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Environmental Risk Assessment
EPR/GB3490HG/A001

Nine Mile Point Waste Processing Facility

Hazrem Environmental Ltd

CRM 083 002

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Environmental Risk Assessment - CRM 083 002 PE R 005A

Project:	Nine Mile Point Waste Processing Facility
For:	Hazrem Environmental Ltd
Status:	DRAFT
Date:	September 2015
Author:	Steph Charnaud, Senior Consultant
Reviewer:	Peter Cumberlidge, Director

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Tables & Figures

1.0 INTRODUCTION

1.1. Scope of Assessment

1.1.1. This Environmental Risk Assessment has been completed to support the Environmental Permit application for a Waste Processing Facility in the Cwmfelinfach area of Caerphilly by Hazrem Environmental Ltd (hereby referred to as "the Operator"). This report has been prepared in response to Question 6 on the Natural Resources Wales Application Form Part B2.

1.1.2. A number of assessments have been considered to determine the environmental risks posed by the waste operation and to identify whether the level of risk is considered acceptable, in accordance with the guidance as described within the Environment Agency's H1 Environmental Risk Assessment – Overview v2.1 December 2011 and associated annexes.

1.1.3. This report contains justification for all risk assessments completed or screened out from requiring further consideration, and provides an overall assessment of the acceptability of the proposed waste facility.

1.1.4. Waste will be delivered to the site during the following operational hours:

- Monday – Friday 07:30 – 18:30
- Saturday 07:30 – 13:00
- No handling operations will take place on Sundays or Public/Bank Holidays.

1.1.5. The site will be operational 24 hours a day 7 days a week.

1.2. Site Location and Environmental Setting

1.2.1. The Facility will be located at:

Nine Mile Point Industrial Estate

Ynysddu,

Cwmfelinfach,

Caerphilly,

NP11 7HZ

1.2.2. The National Grid Reference for the site is: **ST 19235 91305.** The site covers an area of approximately 1.09 hectares and is currently undeveloped. The site is bordered by an 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.

1.2.3. The nearest residential properties are on New Road, approximately 470m North East of the eastern edge of the site boundary and William Street, approximately 478m West of the western edge of the site boundary.

1.2.4. The prevailing winds at this site are from the west, west north west and west south west (based on regular observations recorded at the 'Caerphilly' monitoring station between April 2013 and May 2015 (www.windfinder.com)). Output for this station is included as appendix B.

1.3. Emissions and Associated Hazards

1.3.1. The Operator is applying for a bespoke Waste Installation Environmental Permit to operate a Waste Processing Facility. The site will deal with a maximum of 100,000 tonnes of waste per annum. This will comprise industrial, commercial and household wastes.

1.3.2. This report follows the Environment Agency's Horizontal Guidance Notes H1 for Environmental Risk Assessments for installation Permits. This guidance identifies the following potential risks to the environment which must be considered and included in the assessment, if they are likely to be present:

- Odour Impacts;
- Noise and Vibration Impacts
- Impacts from Accidents;
- Fugitive Emissions to Air and Water;
- Controlled releases to Air;
- Controlled discharges to Surface Waters;
- Controlled discharges to ground or groundwater;
- Site Waste;
- Global Warming Potential.

1.4. Nearby Sensitive Receptors

1.4.1. Key receptors that have the potential to be impacted by emissions from the site are summarised in Table 1.4.1A below. Natural Resources Wales Heritage and Conservation Screening Report showed there to be no statutory designated sites near the facility.

Table 1.4.1: Sensitive Receptors

Receptor	Type	Distance (m)	Direction
The site is located close to other Industrial and Commercial units on the Nine Mile Point Industrial Estate. These lie to the east and west of the site. The closest of these is immediately adjacent to the facility.	Commercial	0	E
Sirhowy River	Ecological	35	S
Agricultural Land	Agricultural	150	S
Residential properties at New Road, Wattsville	Residential	470	NE
Residential Properties at William Street, Cwmfelinfach	Residential	478	W

1.5. Point Source Emissions

1.5.1. There will be one point source emission to air at the Nine Mile Point Waste Processing Facility arising from the dryer. This is located outside the waste reception and processing building.

Table 1.5.1: Point Source Emissions to Air

Air Emission Point Reference and Location	Receiving Media	Source of Emission
A1	Release into the Atmosphere	Dryer exhaust gas from stack

1.5.2. There will be no point source emissions to groundwater or water aside from surface water and clean roof water drainage from the site as described on Table 1.5.2 below.

Table 1.5.2: Point Source Emissions to Water

Emission Point Ref.	Potential Emissions	Pollution prevention measures	Comments	Discharges to
SW Outfall Approximate NGR: ST 19178 91244	Sediment and oils	Class 1 full retention interceptor with alarm	Surface water run-off from site and oil interceptor and clean roof water (inspected visually)	Storage crates then into existing surface water drain. Drawing reference CRM 083 002 PR D 003 Site Drainage.
S1 Public Sewer Approximate NGR: ST 19245 91225	Leachate from waste storage	Emissions controlled by Dwr Cymru	Process emissions from waste storage and treatment.	Public sewer via a trade effluent issued by Dwr Cymru

1.5.3. The whole site will be located on an impermeable hardstanding. Waste will be brought onto site and placed in the Waste Reception Building for segregation. The floor of this building will be impermeable hard standing and drain to foul sewer and be regulated by Dwr Cymru/Welsh Water.

2.0 ENVIRONMENTAL RISK ASSESSMENTS

2.1. Scope of Assessments Completed

2.1.1. A number of assessments have been considered to determine the environmental risks posed by the facility and to identify whether the level of risk is considered acceptable.

2.1.2. In accordance with Environment Agency Guidance EPR H1, the following annexes should be used to assess the potential impacts on sensitive receptors from 'Other Waste operations' which includes this proposed facility:

- Annex (A): Amenity and Accidents;
- Annex (D): Surface Water (basic);
- Annex (F): Air;
- Annex (G): Site Waste;
- Annex (H): Global Warming Potential; and,
- Annex (K): Justifying and Cost Benefit Analysis of Control Measures.

2.1.3. As there will be no point source emissions to water (other than surface water), an Annex D assessment has not been undertaken as part of this Environmental Risk Assessment. Foul drainage is discharged via sewer.

2.1.4. Annex K, a cost benefit analysis, has not been undertaken as part of this Environmental Risk Assessment as no more than one option for the site is being considered.

2.1.5. A Noise Assessment will be carried out in accordance with BS4142: 1997 *'Method for rating noise* affecting *mixed residential and industrial areas'.*

2.1.6. The proposed Waste Processing Facility will be operated in compliance with requirements detailed in the relevant technical guidance notes, specifically the Environment Agency's *Technical Guidance Note S5.06, Guidance for the Recovery and Disposal of Hazardous and Non- Hazardous Waste*. Techniques to minimise the environmental impacts associated with the facility are outlined in the Operations Techniques and Monitoring Plan and in the Risk Assessments presented in Appendix A of this report.

2.2. Annex A - Amenity and Accidents Overview

2.2.1. A summary of the amenity and accident risks from the proposed installation facility is provided in Appendix A to this report. The potential impact of risks identified to nearby sensitive receptors have been determined to be either insignificant, or insignificant following the application of appropriate mitigation and control measures. The key risks, mitigation and control measures proposed at Nine Mile Point Waste Facility are further summarised below.

2.2.2. It was agreed during pre-application discussion which were carried out with David Willey, PPC Officer (Installations) of Natural Resources Wales (NRW) on 11th May 2015 that there will be improvement conditions, post permit issue, requiring the submission of an accident management plan and a fire prevention plan.

2.3. Accidents

2.3.1. There is potential for exposure from accidents or incidents on site to anyone living or working close to the site. The key sensitive receptors identified include the neighbouring industrial units and local human population.

2.3.2. Key potential hazards identified include, on site hazards from machinery and vehicles, fires resulting from arson and vandalism and accidental fires. Although these are recognised as potential risks the likelihood of them occurring remains low.

2.3.3. It was agreed during pre-application discussions that a fire prevention plan and an accident management plan will be submitted as part of an improvement condition, post permit issue.

2.3.4. Based on the output of the risk assessment in Appendix A, the potential risk from accidents is low. Proposed management and mitigation controls will ensure that all activities will be managed and operated in accordance with the Integrated Management System Policy which brings together all Quality, Environmental and Occupational Health and Safety requirements (which will include site security measures to prevent unauthorised access, and fire and spillage procedures).

2.3.5. Full details of control measures to minimise the impact of accidents compared with requirements detailed in the relevant technical guidance notes is described in the Operations Techniques and Monitoring Plan.

2.4. Odour

2.4.1. There is potential for exposure to odour to anyone living or working close to the site. Key potential impacts identified include odour from waste delivery vehicles and vehicles transporting the RDF/SDF off site, odours from the reception building and odours from the heat treatment/drying process.

2.4.2. The key sensitive receptors identified for odour are considered to be users of the Nine Mile Point Industrial Estate adjacent to the facility, and residents of the Wattsville to the east of the facility and Cwmfelinfach to the west of the facility although the residents are some 470m or more from the facility. Recreational users of the Sirhowy River (South) may also become sensitive receptors if any major odour incident occurred.

2.4.3. An Odour Assessment was carried out by Air Quality Consultants Ltd in August 2014 in order to assess the potential odour risks posed by the facility. A copy of their assessment is provided in Appendix C of this report.

2.4.4. Potential odour sources are most likely to arise from odorous components of the general waste stream. Only a small proportion of wastes accepted and stored on-site are likely to generate odorous emissions amounting to approximately no more than 10% of the waste throughput. The facility shall use the 'first- in', 'first-out' waste handling practices, reducing as far as possible the residency time of materials on site. Emissions from the waste reception and processing building will be directed through the Regenerative Thermal Oxidiser (RTO) on the dryer prior to release to atmosphere.

2.4.5. The dryer stack is also a potential source of odorous emissions. To reduce the likelihood of odorous releases from the dryer stack all exhaust gases will be passed through an RTO which will reduce up to 100% of odorous emissions.

2.4.6. There are a number of sources at the waste processing facility where there is a potential for odours to be released into the outside environment. The main potential odour sources have been identified and a detailed inventory of potential odour sources along with appropriate mitigation and control measures is provided in the Odour Management Plan (OMP) produced

specifically for Nine Mile Point Waste Facility. A copy of the OMP is provided within this permit application as Chapter 8. The Site Manager will be responsible for implementing the OMP.

2.4.7. Following treatment of odorous emissions by the Regenerative Thermal Oxidiser, and by employing the techniques outlined in the Odour Management Plan, odour is not anticipated to cause a significant impact.

2.5. Noise and vibration

2.5.1. In addition to the qualitative assessment, as there are noise generating sources on-site, impact from noise has been *assessed* in accordance with Environment Agency's Horizontal Guidance for *Noise H3 Part 2 – Noise Assessment and Control* and BS4142: 2014 *'Method for rating and assessing industrial and commercial sound'*, as part of the supporting information to accompany this permit application. A copy of the report *'Noise Impact Assessment September 2015 Land at Nine Mile Point Industrial Estate, Caerphilly'* is attached as Appendix C to this report.

2.5.2. The assessment concluded that *'...,subject to the implementation of the inherent design measures, noise from the proposed activities would be considered by the Standard 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 and should not preclude the granting of planning permission on the grounds of noise, subject to the implementation of appropriate mitigation measures'.*

2.5.3. Full details of control measures to minimise noise emissions compared with requirements detailed in Sector Guidance Note *'S5.06: guidance on the recovery and Disposal of Hazardous and Non-Hazardous Waste'* Environment Agency 2004 is described in the Operations Techniques and Monitoring Plan.

2.6. Fugitive Emissions to Air

2.6.1. The key sensitive receptors identified in close proximity to the site are users of Nine Mile Point Industrial Park, residents of the Wattsville to the east and Cwmfelinfach to the west.

2.6.2. Fugitive emissions considered as potential hazards from the facility include the generation of dust, release of particulate matter and release of odours which is covered in Section 2.4 above.

2.6.3. The primary potential sources for fugitive releases to air are likely to be from the waste reception building and the drying of the waste.

2.6.4. All waste acceptance, processing and storage will take place inside the building with exception of the drying process.

2.6.5. A dust suppression system will be in place in the waste reception and processing building, consisting of four dust suppression units. These units will collect dust and convert it to a solid form. The solid dust will then be conveyed with the RDF output. Filtration efficiency will be 5mg/m^3.

2.6.6. The dryer has a baghouse filter which will reduce emissions of dust and particulates to <10mg/m^3 and a Regenerative Thermal Oxidiser which will reduce up to 100% of odorous emissions.

2.6.7. Air from the waste acceptance and processing building will the directed through the Regenerative Thermal Oxidiser on the dryer to destroy odours.

2.6.8. Activities on site will be managed in accordance with the operator's management systems. This will include regular inspections and maintenance of equipment, including all point source emissions to air to ensure risks of fugitive emissions from site are kept to a minimum.

2.6.9. The assessment in Appendix A concludes that the potential hazard from fugitive emissions to air is considered to be low based on the control measures in place.

2.6.10. As stated in Section 2.4, a standalone Odour Management Plan has been prepared to support this permit application and is provided within this application as Chapter 8. The approved plan will be included within the site's operational environment management system

2.6.11. Full details of control measures to minimise fugitive emissions to air compared with requirements detailed in the relevant technical guidance notes is described in the Operations Techniques and Monitoring Plan in Chapter 5 .

2.7. Fugitive Emissions to Water and Land

2.7.1. The site is over a Groundwater Vulnerability Zone which is a minor aquifer with high leaching potential. There are no groundwater or surface water abstraction licences within 2km of the facility. Receptors identified are the ground and groundwater beneath the site. The site is not within a Source Protection Zone.

2.7.2. The site has been engineered to provide robust containment to minimise risks of fugitive emissions to groundwater. Full details of containment measures for liquids stored on-site are provided in Section 3.6 of the Operational Techniques and Monitoring Plan and are summarised below.

2.7.3. Activities will be managed in accordance with the operator's management systems, and all areas that have the potential for contaminated run-off will be sealed and serviced with a secondary containment system.

2.7.4. Training will be provided to all staff relating to the use of spill kits and the spill clean-up procedures.

2.7.5. 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.

2.7.6. Any liquor generated within the waste reception building will be directed to foul sewer and be regulated by a trade effluent consent by Dwr Cymru.

2.7.7. Surface water from the external areas of site will drain to a storage crates located near the entrance to the building. Surface water will then be released to the existing surface water drainage system on the industrial estate. All surface water run-off will pass through full retention separators. These will be inspected on a regular basis to check their integrity and be maintained to prevent overfilling.

2.7.8. Full details of control measures to minimise fugitive emissions to water compared with requirements detailed in the relevant technical guidance notes is described in the Operational Techniques and Monitoring Plan.

2.7.9. Based on the output of the risk assessment in Appendix A of this report, the potential risk to the environment from fugitive emissions to water is considered to be low. The main pollutant risks would be sediment from run-off from stockpiles which are not contained and oils from accidental release from the fuel oil store.

2.8. Pests

2.8.1. The key sensitive receptors identified for pests include the local human population, and users of the site itself. Potential hazards include vermin and flies attracted to wastes delivered and stored on site. Areas which could attract pests are the reception building and stored RDF/SRF.

2.8.2. The facility has been designed and will be operated in such a way that the attraction of animals, vermin, pests and flies is reduced to a minimum. All waste acceptance activities are carried out within a building. Wastes arriving at the site will be managed using the 'first-in', 'first-out waste handling practice, reducing as far as possible the storage time of untreated materials at the facility.

2.8.3. The site will be carefully managed including good housekeeping procedures and regular checks will be made within and around the site for litter and spillages. In addition the site access and highway outside will be regularly inspected to ensure the access routes in and out of the facility are kept clean.

2.8.4. The facility will have a vermin/pest control contract set up with a pest control specialist prior to operations commencing. Monthly pest control inspections will be carried out by the contractor. The effectiveness of the techniques will be kept under review and appropriate modifications implemented if required. Records of all vermin and pest control visits and initiatives will be maintained and will be available for inspection by the relevant authorities. Regular checks and recording of potential pests will be carried out and corrective actions will be initiated.

2.8.5. Full details of control measures to minimise infestation with pests compared with requirements detailed in the relevant technical guidance notes is described in the Operational Techniques and Monitoring Plan.

2.9. Mud and Litter

2.9.1. Generation of mud is highly unlikely as the site comprised of hardstanding throughout. Mud has therefore been discounted as a potential hazard.

2.9.2. Litter can potentially be generated from the incoming waste materials, however all waste material will arrive onto site in enclosed or sheeted vehicles. All waste delivery vehicles will have their wheels cleaned prior to exiting the reception building if needed to ensure no litter is tracked out of the building.

2.9.3. Waste acceptance and de-packaging will occur inside a building in a controlled environment.

2.9.4. In addition, management controls to be implemented include good housekeeping practices and undertaking routine visual inspections of the site and its immediate environs to identify any litter.

2.9.5. Any issues identified will be noted in the site diary, investigated and appropriate remedial action taken.

2.10. Annex F – Air Emissions

2.10.1. The following pollutants/emissions were considered as part of this assessment:

- Nitrogen Dioxide

2.10.2. Emissions abatement techniques to be employed on site are described in the Operational Techniques and Monitoring Plan.

2.10.3. The Environment Agency's H1 Assessment tool was completed to determine if the proposed point source emissions to air required further detailed modelling to be undertaken. It was

concluded that further modelling was required and an Air Quality Assessment is included in this report as Appendix C

Screening Assessment

2.10.4. The calculations in the Environment Agency Guidance H1: Annex F Air Emissions provided the results shown in Tables 2.10.4A and B below.

Table 2.10.4A: Peak concentrations of the pollutants identified compared with the Air Quality Standards: Long Term

Pollutant	Basis (annual average/15 min etc)	Process Contribution (PC) (ug/m3)	Air Quality Standard (AQS) (ug/m^3)	% Process Contribution of Air Quality Objective	Screen out as insignificant? (<1% of AQS)
NO_2	Annual Mean (based on dryer running at 60% of the time	0.78	40	1.95%	No

Table 2.10.4B: Peak concentrations of the pollutants compared with the Air Quality Standards: Short Term

Pollutant	Basis (1hr/annual average/15 min etc)	Process Contribution (PC) (ug/m^3)	Air Quality Standard (AQS) (ug/m^3)	% Process Contribution of Air Quality Objective	Screen out as insignificant? (10% of AQS)
NO_2	1 hour mean, not to be exceeded more than 18 times a year (99.79 %ile)	6.6	200	3.3%	Yes

2.10.5. The Air Quality Assessment compiled by Air Quality Consultants provided in Appendix C is based on the dryer being in use 100% of the time. It will actually only be in use for 60% of the time as above.

2.10.6. The Environment Agency Guidance Note H1: Annex F Air Emissions provides the following screening criteria to determine which emissions are 'insignificant':

- The long term process contribution is <1% of the long term environmental standard
- The short term process contribution is <10% of the short term environmental standard.

2.10.7. It can therefore be concluded that nitrogen dioxide on a short term basis can be considered to be insignificant and will not be subject to further screening stages. Nitrogen dioxide in the long term however cannot be screened out at this stage and is therefore considered further below.

2.10.8. Background levels are now added to nitrogen dioxide levels to calculate the process environmental contribution.

2.10.9. Table 2.10.9 shows those substances which cannot be screened out as being insignificant which are subject to a second stage of screening by incorporating the background levels.

Table 2.10.9: Calculation of Process Environmental Contribution (PEC): Long Term

Parameter	Process Contribution ug/m³	Background ug/m³	Process contribution + background (PEC) ug/m³	Air Quality Objective (AQO) ug/m³	% PEC/ AQO
NO_2 (annual mean)	0.78	14.1	14.88	40	37.2

2.10.10. The air quality objectives for NO2 in the long term remain protected.

2.10.11. The proposed drier will lead to an increase of up to 2% in annual mean nitrogen dioxide concentrations at the nearest receptor. Total concentrations are only up to 37.2% of the relevant air quality objective which will ensure that they remain protected.

2.11. Annex G – Site Waste

2.11.1. The primary purpose of this Facility will be to produce quality RDF/SRF which can be sent onwards to be used to produce energy.

2.11.2. 60,000 – 70,000 tonnes of SRF/RDF will be produced per year.

2.11.3. In consideration of the above and in line with the requirements of H1 Annex (g), the proposed operations do not require detailed disposal or recovery consideration as the principal reason for the facility is to treat waste materials for the production of RDF/SRF which is to be used to generate fuel.

2.11.4. Annex G of the guidance states that the environmental impact of the waste produced by an activity should be considered if it fits within one of the following two categories:

- You are choosing between disposal/recovery options available for the waste you produce:

or

- You are carrying out a BAT options appraisal of candidate emission control techniques.

2.11.5. For all wastes produced on site the waste hierarchy system as defined within the Waste framework Directive will be applied, with the option of disposal considered as only once all other options have been considered.

2.11.6. Neither of the above two categories are required to support this application, thus H1 Annex G is not considered further.

2.12. Annex H – Global Warming Potential

2.12.1. The global warming potential (GWP) of the facility has been calculated in accordance with the H1 tool.

2.12.2. This has only been completed for the energy requirements for the drying plant as other parts of the regulated process are considered to be low and their global warming potential is considered to be insignificant.

2.12.3. The GWP score for the facility is 7089, which is derived from two sources: carbon dioxide emissions from the combustion of natural gas, and the carbon dioxide attributable to the electricity imported on to the site from the local supply network to operate the dryer.

2.12.4. The results from this calculation are as follows (assumed at 90% plant availability):

- 24,000 MWh of natural gas for the drying process to produce high grade SRF and for the RTO for odour treatment;
- 3,648 MWh of imported electrical energy from the public supply for waste processing which equates to an equivalent delivered Primary Energy of 15, 235 MWh

Table 2.12.4 Individual GWP scores and total calculated.

Substance	Source	Annual Rate MWhr/yr	CO_2 factor t/MWh	GWP Value per tonne	GWP
CO2 from combustion of natural gas	Dryer	24,000	0.190	1	4,560
Electricity (public supply)	N/A	15,235	0.166	1	2,529
				Total:	**7,089**

2.12.5. The drying of material to produce SRF will increase the net calorific value of the fuel from 14.6MK/kg to 16.9MJ/kg thereby greatly increasing energy content and value as an SRF and provide less risk of material not being used for recovery. In addition, the drying process will reduce the moisture content of the fuel by approximately 45% which will reduce significantly the indirect GHG emissions of transporting the SRF to the end user by the resulting reduction in the weight of loads.

3.0 Conclusions

4.1. Conclusions

3.10.10 A number of environmental risk assessments have been carried out to determine whether the proposed Nine Mile Point Waste Processing Facility can be operated without causing pollution of the environment. All risk assessments have been undertaken in accordance with relevant Natural Resources Wales Guidance and best practice.

3.10.11 The assessments undertaken consider the possible impacts on sensitive receptors from the range of potential emissions from the waste operation. The risk assessments have considered both the intended design and operational practices at the site and conclude that:

- The overall risk to receptors from odour is considered as not being significant however the site will have an Odour Management Plan in place which will be routinely reviewed to ensure operation control measures remain appropriate;
- Following implementation of management measures and controls, fugitive emissions to air and water are considered as not being significant: the waste accepted to the site are unlikely to cause pollution as all treatment and storage of waste which may generate pollution are adequately contained to prevent release;
- The overall risks from vermin, pests and litter are considered as not being significant due to the control measures in place and the minimal volume of waste containing food sources;
- The overall risk to receptors from accidents is considered low due to the low-risk nature of activities on the site, however the Operator will implement an Accident Management Plan as part of the Integrated Management System Policy following Permit issue which will be routinely reviewed to ensure operation control measures remain appropriate;
- An assessment of noise from the facility has concluded that the operation of the proposed facility would not be significantly detrimental to the noise climate of the area subject to the implementation of appropriate mitigation measures
- An assessment of the air quality from the facility has concluded that the operation of the facility would not be significantly detrimental to the air quality of the area subject to the implementation of appropriate mitigation measures.
- Waste streams produced by the site operators can be screened out as being insignificant as the primary purpose of the Waste Processing Facility is to produce by-products which can be reused. The RDF/SRF is being transported off site to be used as energy.
- The global warming potential of the facility has been calculated at 7089 and is calculated for the drying process. The drying process will increase the net calorific value of the fuel thus increasing its value as an SRF and decrease the moisture content and therefore weight of the waste delivered to the end user thereby reducing the transport burden.

3.10.12 In light of the above, the proposed waste processing facility is not considered to represent an unacceptable risk to the environment.

APPENDICES

Appendix A – Annex A Amenity and Accident Risks

Table 1: Assessment of Odour Risks

Hazard	Source	Pathway	Receptor	Probability of Exposure	Consequence	Magnitude of risk	Risk Management	Residual risk
What is the hazard to the Environment?	***What is the agent or process which has the potential to cause harm?***	***How might the receptor come into contact with the source***	***What is at risk?***	***Likelihood of contact?***	***How Severe will the consequences be if this occurs?***	***What is the overall magnitude of risk?***	***Proposed operational control measures to be implemented on site to manage the risk and reduce the magnitude?***	***What is the residual risk after management?***
Nine Mile Point Waste Processing Facility								
Odours from waste delivered to and transported from site	Odorous waste in vehicles	Air Prevailing wind direction is from the west	Site employees Members of the public Local residents Workforce at and users of the local industrial estate	Low	Moderate	Moderate	Wastes will be delivered to the facility via the road in enclosed or sheeted vehicles. Potentially odorous wastes typically comprise less than 10% of wastes received. Odour Management Plan implemented. Operational controls in place to strictly control waste types accepted on site. Particularly odorous deliveries refused entry. Vehicles cleaned and inspected before leaving site to remove odorous or biodegradable material if required. Vehicles sheeted before leaving site. Daily odour assessments carried out at the site boundary and appropriate action taken if required, more frequently during warm weather.	Low - if operational procedures and working practices followed consistently.

							Operational procedures are in place to deal with odour events or complaints and records are maintained. Staff trained appropriately to respond to odour issues with records maintained.	
Odour from wastes stored on-site	Odorous waste stored on-site	Air	Local residents, workforce on the industrial estate, users of amenity sites	Low	Moderate	Moderate	Odour Management Plan implemented. Potentially odorous wastes are only stored and processed within reception building at all times. If not identified in pre acceptance procedures and accepted onto site highly odorous waste is stored for less than 24 hours. Regular cleaning of the site to prevent build-up of odorous or biodegradable materials and to clean up spillages of odorous or potentially odorous material. Waste arriving at the site will be processed in a timely fashion using the 'first in' – 'first – out' principle. Daily odour assessments carried out and appropriate action taken if required, more frequently during warm weather. Operational procedures to deal with odour events or complaints. Staff trained appropriately to respond to odour issues with records maintained.	Low - if operational procedures and working practices followed consistently.
Odour from failure of plant equipment. (e.g. failure of dryer RTO system)	Point source emissions	Air Prevailing wind	Site employees Members of the public and local residents and industrial estate users	Low	Moderate	Moderate	Activities will be managed in accordance with the operator's management systems. This will include regular inspections and maintenance of equipment including the dryer system to ensure they continue to operate at optimum conditions.	

Table 2: Noise & Vibration

Hazard	Source	Pathway	Receptor	Probability of Exposure	Consequence	Magnitude of risk	Risk Management	Residual risk
Noise and vibrations	Vehicle movements to and from and on-site	Noise through the air and vibrations through the ground	Local residents, workforce on the industrial estate, users of amenity sites	Low	Low	Low	Vehicle movements into and out of the site will only take place during the normal working day. All roadways will be surfaced with no significant undulations and with 'non-squeal' surfaces. Vehicles will be subject to regular maintenance and service schedules. All vehicles and plant will be fitted with up to date technology including "white noise" reversing alarms or intelligent alarms that can only be heard in the immediate vicinity. All vehicles will not be allowed to idle when not in use. Operational procedure in place to deal with complaints about noise with records maintained. Staff trained appropriately to be able to respond to noise issues or incidents with records maintained.	Low

Table 3: Fugitive Emissions to Air

Hazard	Source	Pathway	Receptor	Probability of Exposure	Consequence	Magnitude of risk	Risk Management	Residual risk
Releases of particulate matter	Releases of dust from roadways and loading/unloading activities	Air transport then deposition or inhalation	Site employees Members of the public, local residents and workforce at industrial estate	Moderate	Moderate Annoyance/ Nuisance Health Risks – respiratory irritation and/or illness	Moderate	Daily visual assessment of the site condition by the Site Manager. All site operatives to be vigilant and report any problems immediately to the Site Manager to implement appropriate corrective action. Using water bowser or hoses to damp down yard and access road in dry weather. Adequate water supply maintained to supply water bowser or hoses. Site sweeping or cleaning of all paved areas, especially in dry and/or windy weather. 15mph speed limit on site for all vehicles. Vehicle wheels cleaned prior to leaving site if required. Ensuring skips are covered when delivering to site or when removing waste from site. Staff trained appropriately to minimise emissions of dust and records maintained.	Low
Releases of particulate matter	Dust Abatement Units	Air transport then deposition or inhalation	Site employees, members of the public, local residents and workforce at	Moderate	Moderate Annoyance/ Nuisance Health Risks – respiratory irritation and/or illness	Moderate	All 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 5mg/m^3.	Low

Hazard	Source	Pathway	Receptor	Probability of Exposure	Consequence	Magnitude of risk	Risk Management	Residual risk
			industrial estate				Emissions from the dryer will pass through a baghouse filter which will filter particles from the air flow. Filtration efficiency will be <10mg/m^3.	

Table 4: Fugitive Emissions to Water

Hazard	Source	Pathway	Receptor	Probability of Exposure	Consequence	Magnitude of risk	Risk Management	Residual risk
Contaminated run-off/rainwater from site surfaces	Loss of containment of wastes on site.	Percolation through soils, direct run-off from site across the ground and entering surface water drains or natural channels / ditches and groundwater	Pollution of nearby surface water; Sirhowy River, groundwater and land.	Moderate	Deterioration of groundwater quality and surface water quality	Moderate	The site will be constructed on impermeable surface. The impermeable surface in Waste Reception Building drains to foul sewer. Surface water from the roof and site surface water will be directed to storage crates located at the entrance to the waste reception building via full retention interceptors. This water will then be discharged to existing surface water drainage system. Records will be available and kept up to date of all drainage structures including the routing of all drains and the identification of all storage crates. Operational procedures will ensure the drainage system and condition of the hard standing areas are inspected daily by the Site Manager and any damage is repaired and to the original construction specification. Clean up procedures will be implemented to deal with fuel or other spillages or leaks of potentially polluting liquids. All staff will be trained in the procedures and correct use of equipment and sufficient spill kits will be maintained on site. These procedures will include the use of booms or drain mats to seal all drains during the spill event. Staff trained appropriately to minimise emissions to water and records maintained.	Low

Hazard	Source	Pathway	Receptor	Probability of Exposure	Consequence	Magnitude of risk	Risk Management	Residual risk
Chemicals and oils stored on site	Loss of containment on site	Percolation through soils, direct run-off from site across the ground and entering surface water or groundwater	Nearby natural habitats.	Low	Moderate	Moderate	Only maintenance oils will be stored on site. Maintenance oils will be stored within the maintenance department and will be stored within a bund on hardstanding.	Low

Table 5: Pests

Hazard	Source	Pathway	Receptor	Probability of Exposure	Consequence	Magnitude of risk	Risk Management	Residual risk
Pests (flies, vermin, birds) attracted to the waste materials	Pests	Air transport and over land	Site employees Users of local amenity areas Members of the public and local residents & users of the industrial estate Nearby natural habitats.	Low	Low	Low	Low proportion of wastes on-site which may attract pests (<10% of total throughput). Waste acceptance activities are carried out within a building. Waste arriving at the site will be processed in a timely fashion using the 'first in' – 'first – out' principle. Daily inspection includes visual monitoring for pests with records maintained. Vermin/pest control contract will be set up with a pest control specialist prior to operations commencing. Records of all vermin and pest control visits will be maintained. Records will be kept to monitor the frequency of pest infestations and the effectiveness of control measures put in place. Bailed SRF/RDF is wrapped five times and inspected for splitting in the packaging. Any splits will be rectified.	Low

Table 6: Mud and Litter

Hazard	Source	Pathway	Receptor	Probability of Exposure	Consequence	Magnitude of risk	Risk Management	Residual risk
Litter	Litter blown off waste	Air transport then deposition	Site employees Users of local amenity areas Members of the public and local residents & users of the industrial estate Nearby natural habitats.	Moderate	Low	Moderate	Waste is delivered to and stored within the reception building. All wastes will arrived on site in enclosed or sheeted vehicles. Good housekeeping practices to monitor litter levels on a daily basis and take appropriate action both on the site, on the site fences and in the immediate environs if required.; Incidents of litter problems to be logged; Litter inspections will be carried out on daily basis, and any litter will be cleaned up on an ongoing basis and at least at the end of each working day. Staff trained appropriately to minimise emissions of litter and records maintained. Bailed SRF/RDF is wrapped five times and inspected for splitting in the packaging. Any splits will be rectified.	Low
Mud	Mud from vehicle movements in and out of the site	Tracking from vehicles entering and leaving the site.	Site employees Members of the public and local residents &	Low	Low	Low	The site is surfaced with hardstanding and there are no areas which could generate mud. The site access will be regularly inspected. Any issues identified will be noted in the site diary, investigated and appropriate remedial action will take place as soon as practicable.	Low

Hazard	Source	Pathway	Receptor	Probability of Exposure	Consequence	Magnitude of risk	Risk Management	Residual risk
			industrial estate units Nearby natural habitats.					

Table 7: Accidents

Hazard	Source	Pathway	Receptor	Probability of Exposure	Consequence	Magnitude of risk	Risk Management	Residual risk
Vehicle collision	All on-site machinery and vehicles	Direct physical contact	Drivers, on-site staff and neighbouring premises	Low	Moderate	Moderate	Activities shall be managed and operated in accordance with a management system (which will include site security measures to prevent unauthorised access). An Accident Management Plan will be compiled to manage foreseeable risks from the installation.	Low
Arson and / or vandalism causing fire and the release of polluting materials to air (smoke or fumes), water or land.	Unauthorised access	Air transport of smoke then inhalation. Spillages and contaminated firewater by direct run off from site.	Site employees Users of local amenity areas Members of the public and local residents & users of the industrial estate Nearby natural habitats.	Low	High	Moderate	Activities shall be managed and operated in accordance with a management system (which shall include fire and spillage procedures). An Accident Management Plan will be compiled to manage foreseeable risks from the installation. A Fire Prevention Plan will be compiled to manage foreseeable risks from the installation. The site shall have a monitored fire detection and alarm system. Site security measures to prevent unauthorised access will include a perimeter security fence, security gates and CCTV monitoring. Security gates will be kept locked and secured outside normal working hours.	Low
Accidental fire causing the release of polluting materials to	On-site machinery Combustion of waste.	Transportation through air then inhalation. OR	Site employees Users of local amenity areas Members of the public and local	Low	Moderate	Moderate	Activities shall be managed and operated in accordance with a management system (which shall include site security measures to prevent unauthorised access).	Low

Hazard	Source	Pathway	Receptor	Probability of Exposure	Consequence	Magnitude of risk	Risk Management	Residual risk
air (smoke or fumes), water or groundwater.		Transportation through air the deposition Spillages and contaminated firewater by direct run off from site.	residents & users of the industrial estate. Nearby natural habitats.				Guidance provided in Environment Agency's '*Fire Prevention Plans, Version 2, March 2015*'' will be applied to site operations as required. This includes the maximum storage time of RDF/SRF on site to be 3 months All plant and equipment and electrical installations will be kept maintained and in good working condition and subject to routine inspection and maintenance. An Accident Management Plan will be compiled to manage foreseeable risks from the installation. A Fire Prevention Plan will be compiled to manage foreseeable risks from the installation. Site security measures to prevent unauthorised access will include total fencing of the site, security gates. Security gates will be kept locked and secured outside normal working hours. The site Management System will include procedures and actions required in the event of fire or spillage to control and minimise their spread. Firefighting equipment will be maintained on site in accordance with fire regulations. The site will enforce a No Smoking Policy which will be strictly enforced by Site Rules and by signage around site. No waste will be burned on site.	

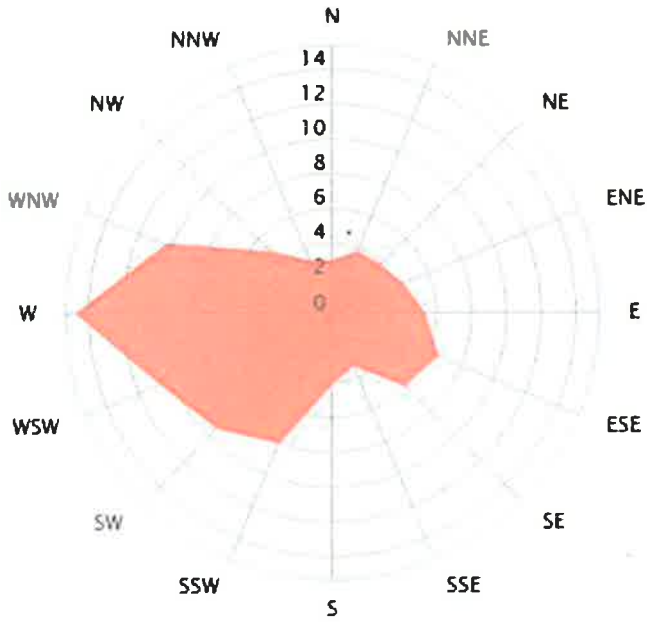
Hazard	Source	Pathway	Receptor	Probability of Exposure	Consequence	Magnitude of risk	Risk Management	Residual risk
							Good housekeeping measures will be employed across the site. Any fire on site will be treated as an emergency and will be extinguished at the earliest opportunity utilising local Fire & Rescue Services if required. All Site staff will be fully trained in the fire procedure and the use of firefighting equipment. Any incidents of fire will be reported to Natural Resources Wales and recorded in the site diary. Waste will be moved off site regularly	

Appendix B – Caerphilly Weather Station Data

Month of year	Jan 01	Feb 02	Mar 03	Apr 04	May 05	Jun 06	Jul 07	Aug 08	Sep 09	Oct 10	Nov 11	Dec 12	Year 1-12
Dominant Wind dir.	➤	➤	➤	➤	➤	➤	➤	➤	➤	➤	➤	➤	➤
Wind probability >= 4 Beaufort (%)	19	23	18	21	21	11	8	11	5	14	6	24	15
Average Wind speed (kts)	6	7	7	8	7	6	6	6	5	6	4	7	6
Average air temp. (°C)	8	8	10	13	15	19	23	19	17	15	11	9	13

Wind direction distribution in (%)

Year



Appendix C – Air Quality and Odour Assessment