is approximately 2400m<sup>3</sup> and capable of storing 610 tonnes of waste, will be designated to receive incoming waste. Waste will remain here for a maximum of 24 hours before entering the process.
- 2.3.4. Wastes will be segregated to separate recyclable wastes from the waste received. The remaining bulk waste will be treated to produce SRF or RDF as outlined below. Details of storage of the separated materials is outlined in table 2.3.4 below.

**Table 2.3.16 Details the Storage Capacities of Each Segregated Waste Type.**

Waste types	Containment	Storage capacity (Tonnes)
Ferrous Metals	In the waste reception building in 35 yard skips	17.95

	separated from other materials by 6m.	
Non-Ferrous Metals	In the waste reception building in 16 yard skips separated from other materials by 6m.	8.45
Heavy wastes (including items such as bricks, wood, rocks, glass, some food waste)	In the waste reception building in 35 yard skips separated from other materials by 6m.	71.64
Fines	In the waste reception building in one 35 yard skip and one 16 yard skip separated from other materials by 6m.	41.54
PVC	In the waste reception building in 35 yard skips separated from other materials by 6m.	9.08
Temporary storage of wastes to be placed into the dryer	In bunker in reception area which has an impermeable floor	69.31
<b>Total</b>		<b>217.97</b>

- 2.3.5. The waste is loaded into the primary-shredder followed by screening to separate out the fines. Clean waste can bypass the primary shredder and be directly fed into the back feeder drum. The primary shredder has a dust suppressant system which reduces dust emissions.
- 2.3.6. The waste will then be passed through an overband magnet, eddy current separators and a near infrared optical sorter to remove any recyclables such as ferrous and non ferrous metals and plastics such as PVC. The removal of PVC will lead to a reduction in the chlorine emissions from the waste when it is finally used as a fuel.
- 2.3.7. Material is then shredded to the appropriate particle size which is dependent upon the output specification required. The secondary shredders also have dust suppressant technology which reduces dust emissions.
- 2.3.8. The shredded waste is transferred to a drum dryer which reduces the moisture content by heating the waste to a temperature of 80°C. The hot process air will be generated from the combustion of natural gas.
- 2.3.9. Treatment of the exhaust air from the dryer will consist of a baghouse filter which will reduce the dust content and a Regenerative Thermal Oxidiser which will minimise the odorous components in the exhaust gas. Once treated the gas will be released via a stack.
- 2.3.10. Once shredded and dried, the waste is then transferred to the baling and wrapping equipment.
- 2.3.11. Where the specification for production of solid recovered fuel (SRF) cannot be achieved from the input waste received, waste will be graded as refuse derived fuel (RDF). Production of RDF does not need to adhere to the same stringent specification as SRF and therefore doesn't require drying. RDF will follow the same process steps outlined above however it will bypass the drying process; shredded waste will in such case be transferred directly to the baler.

- 2.3.12. An RDF Monitoring Unit is used to evaluate the quality and composition of the RDF/SRF produced. The unit calculates and transmits the RDF net calorific value, chlorine content, moisture content and biogenic content to the SCADA system.
- 2.3.13. The baled waste is then wrapped with five layers of wrapping. This is necessary to protect the waste and keep the moisture content down. It also acts as a protection measure to prevent litter as all baled waste is to be stored externally to the main reception building under a canopy. Bales will be inspected daily to ensure that any splitting of wrapping is identified at an early stage and rectified immediately.
- 2.3.14. Bales will be stored to a maximum height of 3 metres. The storage area for bales of RDF/SRF is 267m<sup>2</sup>. There is storage capacity on site for approximately 600 bales.
- 2.3.15. It is anticipated that typical storage times for baled wastes will be less than 1 month. The maximum storage time will be 3 months. This is so sufficient loads are available to fill transportation containers to minimise vehicle movements and associated costs and environmental impact.
- 2.3.16. Appendix C contains a Process Flow Chart.

#### **General waste storage**

- 2.3.17. As stated above, waste will be delivered to the site in skips and bulk waste carriers, and once discharged will be stored within the main reception building. The waste will be sorted into different fractions, for recycling, recovery or disposal.
- 2.3.18. The reception building floor will be an impermeable surface capable of being cleaned, and will be discharged to sewer under a discharge consent with Dwr Cymru via a sealed drainage system.
- 2.3.19. The waste reception building will be fitted with roller shutter doors and kept under negative pressure with internal air being taken to the odour abatement system of the dryer.
- 2.3.20. Recyclates for example metals and plastics will be stored inside the building in bays following segregation undertaken in the reception building and will be removed off site for recycling.

## 3.0 EMISSIONS CONTROL

### 3.1. Overview of Releases

- 3.1.1 There are no point source emissions to land, groundwater or water (other than surface water). Foul drainage is discharged via sewer.
- 3.1.2 A qualitative assessment of emissions to air, water and land plus amenity and accident risks is provided in document reference CRM 083 002 PE R 005 Environmental Risk Assessment.

### 3.2. Control of Point Source Emissions to Air, Water and Land

- 3.2.1 There will be a single point source emission to air at Nine Mile Point Waste Processing Facility which arises from the waste dryer.
- 3.2.2 The point source is listed on the table below and marked on the installation boundary plan in the Drawings Section of this Application (Document Reference Installation Boundary CRM 083 002 PE D 002).

**Table 3.2.2: Point Source Emissions to Air**

Air Emission Point Reference and Location	Source of Emission	Emissions
A1 – Stack from dryer	Dryer	NO <sub>x</sub> , SO <sub>2</sub> , CO, CO <sub>2</sub> and particulates

- 3.2.3 Surface water drainage and clean run-off from the roof will be discharged via full retention interceptors to storage crates. Surface water will then be released to the existing surface water drains on the industrial estate. See document reference Site Drainage CRM 083 002 PE D 003.
- 3.2.4 Foul drainage from the reception building will be discharged to sewer under a discharge consent with Dwr Cymru. See document reference Site Drainage CRM 083 002 PE D 003.

### 3.3. Control of Fugitive Emissions to Air

- 3.3.1 The main sources of any fugitive emissions will be dust from waste handling and treatment.
- 3.3.2 Sector Guidance Note 'S5.06: Guidance on the Recovery and Disposal of Hazardous and Non-Hazardous Waste', Environment Agency 2013 references specific controls for minimisation of dust emissions in Section 2.2.4. Good management practices and procedures proposed will minimise emissions will prevent unacceptable levels of dust impacting local receptors as detailed on Table 3.3.3 below compared with indicative BAT requirements.

**Table 3.3.3: Indicative BAT Requirements for Control of Fugitive Emissions to Air (Dust)**

Requirement	Mitigation measures proposed by Operator	Meets requirements of TGN 5.06?
Covering of skips and vessels	Loaded vehicles are sheeted to minimise spillages and prevent wind-blown dust and litter.	Yes
Avoidance of outdoor or uncovered stockpiles (where possible)	There will be no outdoor stockpiles of waste other than baled RDF/SRF. All loose waste will be stored within the reception building.	Yes
Where dust creation is unavoidable, use of sprays, binders, stockpile management techniques, windbreaks and so on	All activities are carried out within the main reception building with the exception of drying. The dryer is fitted with a bag filter which will filter particulates from the air flow. Filtration efficiency will be <math><10\text{mg}/\text{m}^3</math>. The primary and secondary shredders are also fitted with dust suppressors which limit the output of dust to <math&gt;5\text{mg} \text{m}^3&lt;="" math&gt;.<="" td=""> <td data-bbox="1177 553 1398 909">Yes</td> </math&gt;5\text{mg}>	Yes
Regular wheel and road cleaning (avoiding transfer of pollution to water and wind blow)	Wheel cleaning will be in place on-site and will be employed as required on should inspection deem it necessary. Vehicles are inspected for mud, litter, dust and debris prior to leaving site.	Yes
Closed conveyors, pneumatic or screw conveying (noting the higher energy needs), minimising drops. Filters on the conveyors to clean the transport air prior to release	All processing activities are carried out within the main reception building. A dust suppression system will be in place, consisting of 4 dust suppression units. These units will collect dust and convert it to a solid form. The dust will be conveyed with the RDF output. Filtration efficiency will be <math&gt;5\text{mg} \text{m}^3&lt;="" math&gt;.<="" td=""> <td data-bbox="1177 1090 1398 1375">Yes</td> </math&gt;5\text{mg}>	Yes
Regular housekeeping	The site access road & hardstanding will be inspected by the Site Manager on a daily basis to determine the need for maintenance and cleaning, and litter picking. All departing road transport will be inspected for cleanliness, prior to leaving the site.  Paved roads will be swept and washed regularly as determined by Site Manager inspections.	Yes
Enclosed silos (for storage of bulk powder materials) vented to fabric filters. The recycling of collected material should be considered under Section 2.6.	Not applicable, no silos are required on-site.	Not applicable

Requirement	Mitigation measures proposed by Operator	Meets requirements of TGN 5.06?
Enclosed containers or sealed bags used for smaller quantities of fine materials	All material will be stored within a fully enclosed building except for the baled SRD/RDF. This will be wrapped five times and stored within a covered bay.	Yes

3.3.3 It can be concluded that the measures proposed to control fugitive emissions to air will meet the requirements laid out in Sector Guidance Note ‘S5.06: Guidance on the Recovery and Disposal of Hazardous and Non-Hazardous Waste’, Environment Agency 2013.

### 3.4. Control of Fugitive Releases to Water, Land and Groundwater

3.4.1 The main source of any fugitive emissions is site surface water drainage which is directed to storage crates via full retention interceptors then released into the industrial estate’s existing surface water drainage system. There are no wastes stored externally with the exception of baled RDF/SRF which will be wrapped five times and inspected for splits in the packaging. Any splits will be repaired immediately.

3.4.2 Wastes which may generate polluting leachates will be stored within the main reception building where hard standing will be installed and will discharge to sewer.

3.4.3 Silt traps and oil interceptors will be inspected on a regular basis to check their integrity and be maintained to prevent overflowing along with the site drainage system.

3.4.4 Operational procedures will ensure that hard standing areas are inspected for damage on a daily basis and any repairs are carried out promptly and to the original standard and specification.

3.4.5 All site personnel will be tasked with monitoring for evidence of spills and debris during their day to day routine. Any evidence of spills and debris will be reported to the Site Manager. Clean-up procedures will be implemented to contain and remove potentially polluting material. Records of any pollution incidents including corrective actions will be maintained. Natural Resources Wales will be notified as per requirements of the Environmental Permit.

3.4.6 Spill kits will be maintained in order to respond to any spill. The Operator will also have in place emergency measures to deal with any spillages (e.g. the deployment of absorbent mats and booms).

3.4.7 Training will be provided to all staff relating to the use of spill kits and the Spill Clean-Up Procedures.

3.4.8 All site personnel will be tasked with monitoring for evidence of spillages and leakage during their day to day routine. Any evidence of spillage or leakage will be reported to the Site Manager or his nominated deputy for remedial action.

3.4.9 Sector Guidance Note ‘S5.06: Guidance on the Recovery and Disposal of Hazardous and Non-Hazardous Waste’, Environment Agency 2013 references specific controls for minimisation of fugitive releases to water, sewer and groundwater in Section 2.2.5 which has been compared with measures proposed by the Operator in Table 3.4.10 below:

**Table 3.4.10: Indicative BAT Requirements for Control of Fugitive Emissions to Water and Groundwater**

Requirement	Mitigation measures proposed by Operator	Meets requirements of TGN 5.06?
<p>For surfacing:</p> <ul style="list-style-type: none"> <li>• Design appropriate surfacing and containment or drainage facilities for all operational areas, taking into consideration collection capacities, surface thicknesses, strength/reinforcement; falls, materials of construction, permeability, resistance to chemical attack, and inspection and maintenance procedures;</li> <li>• Have an inspection and maintenance programme for impervious surfaces and containment facilities;</li> <li>• Unless the risk is negligible, have improvement plans in place where operational areas have not been equipped with: <ul style="list-style-type: none"> <li>– an impervious surface</li> <li>– spill containment kerbs</li> <li>– sealed construction joints</li> <li>– connection to a sealed drainage system</li> </ul> </li> </ul>	<p>Waste materials are non-hazardous therefore the pollution risk is considered low.</p> <p>Drainage system is connected to an interceptor which is subject to regular inspection and maintenance.</p> <p>The waste reception building will be constructed on impermeable hard standing.</p> <p>All surfacing will be inspected regularly in accordance with the site's EMS.</p>	<p>Yes</p>
<p>Above ground tanks: All above-ground tanks containing liquids whose spillage could be harmful to the environment should be bunded.</p>	<p>No above ground storage tanks</p>	<p>Yes</p>
<p>All sumps should:</p> <ul style="list-style-type: none"> <li>• Be impermeable and resistant to stored materials;</li> <li>• Be subject to regular visual inspection and any contents pumped out or otherwise removed after checking for contamination;</li> <li>• Where not frequently inspected, be fitted with a high level probe and alarm, as appropriate;</li> <li>• Be subject to programmed engineering inspection (normally visual, but extending to water testing where structural integrity is in doubt).</li> </ul>	<p>There are no sumps</p>	<p>Yes</p>

3.4.10 It can be concluded that the measures proposed to control fugitive releases to water, land and groundwater will meet the requirements laid out in Sector Guidance Note 'S5.06:

*Guidance on the Recovery and Disposal of Hazardous and Non-Hazardous Waste*, Environment Agency 2013.

### 3.5. Control of Emissions of Odour

- 3.5.1 Handling and storage of waste on-site has the potential to generate odour. Odour emissions are considered in detail in document reference CRM 083 002 PE R 005 Environmental Risk Assessment. An onsite Odour Management Plan has also been provided as part of this application – see document reference CRM 083 002 PE R 008.
- 3.5.2 Only a small quantity of wastes stored on site have the potential to generate odour. Activities are limited to sorting, shredding, bailing, and bulking which are not inherently odorous compared with higher risk waste treatment activities. All of these activities are carried out within the main reception building, which is kept under negative pressure to prevent fugitive emissions of odorous air from the buildings. The waste reception building will be fitted with fast acting roller shutter doors. Exhaust gas emissions from the dryer have the potential to be odorous. Before release to air via a stack the gas will be treated firstly to remove dust in a baghouse filter then in the Regenerative Thermal Oxidiser (RTO). The RTO is specifically designed for odour control in difficult environments and odour destruction efficiency approaches 100%.
- 3.5.3 The emissions abatement system for the waste dryer, will also be used to treat odours from the waste reception and process building. Air extracted from the building will pass through the RTO where odours will be destroyed by the thermal oxidation process.
- 3.5.4 Whilst the dryer is operational approximately 60% of the time it will be operational during the hours in which waste is accepted into the facility thus ensuring its ability to combat odour when the doors are likely to be open.
- 3.5.5 Sector Guidance Note ‘S5.06: *Guidance on the Recovery and Disposal of Hazardous and Non-Hazardous Waste*’, Environment Agency 2013 references specific controls for minimisation of odorous emissions in Section 2.2.6 which has been compared with measures proposed by the Operator in Table 3.5.3 below:

**Table 3.5.3: Indicative BAT Requirements for Control of Odour**

Requirement	Mitigation measures proposed by Operator	Meets requirements of TGN 5.06?
Where odour can be contained, for example within buildings, the Operator should maintain the containment and manage the operations to prevent its release at all times.	All potentially odorous activities will be carried out within the main reception building, which will be kept under negative pressure.  Roller shutter doors will be fitted to the building  Good housekeeping measures will be put in place.  The Operator will adhere to the site’s Odour Management Plan  The Operator will implement an EMS with specific controls relating to minimising emissions of odour.	Yes

Requirement	Mitigation measures proposed by Operator	Meets requirements of TGN 5.06?
<p>Where odour releases are expected to be acknowledged in the Permit, (i.e. contained and treated prior to discharge or discharged for atmospheric dispersion) requirements are detailed in Section 2.2.6 of the sector guidance in relation to modelling of odour and plant design.</p>	<p>There is one potential point source of odour, from the stack on the dryer. However, before exhaust air is released from the stack it will be treated in an RTO which is designed to have an odour destruction efficiency approaching 100%.</p> <p>Odour generating wastes comprise a small proportion of wastes accepted on-site.</p> <p>All potentially odorous wastes are handled in the main reception building only.</p> <p>An Air Quality and Odour Assessment has been carried out. A copy of this can be found in Appendix D.</p>	<p>Yes</p>
<p>Where odour generating activities take place in the open, (or potentially odorous materials are stored outside) a high level of management control and use of best practice will be expected.</p>	<p>All potentially odorous wastes are handled in the main reception building only.</p> <p>Exhaust air from the drier is treated in an RTO prior to discharge which is designed to have an odour destruction efficiency approaching 100%.</p> <p>Baled RDF/SRF will be stored outside. Bales will be wrapped 5 times and regular inspections will be carried out to identify damaged bales. Any damaged bales will be brought back into the building to be re-wrapped.</p>	<p>Not applicable</p>
<p>Where an installation releases odours but has a low environmental impact by virtue of its remoteness from sensitive receptors, it is expected that the Operator will work towards achieving the standards described in this Note, but the timescales allowed to achieve this might be</p>	<p>Not applicable.</p>	<p>Not applicable.</p>

Requirement	Mitigation measures proposed by Operator	Meets requirements of TGN 5.06?
adjusted according to the perceived risk.		
The objective is to prevent emissions of odorous releases that are offensive and detectable beyond the site boundary. This may be judged by the likelihood of complaints. However, the lack of complaint should not necessarily imply the absence of an odour problem.	Noted.	Not applicable
Assessment of odour impact should cover a range of reasonably foreseeable odour generation and receptor exposure scenarios, including emergency events and the effect of different mitigation options.	This is presented in Document CRM 083 002 PE R 005 Environmental Risk Assessment.	Yes
For complex installations, for example where there are a number of potential sources of odorous releases or where there is an extensive programme of improvements to bring odour under control, an odour management plan should be maintained	Nine Mile Point Waste Processing Facility is not a complex installation however an Odour Management Plan has been submitted as part of this application to address the small volume of potentially odorous wastes proposed to be accepted on-site. See document reference CRM 083 002 PE R 008 Odour Management Plan.	Yes
Emphasis should be placed on pre-acceptance screening (see Section 2.1.1 on page 20) and the rejection of specific wastes, for example, mercaptans, low molecular weight amines, acrylates or other similarly highly odorous materials that are only suitable for acceptance under special handling requirements. These may include dedicated sealed handling areas with extraction to abatement.	Pre-acceptance measures meet the requirements of Section 2.1.1.	Yes

Requirement	Mitigation measures proposed by Operator	Meets requirements of TGN 5.06?
Scrubber liquors should be monitored to ensure optimum performance, i.e. correct pH, replenishment and replacement.	Not applicable as there are no scrubbing techniques employed on site.	Not applicable

3.5.6 It can be concluded that the measures proposed to control odour meet the requirements laid out in Sector Guidance Note ‘5.06: Guidance on the Recovery and Disposal of Hazardous and Non-Hazardous Waste’, Environment Agency 2013.

### 3.6. Site Security

3.6.1 The site will be surrounded by a perimeter fence. The main reception building and cabin will be locked when not in use.

3.6.2 Access to the site will generally be restricted to the workforce other than site visitors during opening hours. The location of the cabin will ensure that any persons or vehicles entering the site will be identified prior to accessing the main waste activity and storage areas.

3.6.3 Unauthorised access will not be permitted at any time. The site will be locked and secured when closed.

3.6.4 CCTV will be used onsite both to deter unauthorised access to the site, and to capture any unpermitted activity.

### 3.7. Management

3.7.1 The approach to permitting and regulation under the Environmental Permitting Regulations 2010 (as amended 2016) by Natural Resources Wales relies heavily upon the use of Environmental Management Systems (EMS) as a driver for environmental compliance and improvement. In England, under the Environmental Permitting Regime, modern regulation is fundamentally driven by applying a risk based approach to activities, where operators are encouraged to implement suitable management systems with which to operate, and to implement self-regulation and reporting. An operator who holds a permit under the Environmental Permitting (England & Wales) Regulations 2010 (as amended 2015) Natural Resources Wales is required to have an appropriate Environmental Management System in place.

3.7.2 Hazrem Environmental Ltd will be the operator of the proposed Facility. Once operations commence the Operator will work towards obtaining ISO14001 certification within 12 months of plant commissioning. The Quality, Health, Safety and Environmental Management System contents page is included in Appendix B which will be employed on-site from the outset of operations.

3.7.3 The Environmental Management System will meet Natural Resources Wales requirements as detailed in guidance document ‘How to comply with your Environmental Permit’.

### 3.8. Waste Recovery or Disposal

3.8.1 The waste processing facility will divert approximately 85% of the waste throughput from landfill by either recycling or recovery of waste.

3.8.2 There will be a negligible volume of waste generated by on-site operations, and most of this will be used within the process.

### 3.9. Noise

3.9.1. 'Noise Impact Assessment September 2015 Land at Nine Mile Point Industrial Estate, Caerphilly' has been carried out for the proposed facility, which is appended to the document CRM 083 002 PE R 005 Environmental Risk Assessment.

3.9.2. The assessment concluded that '*...subject to the implementation of the inherent design measures, noise from the proposed activities would be considered by the Standard to be an indication of the specific sound source having a low impact. As such it is considered that noise associated with the operation of the proposed facility, as defined within the scope of this report, would not be significantly detrimental to the noise climate of the area...'*

3.9.3. Sector Guidance Note 'S5.06: Guidance on the Recovery and Disposal of Hazardous and Non-Hazardous Waste', Environment Agency 2013 references specific controls for minimisation of noise emissions in Section 2.9: Noise which has been compared with measures proposed by the Operator in Table 3.8.2 below

**Table 3.9.3: Indicative BAT Requirements for Control of Noise and Vibration**

Requirement	Mitigation measures proposed by Operator	Meets requirements of TGN 5.06?
The Operator should employ basic good practice measures for the control of noise, including adequate maintenance of any parts of plant or equipment whose deterioration may give rise to increases in noise (for example, bearings, air handling plant, the building fabric, and specific noise attenuation kit associated with plant or machinery).	Operator will employ basic good practice measures for the control of noise. Equipment associated with waste processing is covered by a maintenance contract and/or a programme of planned preventative maintenance.	Yes
The Operator should employ such other noise control techniques necessary to ensure that the noise from the installation does not give rise to reasonable cause for annoyance, in the view of the Regulator. In particular, the Operator should justify where Rating Levels ( $L_{Aeq,T}$ ) from the installation exceed the numerical value of the Background Sound Level ( $L_{A90,T}$ ).	All noise generating equipment is located within the main process building, except for the dryer. A noise assessment has been undertaken for the site which confirms that the facility will have a low noise impact.	Yes
In some circumstances "creeping background" (i.e. creeping ambient) may be an issue.	All noise generating equipment is located within the main process building, except for the dryer. A noise assessment is being undertaken for the site and	Yes

Requirement	Mitigation measures proposed by Operator	Meets requirements of TGN 5.06?
	will be provided to NRW once complete.	
Further justification will be required should the resulting field rating level ( $L_{AR,TR}$ ) exceed 50 dB by day and a facade rating level exceed 45 dB by night, with day being defined as 07:00 to 23:00 and night 23:00 to 07:00.	Please see noise assessment appended to the document CRM 083 002 PE R 005 Environmental Risk Assessment.	Yes
Noise surveys, measurements, investigations (e.g. on sound power levels of individual items of plant) or modelling may be necessary for either new or for existing installations, depending upon the potential for noise problems. Where appropriate, the Operator should have a noise management plan as part of its management system.	Please see noise assessment appended to the document CRM 083 002 PE R 005 Environmental Risk Assessment.	Yes

3.9.4. It can be concluded that the measures proposed to control odour meet the requirements laid out in Sector Guidance *Note 'S5.06: Guidance on the Recovery and Disposal of Hazardous and Non-Hazardous Waste'*, Environment Agency 2013.

### 3.10. Accidents

3.10.1. An assessment of potential accidents and measures to reduce the risk of them occurring has been undertaken in line with Environment Agency H1 Part 1 Guidance for Environmental Risk Assessment (Annex a) – Amenity and Accidents and is included within the Environmental Risk Assessment (ERA) chapter of this permit application.

3.10.2. The site specific ERA and Odour Management Plans (OMP) prepared identify the potential hazards posed by the facility under both normal and abnormal operating conditions. An assessment of each hazard identified has been evaluated and the potential risk and prevention measures described.

3.10.3. Operational procedures which identify the actions to be taken to minimise the potential causes of accidents, and the consequences in the event of an accident occurring will be implemented through the site's Environment Management System.

3.10.4. All personnel will be provided with suitable training to ensure they are familiar with the site's Environment Management System and their individual responsibilities in the event of an incident.

3.10.5. A standalone Accident Management Plan (AMP) will be prepared for the site prior to full commissioning and operations commencing on site. A copy of the AMP will be submitted to Natural Resources Wales for their approval.

### 3.11. Monitoring

3.11.1 Pont source emissions to air will be subject to a programme of monitoring as detailed in table 3.11.1 below. The emission point sampling locations meet the requirements stipulated in Environment Agency document M1: Technical Guidance Note (Monitoring): sampling requirements for stack emissions monitoring.

**Table 3.11.1: Point Source Emissions to Air**

Emission Point Ref.	Description	Monitoring Frequency	Monitoring Standard or Methodology
A1	Dryer Stack Point source emission to be referenced within Permit	Annually	BS EN 14792 (NOx) BS EN 15058 (CO) BE EN 14791 (SO <sub>2</sub> ) BE EN 13284-1 (particulate matter) ISO 12039/TGN M22

3.11.2 There will be no point source emissions to groundwater, land or water.

3.11.3 Surface water and clean roof water drainage which is directed to the existing surface waste drainage system on the industrial estate.

3.11.4 There will be one point source emission to sewer which will be controlled by the sewerage undertaker's consent limits.

3.11.5 Table 3.11.4 below shows emissions points for discharge of surface water from the facility.

**Table 3.11.4: Point Source Emissions to Water and Land**

Emission Point Ref.	Parameter	Emission Limit Value	Comments	Discharges to
SW1 Approximate NGR: ST 19178 91244	Sediment and oil	No Limits Proposed	Surface water run-off from the site and full retention interceptor and clean roof water, (inspected visually).	Storage crates then existing surface water drain as shown on CRM083 002 PE D 003

3.11.6 Routine odour monitoring will be carried out when the site is handling potentially odorous materials. Full details are provided in the 'Odour Management Plan' submitted with this application reference CRM 083 002 PE R 008.

### 3.12. Decommissioning and Closure

3.12.1. The Operator will prepare a site closure plan in line with Natural Resources Wales Guidance in the event of cessation of operations on site. The Site Closure Plan will confirm how the site will be decommissioned to return it to a satisfactory state upon the cessation of activities. Records will be maintained of the location of facilities and infrastructure, as well as the services and sub-surface structures installed during the operating phases of the facility.

3.12.2. De-commissioning will be in compliance with procedures outlined in the Site Closure Plan. If areas of deterioration during the operation of the site are identified these areas will be re-examined and the site will be returned to a satisfactory state as defined at the Permit application stage.

### **3.13. Operator Competency**

3.13.1. As construction of the facility has not yet commenced, and the site isn't going to be operational for some time, the Technically Competent Manager for the site has not been confirmed. Hazrem Environmental Ltd would welcome the appointment of a Technically Competent Manager as a pre-operational condition.

## 4.0 RECORDS AND REPORTING

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### 4.1. General Overview

4.1.1 The operator will ensure the following information is recorded:

- Any material changes to the site layout and operations;
- Site inspections by the operator or other body and any subsequent issues and corrective actions taken;
- Emergencies;
- Complaints and actions taken;
- Critical plant/equipment failure;
- A record of any rejection of waste;
- Records relating to pre-acceptance for cross-reference and verification at the waste acceptance stage;
- Technically competent manager – attendance on site;
- Any Incidents/accidents on site and actions taken;
- Security failures;
- Severe weather conditions;
- Waste accepted and dispatched from the site;
- Natural Resources Wales Compliance Assessment Reports (CARs); and
- Details of emissions reportable incidents in accordance with the Permit.

4.1.2 All records will be held in the site office and will be available on request. All records, which are required under the conditions of the Environmental Permit, will be maintained and kept secure from loss, damage or deterioration for a minimum period of 3 years. Any records held electronically will be backed up on a regular basis.

4.1.3 Electronic back up records will be held in the company's head office.

### 4.2. Reporting

4.2.1 As part of the sites Environment Management System, audits will be carried out on an annual basis to check that all activities are being carried out in line with the requirements of the Environmental Permit, Management Procedures and associated legislation.

4.2.2 A summary record of the waste types and quantities received and removed from the site will be made at the frequencies and in a format to be agreed in writing with Natural Resources Wales.

4.2.3 Records of internal site inspections by the Site Manager will be logged and available for inspection by Natural Resources Wales during routine audits.

## APPENDICES

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## **Appendix A – List of Permitted Waste Types**

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<b>Nine Mile Point Waste Processing Facility - Waste types</b>	
<b>Waste Code</b>	<b>Description</b>
<b>02</b>	<b>WASTE FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING</b>
<b>02 01</b>	<b>wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing</b>
02 01 03	plant-tissue waste
02 01 04	waste plastics (except packaging)
02 01 07	wastes from forestry
<b>03</b>	<b>WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD</b>
<b>03 01</b>	<b>wastes from wood processing and the production of panels and furniture</b>
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
<b>03 03</b>	<b>wastes from pulp, paper and cardboard production and processing</b>
03 03 01	waste bark and wood
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
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
<b>04</b>	<b>WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES</b>
<b>04 02</b>	<b>wastes from the textile industry</b>
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)
04 02 15	wastes from finishing other than those mentioned in 04 02 14
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
<b>07</b>	<b>WASTES FROM ORGANIC CHEMICAL PROCESSES</b>
<b>07 02</b>	<b>Wastes from the MFSU of plastics, synthetic rubber and man-made fibres</b>
07 02 13	waste plastic
<b>09</b>	<b>WASTES FROM THE PHOTOGRAPHIC INDUSTRY</b>
<b>09 01</b>	<b>wastes from the photographic industry</b>
09 01 08	photographic film and paper free of silver or silver compounds
<b>15</b>	<b>WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED</b>
<b>15 01</b>	<b>packaging (including separately collected municipal packaging waste)</b>

<b>Nine Mile Point Waste Processing Facility - Waste types</b>	
<b>Waste Code</b>	<b>Description</b>
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 09	textile packaging
<b>15 02</b>	<b>absorbents, filter materials, wiping cloths and protective clothing</b>
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
<b>16</b>	<b>WASTES NOT OTHERWISE SPECIFIED IN THE LIST</b>
<b>16 01</b>	<b>end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)</b>
16 01 19	plastic
<b>17</b>	<b>CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)</b>
<b>17 02</b>	<b>wood, glass and plastic</b>
17 02 01	wood
17 02 03	plastic
<b>17 09</b>	<b>other construction and demolition waste</b>
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03.
<b>18</b>	<b>WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED RESEARCH (except kitchen and restaurant wastes not arising from immediate health care)</b>
<b>18 01</b>	<b>Wastes from natal care, diagnoses, treatment or prevention of disease in humans</b>
18 01 04	Wastes whose collection and disposal is not subject to special requirements in order to prevent infection (for example dressings, plaster casts, linen, disposable clothing, diapers)
<b>19</b>	<b>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</b>
<b>19 02</b>	<b>wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)</b>
19 02 03	Premixed wastes composed of only non-hazardous wastes

<b>Nine Mile Point Waste Processing Facility - Waste types</b>	
<b>Waste Code</b>	<b>Description</b>
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
<b>19 04</b>	<b>vitrified waste and wastes from vitrification</b>
19 04 01	vitrified waste
<b>19 05</b>	<b>19 05 wastes from aerobic treatment of solid wastes</b>
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
<b>19 10</b>	<b>Wastes from shredding of metal-containing wastes</b>
19 10 04	Fluff-light fraction and dust other than those mentioned in 19 10 03
<b>19 12</b>	<b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified</b>
19 12 01	paper and cardboard
19 12 04	plastic and rubber
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 10	combustible waste (refuse derived fuel)
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
<b>20</b>	<b>MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS</b>
<b>20 01</b>	<b>separately collected fractions (except 15 01)</b>
20 01 01	paper and cardboard
20 01 10	clothes
20 01 11	textiles
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
20 01 40	metals
<b>20 02</b>	<b>garden and park wastes (including cemetery waste)</b>
20 02 03	other non-biodegradable waste
<b>20 03</b>	<b>other municipal wastes</b>
20 03 01	mixed municipal waste

Nine Mile Point Waste Processing Facility - Waste types	
Waste Code	Description
20 03 02	waste from markets
20 03 03	street-cleaning residues
20 03 07	bulky waste

## Appendix B – Contents Page of EMS

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## Appendix C - Process Flow

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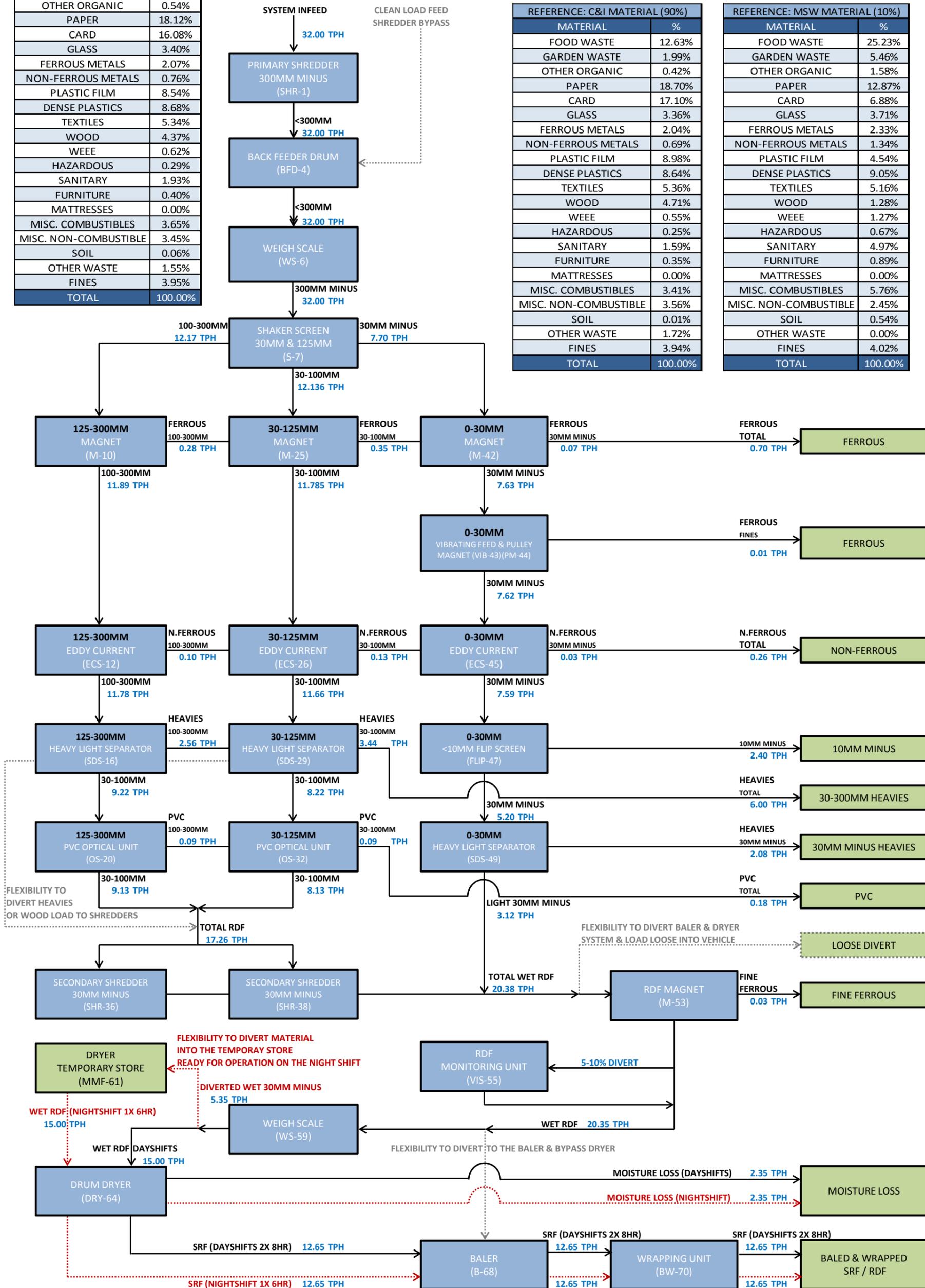
REFERENCE: COMBINED INPUT	
MATERIAL	%
FOOD WASTE	13.89%
GARDEN WASTE	2.34%
OTHER ORGANIC	0.54%
PAPER	18.12%
CARD	16.08%
GLASS	3.40%
FERROUS METALS	2.07%
NON-FERROUS METALS	0.76%
PLASTIC FILM	8.54%
DENSE PLASTICS	8.68%
TEXTILES	5.34%
WOOD	4.37%
WEEE	0.62%
HAZARDOUS	0.29%
SANITARY	1.93%
FURNITURE	0.40%
MATTRESSES	0.00%
MISC. COMBUSTIBLES	3.65%
MISC. NON-COMBUSTIBLE	3.45%
SOIL	0.06%
OTHER WASTE	1.55%
FINES	3.95%
<b>TOTAL</b>	<b>100.00%</b>

**HAZREM- 32 TPH - RDF PREPARATION PLANT**  
**SCENARIO #1A - 90% C&I + 10% MSW**

GENERAL NOTE: This flow diagram is based on the interpretation of the material breakdown values transferred with this Flow Chart. Any major modification to the incoming material breakdown will affect this flow chart as well as the mass balance and the system performances. System performances are related to sorters efficiency, material variations, equipment maintenance, etc.

REFERENCE: C&I MATERIAL (90%)	
MATERIAL	%
FOOD WASTE	12.63%
GARDEN WASTE	1.99%
OTHER ORGANIC	0.42%
PAPER	18.70%
CARD	17.10%
GLASS	3.36%
FERROUS METALS	2.04%
NON-FERROUS METALS	0.69%
PLASTIC FILM	8.98%
DENSE PLASTICS	8.64%
TEXTILES	5.36%
WOOD	4.71%
WEEE	0.55%
HAZARDOUS	0.25%
SANITARY	1.59%
FURNITURE	0.35%
MATTRESSES	0.00%
MISC. COMBUSTIBLES	3.41%
MISC. NON-COMBUSTIBLE	3.56%
SOIL	0.01%
OTHER WASTE	1.72%
FINES	3.94%
<b>TOTAL</b>	<b>100.00%</b>

REFERENCE: MSW MATERIAL (10%)	
MATERIAL	%
FOOD WASTE	25.23%
GARDEN WASTE	5.46%
OTHER ORGANIC	1.58%
PAPER	12.87%
CARD	6.88%
GLASS	3.71%
FERROUS METALS	2.33%
NON-FERROUS METALS	1.34%
PLASTIC FILM	4.54%
DENSE PLASTICS	9.05%
TEXTILES	5.16%
WOOD	1.28%
WEEE	1.27%
HAZARDOUS	0.67%
SANITARY	4.97%
FURNITURE	0.89%
MATTRESSES	0.00%
MISC. COMBUSTIBLES	5.76%
MISC. NON-COMBUSTIBLE	2.45%
SOIL	0.54%
OTHER WASTE	0.00%
FINES	4.02%
<b>TOTAL</b>	<b>100.00%</b>



**HAZREM- 32 TPH - RDF PREPARATION PLANT**  
**SCENARIO #1A - 90% C&I + 10% MSW**

**GENERAL NOTE:** This flow diagram is based on the interpretation of the material breakdown values transferred with this Flow Chart. Any major modification to the incoming material breakdown will affect this flow chart as well as the mass balance and the system performances. System performances are related to sorters efficiency, material variations, equipment maintenance, etc.



<b>SCENARIO #1A: 90% C&amp;I + 10% MSW</b>	
<b>OPERATION OF THE PLANT - WITH DRYER</b>	
<b>IN-FEED TONNAGE</b>	<b>32 TPH</b>
<b>SRF GENERATED (DAY SHIFTS)</b>	<b>12.65 TPH</b>
<b>SRF GENERATED (NIGHT SHIFT)</b>	<b>4.51 TPH</b>
DAYS OF OPERATION	5 PER WEEK
WEEKS OF OPERATION	52 PER YEAR
BANK HOLIDAYS	8 PER YEAR
<b>TOTAL DAYS OF OPERATION</b>	<b>252 DAYS PER YEAR</b>
<b>DAY SHIFTS</b>	
NUMBER OF SHIFTS	2 PER DAY
NUMBER OF HOURS (excl. break or cleaning)	8 PER SHIFT
CLEANING & MAINTENANCE BREAK	1 PER SHIFT
<b>TOTAL HOURS OF OPERATION (DAY SHIFT)</b>	<b>14 HOURS PER DAY</b>
<b>NIGHT SHIFT</b>	
NUMBER OF SHIFTS	1 PER DAY
NUMBER OF HOURS (excl. break or cleaning)	6 PER SHIFT
CLEANING & MAINTENANCE BREAK	1 PER SHIFT
<b>TOTAL HOURS OF OPERATION (DAY SHIFT)</b>	<b>5 HOURS PER DAY</b>
<b>TOTAL HOURS OF OPERATION (DAY SHIFTS)</b>	<b>3,528 HOURS PER YEAR</b>
<b>TOTAL HOURS OF OPERATION (NIGHT SHIFT)</b>	<b>1,260 HOURS PER YEAR</b>
PLANT AVAILABILITY	90%
<b>TOTAL HOURS OF OPERATION (with availability / DAY SHIFTS)</b>	<b>3,175 HOURS PER YEAR</b>
<b>TOTAL HOURS OF OPERATION (with availability / NIGHT SHIFT)</b>	<b>1,134 HOURS PER YEAR</b>
<b>TONNAGE PROCESSED (TPA)</b>	<b>101,606 TONNES PER YEAR</b>
<b>SRF GENERATED - DAY SHIFTS (TPA)</b>	<b>40,167 TONNES PER YEAR</b>
<b>SRF GENERATED - NIGHT SHIFT (TPA)</b>	<b>5,118 TONNES PER YEAR</b>
<b>SRF GENERATED - TOTAL (TPA)</b>	<b>45,285 TONNES PER YEAR</b>

<b>EXPECTED FUEL SPECIFICATIONS (WITH DRYER) - DAY SHIFTS</b>		
SPECIFICATION	UNIT	PRODUCED RDF SPECIFICATION
HOURLY RATE	T/H	12.65
DAILY RATE	T/D	159
YEARLY RATE	T/Y	40,167
MOISTURE	WT%	15.00
ASH, dry	WT%	13.98
GROSS CALORIFIC VALUE, as received	MJ/KG	18.12
NET CALORIFIC VALUE, as received	MJ/KG	16.89
PHYSICAL SIZE	MM	90% efficiency < 30mm x 30mm (in 3D) 98% efficiency < 50mm x 50mm (in 3D)
SULPHUR CONTENT, dry ash-free	WT%	0.19
CHLORINE CONTENT, dry ash-free	WT%	0.65
NITROGEN CONTENT, dry ash-free	WT%	1.06
CARBON CONTENT, dry ash-free	WT%	55.65
HYDROGEN CONTENT, dry ash-free	WT%	7.67
OXYGEN CONTENT, dry ash-free	WT%	34.77
BIOGENIC CONTENT, dry ash-free	WT%	67.91

<b>EXPECTED FUEL SPECIFICATIONS (WITH DRYER) - NIGHT SHIFTS</b>		
SPECIFICATION	UNIT	PRODUCED RDF SPECIFICATION
HOURLY RATE	T/H	4.51
DAILY RATE	T/D	20
YEARLY RATE	T/Y	5,118
MOISTURE	WT%	15.00
ASH, dry	WT%	13.98
GROSS CALORIFIC VALUE, as received	MJ/KG	18.12
NET CALORIFIC VALUE, as received	MJ/KG	16.89
PHYSICAL SIZE	MM	90% efficiency < 30mm x 30mm (in 3D) 98% efficiency < 50mm x 50mm (in 3D)
SULPHUR CONTENT, dry ash-free	WT%	0.19
CHLORINE CONTENT, dry ash-free	WT%	0.65
NITROGEN CONTENT, dry ash-free	WT%	1.06
CARBON CONTENT, dry ash-free	WT%	55.65
HYDROGEN CONTENT, dry ash-free	WT%	7.67
OXYGEN CONTENT, dry ash-free	WT%	34.77
BIOGENIC CONTENT, dry ash-free	WT%	67.91

<b>SCENARIO #1A: 90% C&amp;I + 10% MSW</b>	
<b>OPERATION OF THE PLANT - WITHOUT DRYER</b>	
<b>IN-FEED TONNAGE</b>	<b>32 TPH</b>
<b>RDF GENERATED</b>	<b>20.35 TPH</b>
DAYS OF OPERATION	5 PER WEEK
WEEKS OF OPERATION	52 PER YEAR
BANK HOLIDAYS	8 PER YEAR
<b>TOTAL DAYS OF OPERATION</b>	<b>252 DAYS PER YEAR</b>
<b>DAY SHIFTS</b>	
NUMBER OF SHIFTS	2 PER DAY
NUMBER OF HOURS (excl. break or cleaning)	8 PER SHIFT
CLEANING & MAINTENANCE BREAK	1 PER SHIFT
<b>TOTAL HOURS OF OPERATION (DAY SHIFT)</b>	<b>14 HOURS PER DAY</b>
<b>TOTAL HOURS OF OPERATION</b>	<b>3,528 HOURS PER YEAR</b>
PLANT AVAILABILITY	90%
<b>TOTAL HOURS OF OPERATION (with availability)</b>	<b>3,175 HOURS PER YEAR</b>
<b>TONNAGE PROCESSED (TPA)</b>	<b>101,606 TONNES PER YEAR</b>
<b>RDF GENERATED</b>	<b>64,621 TONNES PER YEAR</b>

<b>EXPECTED FUEL SPECIFICATIONS (WITHOUT DRYER)</b>		
SPECIFICATION	UNIT	PRODUCED RDF SPECIFICATION
HOURLY RATE	T/H	20.35
DAILY RATE	T/D	256
YEARLY RATE	T/Y	64,621
MOISTURE	WT%	26.46
ASH, dry	WT%	13.98
GROSS CALORIFIC VALUE, as received	MJ/KG	15.68
NET CALORIFIC VALUE, as received	MJ/KG	14.61
PHYSICAL SIZE	MM	90% efficiency < 30mm x 30mm (in 3D) 98% efficiency < 50mm x 50mm (in 3D)
SULPHUR CONTENT, dry ash-free	WT%	0.19
CHLORINE CONTENT, dry ash-free	WT%	0.65
NITROGEN CONTENT, dry ash-free	WT%	1.06
CARBON CONTENT, dry ash-free	WT%	55.65
HYDROGEN CONTENT, dry ash-free	WT%	7.67
OXYGEN CONTENT, dry ash-free	WT%	34.77
BIOGENIC CONTENT, dry ash-free	WT%	67.91



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