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**INDUSTRIAL EMISSIONS LICENCE
Recommended Determination**

Licence Register Number:	W0282-01
Company Register Number:	465847
Applicant:	Glanpower Limited
Location of Installation:	Derryclure Energy Centre, Derryclure, Tullamore, County Offaly

INTRODUCTION

This introduction is not part of the licence and does not purport to be a legal interpretation of the licence.

Glanpower Limited (CRO Number 465847) proposes to pyrolyse non-hazardous waste (in the form of solid recovered fuel) at Derryclure, Tullamore, County Offaly in a waste-to-energy installation that generates electricity. The plant will operate 24 hours per day for approximately 8,000 hours per annum (47 weeks). This licence authorises the acceptance of 65,000 tonnes per annum municipal solid waste (MSW).

The installation will pre-treat municipal solid waste, creating a solid recovered fuel while removing unsuitable materials for recycling or final disposal, as appropriate. The solid recovered fuel and energy crop biomass (up to 10,000 tonnes per annum) will undergo pyrolysis to produce a synthesis gas and solid char. The solid char will be burned to fuel the pyrolysis process and the synthesis gas (syngas) will be cleaned and conditioned for combustion in gas engines that will generate electricity. Electricity will also be generated with a steam turbine using the waste heat from the combustion of the solid char and the synthesis gas.

There will be six main emissions to atmosphere, one from the combustion of the char, four from gas engines combusting synthesis gas and one from the solid recovered fuel dryer. There will be no process effluent (liquid) emissions. Residues from the emissions abatement and syngas cleaning processes will be recycled within the pyrolysis system. Slag from the combustion of char will be sent to landfill for final disposal although recovery options might in time arise.

The applicant proposes to have two pyrolysis lines in the plant with a design capacity of 3.9 tonnes per hour each. The gas engines and the steam turbine will produce 10.8 MW electricity of which 8.8 MW will be directed to the grid.

For the purposes of the EU Industrial Emissions Directive (2010/75/EU), this installation falls within the scope of the following Annex I categories:

Category 5.2: Disposal or recovery of waste in waste incineration plants or in waste co-incineration plants:
(a) for non-hazardous waste with a capacity exceeding 3 tonnes per hour;

Category 5.3(b): Recovery, or a mix of recovery and disposal, of non-hazardous waste with a capacity exceeding 75 tonnes per day involving one or more of the following activities, and excluding activities covered by Directive 91/271/EEC:

(ii) pre-treatment of waste for incineration or co-incineration;

The licence sets out in detail the conditions under which **Glanpower Limited, 19 High Street, Tullamore, County Offaly** will operate and manage this installation.

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Glossary of Terms

All terms in this licence should be interpreted in accordance with the definitions in the Environmental Protection Agency Acts 1992 to 2013 / Waste Management Acts 1996 to 2013, unless otherwise defined in the section.

Abnormal Operations	Any technical stoppage, disturbance, or failure of any of the purification devices or the measurement devices, during which the concentrations in the discharges to air may exceed the prescribed emission limit values.
Adequate lighting	20 lux measured at ground level.
AER	Annual Environmental Report.
Aerosol	A suspension of solid or liquid particles in a gaseous medium.
Agreement	Agreement in writing.
Annually	All or part of a period of twelve consecutive months.
Application	The application by the licensee for this licence.
Appropriate Facility	A waste management facility, duly authorised under relevant law and technically suitable.
Attachment	Any reference to Attachments in this licence refers to attachments submitted as part of this licence application (Register No. W0282-01).
BAT	Best Available Techniques.
BAT conclusions	A document containing the parts of a BAT reference document laying down the conclusions on best available techniques, their description, information to assess their applicability, the emission levels associated with the best available techniques, associated monitoring, associated consumption levels and, where appropriate, relevant site remediation measures.
BAT reference document	A document drawn up by the Commission of the European Union in accordance with Article 13 of the Industrial Emissions Directive, resulting from the exchange of information in accordance with that Article of that Directive and describing, in particular, applied techniques, present emissions and consumption levels, techniques considered for the determination of best available techniques as well as BAT conclusions and any emerging techniques.
Biannually	At approximately six – monthly intervals.
Biennially	Once every two years.

Biodegradable Waste	Any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food, garden waste, sewage sludge, paper and paperboard.
BOD	5 day Biochemical Oxygen Demand (without nitrification suppression).
Breakdown	Any technical stoppage, disturbance, or failure of the purification devices or the measurement devices.
CCTV	Closed Circuit Television.
CEN	Comité Européen De Normalisation – European Committee for Standardisation.
COD	Chemical Oxygen Demand.
Condition	A condition of this licence.
Containment boom	A boom that can contain spillages and prevent them from entering drains or watercourses or from further contaminating watercourses.
CRO Number	Company Register Number.
Daily	During all days of plant operation and, in the case of emissions, when emissions are taking place; with at least one measurement on any one day.
Day	Any 24 hour period.
Daytime	0700 hrs to 1900 hrs.
dB(A)	Decibels (A weighted).
Dioxins and Furans	As defined in Council Directive 2010/75/EU on industrial emissions.
DO	Dissolved oxygen.
Documentation	Any report, record, results, data, drawing, proposal, interpretation or other document in written or electronic form which is required by this licence.
Drawing	Any reference to a drawing or drawing number means a drawing or drawing number contained in the application, unless otherwise specified in this licence.
Emergency	Those occurrences defined in Condition 9.4.
Emission limits	Those limits, including concentration limits and deposition rates, established in <i>Schedule B: Emission Limits</i> , of this licence.
EMP	Environmental Management Programme.

Environmental damage	As defined in Directive 2004/35/EC.
EPA	Environmental Protection Agency.
European Waste Catalogue (EWC)	A harmonised, non-exhaustive list of wastes drawn up by the European Commission and published as Commission Decision 2000/532/EC and any subsequent amendment published in the Official Journal of the European Community.
Evening Time	1900hrs to 2300hrs
Facility	A site or premises used for the purpose of the recovery or disposal of waste or an installation.
Fortnightly	A minimum of 24 times per year, at approximately two week intervals.
Gas Oil	Gas Oil as defined in Council Directive 1999/32/EC and meeting the requirements of S.I. No. 119 of 2008.
GC/MS	Gas chromatography/mass spectroscopy.
Green Waste	Waste wood (excluding timber), plant matter such as grass cuttings, and other vegetation.
Groundwater	Has the meaning assigned to it by Regulation 3 of the European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. No. 9 of 2010).
ha	Hectare.
Heavy metals	This term is to be interpreted as set out in "Parameters of Water Quality, Interpretation and Standards" published by the Agency in 2001. ISBN 1-84095-015-3.
HEPA filter	High efficiency particulate air filter.
Hours of operation	The hours during which the installation is authorised to be operational.
Hours of waste acceptance	The hours during which the installation is authorised to accept waste.
ICP	Inductively coupled plasma spectroscopy.

Incident	<p>The following shall constitute as incident for the purposes of this licence:</p> <ul style="list-style-type: none"> (i) an emergency; (ii) an abnormal operation; (iii) breakdown; (iv) any emission which does not comply with the requirements of this licence; (v) any exceedance of the daily duty capacity of the waste handling equipment; (vi) any trigger level specified in this licence which is attained or exceeded; and, (vii) any indication that environmental pollution has, or may have, taken place.
Incinerator Residue	As defined in Council Directive 2010/75/EU on industrial emissions.
Industrial Emissions Directive	“Industrial Emissions Directive” means Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (Recast).
Industrial waste	As defined in Section 5(1) of the Waste Management Acts 1996 to 2013.
Inert Waste	Waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater.
Installation	A stationary technical unit or plant where the activity concerned referred to in the First Schedule of EPA Acts 1992 as amended is or will be carried on, and shall be deemed to include any directly associated activity, which has a technical connection with the activity and is carried out on the site of the activity.
Irish Water	Irish Water, Colvill House, 24/26 Talbot Street, Dublin 1
K	Kelvin.
kPa	Kilopascals.
$L_{Aeq,T}$	This is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period (T).
Landfill Directive	Council Directive 1999/31/EC.
$L_{Ar,T}$	The Rated Noise Level, equal to the L_{Aeq} during a specified time interval (T), plus specified adjustments for tonal character and/or impulsiveness of the sound.

Licensee	Glanpower Limited, 19 High Street, Tullamore, County Offaly, CRO Number (465847).
Liquid waste	Any waste in liquid form and containing less than 2% dry matter.
List I	As listed in the EC Directives 2006/11/EC and 80/68/EEC and amendments.
List II	As listed in the EC Directives 2006/11/EC and 80/68/EEC and amendments.
Local Authority	Offaly County Council.
Maintain	Keep in a fit state, including such regular inspection, servicing, calibration and repair as may be necessary to perform its function adequately.
Mass flow limit	An emission limit value expressed as the maximum mass of a substance that can be emitted per unit time.
Mass flow threshold	A mass flow rate above which a concentration limit applies.
Mixed Municipal Waste	Mixed municipal waste means waste from households as well as commercial, industrial and institutional waste, which because of its nature and composition is similar to waste from households, but excluding fractions indicated in the Annex to Decision 94/3/EC (4) under heading 20 01 that are collected separately at source and excluding the other wastes indicated under heading 20 02 of that Annex.
Monthly	A minimum of 12 times per year, at intervals of approximately one month.
Night-time	2300 hrs to 0700 hrs.
Noise-sensitive location (NSL)	Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other installation or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.
Nominal Capacity	As defined in Council Directive 2010/75/EU on industrial emissions.
O.D.	Ordinance datum Malin Head.
Oil separator	Device installed according to the International Standard I.S. EN 858-2:2003 (Separator system for light liquids, (e.g. oil and petrol) – Part 2: Selection of normal size, installation, operation and maintenance).
PRTR	Pollutant Release and Transfer Register.
Quarterly	All or part of a period of three consecutive months beginning on the first day of January, April, July or October.

Recyclable Materials	Those waste types, such as cardboard, batteries, gas cylinders, etc., which may be recycled.
Residue	As defined in Council Directive 2010/75/EU on industrial emissions.
Residual Waste	In the context of intake to an incinerator/WtE plant, residual waste is waste that has been subjected to pre-treatment (including, <i>inter alia</i> , pre-segregation, sorting) to extract, to the maximum practical and available extent having regard to BAT, the recyclable/reusable components.
Sample(s)	Unless the context of this licence indicates to the contrary, the term samples shall include measurements taken by electronic instruments.
Sanitary effluent	Wastewater from installation toilet, washroom and canteen facilities.
Sludge	The accumulation of organic and inorganic solids resulting from chemical coagulation, flocculation and/or sedimentation after water or wastewater treatment with greater than 2% dry matter.
SOP	Standard operating procedure.
Source segregated waste	Waste which is separated at source; meaning that the waste is sorted at the point of generation into a recyclable fraction(s) for separate collection (e.g., paper, metal, glass, plastic, bulk dry recyclables, biodegradables, etc.) and a residual fraction. The expression 'separate at source' shall be construed accordingly.
Specified emissions	Those emissions listed in <i>Schedule B: Emission Limits</i> , of this licence.
Standard method	A National, European or internationally recognised procedure (e.g. I.S. EN, ISO, CEN, BS or equivalent); or an in-house documented procedure based on the above references; a procedure as detailed in the current edition of "Standard Methods for the Examination of Water and Wastewater" (prepared and published jointly by A.P.H.A., A.W.W.A. & W.E.F.), American Public Health Association, 1015 Fifteenth Street, N.W., Washington DC 20005, USA; or an alternative method as may be agreed by the Agency.
Storm water	Rain water run-off from roof and non-process areas.
The Agency	Environmental Protection Agency.
TOC	Total organic carbon.
Treatment/pre-treatment	Any manual, thermal, physical, chemical or biological processes that change the characteristics of the waste in order to reduce its volume or hazardous nature or facilitate its handling, disposal or recovery.
Trade effluent	Trade effluent has the meaning given in the Water Services Act, 2007.
Trigger level	A parameter value, the achievement or exceedance of which requires certain actions to be taken by the licensee.

Waste	Any substance or object which the holder discards or intends or is required to discard.
Waste Incineration Plant	As defined in Council Directive 2010/75/EU on industrial emissions, and for the purposes of this licence includes pyrolysis plant.
Water Services Authority	Offaly County Council.
Weekly	During all weeks of plant operation and, in the case of emissions, when emissions are taking place; with at least one measurement in any one week.
WtE Plant	Waste-to-Energy plant.
WWTP	Waste water treatment plant.

Decision & Reasons for the Decision

The Environmental Protection Agency is satisfied, on the basis of the information available, that subject to compliance with the conditions of this licence, any emissions from the activity will comply with and will not contravene any of the requirements of Section 83(5) of the Environmental Protection Agency Acts 1992 to 2013.

In reaching this decision the Environmental Protection Agency has considered the documentation relating to the current licence application, Register Number: W0282-01. This includes supporting documentation received from the applicant, all submissions received from other parties, the report of the Licensing Inspector and the Environmental Impact Assessment (EIA) report contained therein.

It is considered that the Environmental Impact Assessment Report (as included in the Inspector's Report dated 27 March 2014) contains a fair and reasonable assessment of the likely significant effects of the licensed activity on the environment. The assessment as reported is adopted as the assessment of the Agency. Having regard to this assessment, it is considered that the proposed activity, if managed, operated and controlled in accordance with the licence will not result in the contravention of any relevant environmental quality standards or cause environmental pollution.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the proposed activity, individually or in combination with other plans or projects is likely to have a significant effect on a European Site(s). In this context, particular attention was paid to the European sites at Charleville Wood, SAC, River Barrow and River Nore, SAC and Slieve Bloom Mountains, SPA and the Agency considered, for the reasons set out below, that the proposed activity is not directly connected with or necessary to the management of those sites as European Sites and that it can be excluded on the basis of objective scientific information, that the proposed activity, individually or in combination with other plans or projects, will have a significant effect on a European site, and accordingly the Agency determined that an Appropriate Assessment of the proposed activity is not required.

It has been determined that this facility does not have the potential for significant effects on any European site due to the nature and scale of the waste to energy plant operations and the distance between the installation and the designated sites.

Part I Schedule of Activities Licensed

In pursuance of the powers conferred on it by the Environmental Protection Agency Acts 1992 to 2013, the Agency proposes to grant this Industrial Emissions licence to:

Glanpower Limited, 19 High Street, Tullamore, County Offaly, and CRO Number (465847),

under Section 83(1) of the said Acts to carry on the following activity/activities:

Disposal or recovery of waste in waste incineration plants or in waste co-incineration plants -

(a) for non-hazardous waste with a capacity exceeding 3 tonnes per hour;

and

Recovery, or a mix of recovery and disposal, of non-hazardous waste with a capacity exceeding 75 tonnes per day involving one or more of the following activities, (other than activities to which the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001) apply):

(ii) pre-treatment of waste for incineration or co-incineration;

at **Derryclure Energy Centre, Derryclure, Tullamore, County Offaly** subject to the following twelve Conditions, with the reasons therefor and associated schedules attached thereto.

Part II Schedule of Activities Refused

None of the proposed activities as set out in the licence application have been refused.

Part III Conditions

Condition 1. Scope

- 1.1 **Industrial Emissions** activities shall be restricted to those listed and described in *Part I Schedule of Activities Licensed*, and shall be as set out in the licence application or as modified under Condition 1.5 of this licence and subject to the conditions of this licence.
- 1.2 Activities at this installation shall be limited as set out in *Schedule A: Limitations*, of this licence.
- 1.3 **No hazardous wastes shall be accepted at the installation.**
- 1.4 For the purposes of this licence, the installation authorised by this licence is the area of land outlined in red on Drawing No. **IE0310150-22-DR-0002 (Site Plan) received 11 July 2013**. Any reference in this licence to "installation" shall mean the area thus outlined in red. The licensed activity shall be carried on only within the area outlined.
- 1.5 No alteration to, or reconstruction in respect of, the activity, or any part thereof, that would, or is likely to, result in
- (i) a material change or increase in:
 - the nature or quantity of any emission;
 - the abatement/treatment or recovery systems;
 - the range of processes to be carried out;
 - the fuels, raw materials, intermediates, products or wastes generated, or
 - (ii) any changes in:
 - site management, infrastructure or control with adverse environmental significance;
- shall be carried out or commenced without prior notice to, and without the agreement of, the Agency.
- 1.6 The installation shall be controlled, operated and maintained, and emissions shall take place as set out in the licence. All programmes required to be carried out under the terms of this licence become part of this licence.
- 1.7 This licence is for the purpose of Industrial Emissions licensing under the EPA Acts 1992 as amended only and nothing in this licence shall be construed as negating the licensee's statutory obligations or requirements under any other enactments or regulations.

Reason: To clarify the scope of this licence.

Condition 2. Management of the Installation

- 2.1 Installation Management
- 2.1.1 The licensee shall employ a suitably qualified and experienced installation manager who shall be designated as the person in charge. The installation manager or a nominated, suitably qualified and experienced deputy shall be present on the installation at all times during its operation or as otherwise required by the Agency.
 - 2.1.2 The licensee shall ensure that personnel performing specifically assigned tasks shall be qualified on the basis of appropriate education, training and experience as required and shall be aware of the requirements of this licence.
- 2.2 Management Structure

2.2.1 The licensee shall maintain written details of the management structure of the installation. Any proposed replacement in the management structure shall be notified in advance in writing to the Agency. Written details of the management structure shall include the following information:

- a) the names of all persons who are to provide the management and supervision of the industrial emissions activities authorised by the licence, in particular the name of the installation manager and any nominated deputies;
- b) details of the responsibilities for each individual named under a) above; and
- c) details of the relevant education, training and experience held by each of the persons nominated under a) above.

2.3 Environmental Management System (EMS)

2.3.1 The licensee shall **establish and maintain** an Environmental Management System (EMS) in advance of the commencement of the activity. The EMS shall be updated on an annual basis.

2.3.2 The EMS shall include, as a minimum, the following elements:

2.3.2.1 Management and Reporting Structure.

2.3.2.2 Schedule of Environmental Objectives and Targets.

The licensee shall **prepare and maintain** a Schedule of Environmental Objectives and Targets. The schedule shall, as a minimum, provide for a review of all operations and processes, including an evaluation of practicable options, for energy and resource efficiency, the use of cleaner technology, cleaner production and the prevention, reduction and minimisation of waste and shall include waste reduction targets. The schedule shall include time frames for the achievement of set targets and shall address a five-year period as a minimum. The schedule shall be reviewed annually and amendments thereto notified to the Agency for agreement as part of the Annual Environmental Report (AER).

2.3.2.3 Environmental Management Programme (EMP)

The licensee shall, **not later than six months from the date of grant of this licence, submit to the Agency for agreement** an EMP, including a time schedule, for achieving the Environmental Objectives and Targets prepared under Condition 2.2.2.2. Once agreed the EMP shall be **established and maintained** by the licensee. It shall include:

- designation of responsibility for targets;
- the means by which they may be achieved;
- the time within which they may be achieved.

The EMP shall be reviewed annually and amendments thereto notified to the Agency for agreement as part of the Annual Environmental Report (AER).

A report on the programme, including the success in meeting agreed targets, shall be prepared and submitted to the Agency as part of the AER. Such reports shall be retained on-site for a period of not less than seven years and shall be available for inspection by authorised persons of the Agency.

2.3.2.4 Documentation

- (i) The licensee shall **establish and maintain** an environmental management documentation system which shall be to the satisfaction of the Agency.
- (ii) The licensee shall issue a copy of this licence to all relevant personnel whose duties relate to any condition of this licence.

2.3.2.5 Corrective Action

- (i) The licensee shall establish and maintain procedures to ensure that corrective action is taken should the specified requirements of this licence not be fulfilled. The responsibility and authority for persons initiating further investigation and corrective action in the event of a reported non-conformity with this licence shall be defined.
- (ii) **Where a breach of one or more of the conditions of this licence occurs, the licensee shall without delay take measures to restore compliance with the conditions of this licence in the shortest possible time.**

2.3.2.6 Awareness and Training

The licensee shall **establish and maintain** procedures for identifying training needs, and for providing appropriate training, for all personnel whose work can have a significant effect upon the environment. Appropriate records of training shall be maintained.

2.3.2.7 Communications Programme

The licensee shall **establish and maintain** a Public Awareness and Communications Programme to ensure that members of the public can obtain information at the installation, at all reasonable times, concerning the environmental performance of the installation.

2.3.2.8 Maintenance Programme

The licensee shall **establish and maintain** a programme for maintenance of all plant and equipment based on the instructions issued by the manufacturer/supplier or installer of the equipment. Appropriate record keeping and diagnostic testing shall support this maintenance programme. The licensee shall clearly allocate responsibility for the planning, management and execution of all aspects of this programme to appropriate personnel (see Condition 2.1 above).

2.3.2.9 Efficient Process Control

The licensee shall **establish and maintain** a programme to ensure there is adequate control of processes under all modes of operation. The programme shall identify the key indicator parameters for process control performance, as well as identifying methods for measuring and controlling these parameters. Abnormal process operating conditions shall be documented, and analysed to identify any necessary corrective action.

Reason: To make provision for management of the activity on a planned basis having regard to the desirability of ongoing assessment, recording and reporting of matters affecting the environment.

Condition 3. Infrastructure and Operation

3.1 The licensee shall establish and maintain, for each component of the installation, all infrastructure referred to in this licence in advance of the commencement of the licensed activities in that component, or as required by the conditions of this licence. Infrastructure specified in the application that relates to the environmental performance of the installation and is not specified in the licence, shall be installed in accordance with the schedule submitted in the application.

3.2 Monitoring Infrastructure

3.2.1 Meteorological Station

- 3.2.1.1 The licensee shall operate a weather monitoring station at the installation which records the requirements specified in *Schedule C.6: Meteorological Monitoring*, of this licence.
- 3.2.1.2 The licensee shall **provide and maintain** in a prominent location on the installation a windsock, or other wind direction indicator, which shall be visible from the public roadway outside the site.
- 3.2.2 Monitoring equipment shall be vibration isolated in accordance with manufacturers' specifications.
- 3.2.3 The licensee shall install on all emission points such sampling points or equipment, including any data-logging or other electronic communication equipment, as may be required by the Agency. All such equipment shall be consistent with the safe operation of all sampling and monitoring systems.
- 3.2.4 The licensee shall clearly label and provide safe and permanent access to all on-site sampling and monitoring points and to off-site points as required by the Agency. The requirement with regard to off-site points is subject to the prior agreement of the landowner(s) concerned.
- 3.2.5 The licensee shall maintain all sampling and monitoring points, and clearly label and name all sampling and monitoring locations, so that they may be used for representative sampling and monitoring.
- 3.2.6 All wellheads shall be adequately protected to prevent contamination or physical damage.
- 3.3 Installation Notice Board
- 3.3.1 The licensee shall, within one month of the date of grant of this licence, provide an Installation Notice Board on the installation so that it is legible to persons outside the main entrance to the installation. The minimum dimensions of the board shall be 1200 mm by 750 mm. The notice board shall be maintained thereafter.
- 3.3.2 The board shall clearly show:
- (i) the name and telephone number of the installation;
 - (ii) the waste acceptance hours;
 - (iii) the normal hours of operation;
 - (iv) the name of the licence holder;
 - (v) an emergency out of hours contact telephone number;
 - (vi) the licence reference number; and
 - (vii) where environmental information relating to the installation can be obtained.
- 3.3.3 A plan of the facility clearly identifying the location of each storage and treatment area shall be displayed as close as is possible to the entrance to the facility. The plan shall be displayed on a durable material such that is legible at all times. The plan shall be replaced as material changes to the facility are made.
- 3.4 Installation Security
- 3.4.1 Security and stockproof fencing and gates, as described in Attachment D.1.a – *Site Security Arrangements* of the application, shall be installed and maintained.
- 3.4.2 Prior to the acceptance of waste at the facility, the licensee shall install a CCTV system which records all truck movements into and out of the installation, as well as operations in the waste reception and pre-treatment area, enclosed feed recovery area, pyrolysis area and engine area. The CCTV system shall be operated at all times and copies of recordings kept on site for a period to be agreed by the Agency. Copies of these stored recordings shall be made available to the Agency on request.
- 3.5 Waste Inspection and Quarantine Areas
- 3.5.1 An impermeable Waste Inspection Area and a Waste Quarantine Area shall be maintained at the installation.

- 3.5.2 These areas shall be constructed and maintained in a manner suitable, and be of a size appropriate, for the inspection of waste and subsequent quarantine if required. The waste inspection and waste quarantine areas shall be clearly identified and segregated from each other, and quarantined waste shall be appropriately stored and clearly labelled.
- 3.5.3 Drainage from these areas shall be diverted for collection and safe disposal. The collected water shall be either used as process water in the WtE plant, or if unsuitable, tankered off site for treatment at an authorised waste or wastewater treatment installation.
- 3.6 Weighbridge and Wheel Cleaners
- 3.6.1 The licensee shall provide and maintain a weighbridge and wheel cleaners at the installation.
- 3.6.2 The wheel cleaners shall be used by all vehicles leaving the installation as required to ensure that no trade effluent/storm water or waste is carried off-site. All water from the wheel cleaning area shall be directed for collection and safe disposal.
- 3.6.3 The wheel-wash shall be inspected on a daily basis and drained as required. Silt, stones and other accumulated material shall be removed as required from the wheel-wash and disposed of appropriately.
- 3.7 Tank, Container and Drum Storage Areas
- 3.7.1 All tank, container and drum storage areas shall be rendered impervious to the materials stored therein. Bunds shall be designed having regard to Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (2004).
- 3.7.2 All tank and drum storage areas shall, as a minimum, be bunded, either locally or remotely, to a volume not less than the greater of the following:
- (i) 110% of the capacity of the largest tank or drum within the bunded area; or
 - (ii) 25% of the total volume of substance that could be stored within the bunded area.
- 3.7.3 All drainage from bunded areas shall be treated as contaminated unless it can be demonstrated to be otherwise. All drainage from bunded areas shall be diverted for collection and safe disposal, unless it can be deemed uncontaminated and does not exceed the trigger levels set for storm water emissions under 6.13.
- 3.7.4 All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.
- 3.7.5 All tanks, containers and drums shall be labelled to clearly indicate their contents.
- 3.8 Fire-water Retention
- 3.8.1 The licensee shall carry out a risk assessment to determine if the activity should have a fire-water retention facility. The licensee shall submit the assessment and a report to the Agency on the findings and recommendations of the assessment within six months of the date of grant of this licence.
- 3.8.2 In the event that a significant risk exists for the release of contaminated fire-water, the licensee shall, based on the findings of the risk assessment, prepare and implement, with the agreement of the Agency, a suitable risk management programme. The risk management programme shall be fully implemented within three months of date of notification by the Agency.
- 3.8.3 In the event of a fire or a spillage to storm water, the site storm water shall be diverted for collection. The licensee shall examine, as part of the response programme in Condition 3.8.2 above, the provision of automatic diversion of storm water for collection. The licensee shall have regard to any guidelines issued by the Agency with regard to firewater retention.

- 3.8.4 The licensee shall have regard to the Environmental Protection Agency Draft Guidance Note to Industry on the Requirements for Fire-Water Retention Facilities when implementing Conditions 3.8.1 and 3.8.2 above.
- 3.9 Waste handling, Ventilation and Processing Plant
- 3.9.1 Items of plant deemed critical to the efficient and adequate processing of waste at the installation (including inter alia waste-loading vehicles, ejector trailers and air handling ventilation and abatement plant) shall be provided on the following basis:
- 3.9.1.1 100% duty capacity;
- 3.9.1.2 20% standby capacity available on a routine basis; and
- 3.9.1.3 Provision of contingency arrangements and or backup and spares in the case of breakdown of critical equipment.
- 3.9.2 Within three months from the date of grant of this licence, the licensee shall provide a report for the agreement of the Agency detailing the duty and standby capacity, in tonnes per day, of all waste handling and processing equipment to be used at the installation. These capacities shall be based on the licensed waste intake, as per Schedule A: Limitations, of this licence.
- 3.9.3 The quantity of waste to be accepted at the installation on a daily basis shall not exceed the duty capacity of the equipment at the facility. Any exceedance of this intake shall be treated as an incident.
- 3.10 Dust and Odour Control**
- Prior to the date of commencement of the activity at the installation, the licensee shall install and maintain adequate measures for the control of odours and dust emissions, including fugitive dust emissions, from the installation. Such measures shall at a minimum include the following:-
- 3.10.1 Dust curtains (or equivalent agreed by the Agency) and double interlocked fast-action doors (or equivalent as agreed by the Agency) shall be installed and maintained on the vehicle entry/exit points of the waste reception area building; all doors in this building shall be kept closed when not in use.
- 3.10.2 The waste reception area building shall be fitted with an odour management system. This shall include a continuous negative air pressure system with ventilated gases being subject to combustion in the secondary cyclonic convertor, treatment by activated carbon and bag-house filtration or suitable alternative agreed by the Agency. The licensee shall maintain the integrity and negative pressure throughout the building to ensure no significant escape of odours or dust.
- 3.10.3 The licensee shall, within nine months of commencement of licensed activities, prepare and submit a report on the effectiveness of the odour management system. This report shall cover the first six months operation of the system.
- 3.11 Prior to the date of commencement of the activity at the installation, the licensee shall ensure that adequate standby and back up equipment, to include that listed in the Test Programme/Commissioning Plan Report, is provided on site to provide for contingency arrangements in the event of a breakdown of critical waste handling, treatment or abatement equipment.
- 3.12 All pump sumps, storage tanks, or other treatment plant chambers from which spillage of environmentally significant materials might occur in such quantities as are likely to breach local or remote containment or separators, shall be fitted with high liquid level alarms (or oil detectors as appropriate).
- 3.13 The provision of a catchment system to collect any leaks from flanges and valves of all over-ground pipes used to transport material other than water shall be examined. This shall be incorporated into a Schedule of Environmental Objectives and Targets set out in Condition 2. of this licence for the reduction in fugitive emissions.
- 3.14 The licensee shall provide and maintain a Wastewater Treatment plant at the installation for the treatment of sanitary effluent arising on-site. Any waste water treatment system and percolation area shall satisfy the criteria, as may be relevant, set out in:

- *Code of Practice Wastewater Treatment and Disposal Systems Serving Single Houses (p.e ≤ 10)*, and
- *Wastewater Treatment Manuals: Treatment Systems for Small Communities, and Business, Leisure Centres and Hotels*,

published by the Environmental Protection Agency.

3.15 Surface Water Management

3.15.1 Effective surface water management infrastructure shall be provided and maintained at the facility during operation of the facility. The surface water management infrastructure shall be as described in Section D.1.k *Sewerage & Surface Water Drainage Infrastructure* of the licence application. The rate of surface water discharge from the site shall not exceed 8.61 litres per second, unless otherwise agreed by the Environmental Protection Agency.

3.16 Drainage System, pipeline identification

3.16.1 Prior to the commencement of the activity, all wastewater gullies, drainage grids and manhole covers shall be painted with red squares whilst all surface water discharge gullies, drainage grids and manhole covers shall be painted with blue triangles. These colour codes shall be maintained so as to be visible at all times during installation operation, and any identification designated in this licence (e.g. SW1) shall be inscribed on these manholes.

3.16.2 Silt Traps and Oil Separators

The licensee shall, within six months of date of grant of this licence, install and maintain silt traps and oil separators at the installation:

3.16.2.1 Silt traps to ensure that all storm water discharges, other than from roofs, from the installation pass through a silt trap in advance of discharge;

3.16.2.2 An oil separator on the storm water discharge from yard areas. The separator shall be a Class I full retention separator.

The silt traps and separator shall be in accordance with I.S. EN-858-2: 2003 (separator systems for light liquids).

3.17 The licensee shall have in storage an adequate supply of containment booms and/or suitable absorbent material to contain and absorb any spillage at the installation. Once used, the absorbent material shall be disposed of at an appropriate facility.

3.18 Waste Acceptance / Dispatch Hours and Hours of Operation

3.18.1 Waste may be accepted at, or dispatched from, the installation only between the hours of 0700 and 1800 Monday to Saturday inclusive.

3.18.2 Waste shall not be accepted at, or removed from, the installation on Sundays and Public Holidays without the written approval of the Agency.

3.18.3 The installation may be operated 24 hours per day, Monday to Sunday inclusive.

3.19 Pyrolysis Plant

The licensee shall provide and maintain pyrolysis plant as specified in the licence application Reg. No. W0282-01, or as may be varied with the written approval of the Agency.

3.20 Pyrolysis Plant – Test Programme / Commissioning Plan

3.20.1 The licensee shall, at least three months prior to the date of plant commissioning, submit to the Agency for its agreement, a Test Programme / Commissioning Plan.

3.20.2 The Test Programme / Commissioning Plan shall as a minimum:

- (a) Verify the residence time as well as the minimum temperature and the oxygen content of the exhaust gas from the secondary cyclonic

converter which will be achieved during normal operation and under the most unfavourable operating conditions anticipated.

- (b) Demonstrate that gases in the secondary cyclonic converter and residence tube will be able to achieve 1150°C for two seconds on a continuous basis.
- (c) Establish all criteria for operation, control and management of the emissions abatement and synthesis gas cleaning equipment to ensure compliance with the emission limit values specified in this licence.
- (d) Assess the performance of any monitors on the emissions abatement and synthesis gas cleaning systems and establish a maintenance and calibration programme for each monitor.
- (e) Confirm that all measurement equipment or devices (including thermocouples) used for the purpose of establishing compliance with this licence has been subjected, in situ, to its normal operating temperature to prove its operation under such conditions.
- (f) Establish a list of the standby and back up equipment required to provide for contingency arrangements in the event of a breakdown of critical waste handling, treatment or abatement equipment.

3.20.3 The Test Programme / Commissioning Plan shall be implemented as agreed and a report on its implementation shall be submitted to the Agency on completion.

3.20.4 The pyrolysis plant shall not be operated by the licensee (outside of the agreed Test Programme / Commissioning Plan) until such time as it is authorised to do so by the Agency.

3.21 Pyrolysis Plant operations – additional requirements

3.21.1 The plant shall be operated in accordance with the criteria for operation and control as determined in the test programme in Condition 3.20.

3.21.2 The nominal capacity of the plant shall be 7.8 tonnes per hour.

3.21.3 The licensee shall maintain standard operating procedures for the operation of the pyrolysis plant. These shall incorporate the process controls identified in *Schedule C: Control and Monitoring*, of this licence.

3.21.4 The plant shall be operated in order to achieve a level of incineration such that the Total Organic Carbon (TOC) content of the slag and bottom ashes is less than 3% or their loss on ignition is less than 5% of the dry weight of the material.

3.21.5 Even under the most unfavourable of conditions, the plant shall be operated in such a way that, after the last injection of combustion air, the gas resulting from the process is raised, in a controlled and homogenous fashion, for a duration of two seconds to a temperature of 1150°C, as measured near the inner wall or at another representative point of the secondary cyclonic converter and residence tube as authorised by the Agency. Solid recovered fuel shall be charged into the pyrolysis plant only when these operating conditions are being complied with and when the continuous monitoring shows that the emission limit values are not being exceeded.

3.21.6 The pyrolysis plant shall be equipped with at least one auxiliary burner at the secondary cyclonic converter. The burner must be switched on automatically when the temperature of the combustion gases after the last injection of combustion air falls below 1150°C. The auxiliary burner shall also be used during plant start-up and shut-down operations in order to ensure the temperature of 1150°C is maintained at all times during the operations and as long as unburned char is in the combustion chamber.

3.21.7 During start-up or shut-down or when the temperature of the combustion gas falls below 1150°C, the auxiliary burner shall not be fed with fuels which may

cause higher emissions than those resulting from the burning of gas oil, as defined in Council Directive 75/716/EEC, liquefied gas or natural gas.

3.21.8 The pyrolysis plant shall have and operate an automatic system to prevent SRF feed:

- At start-up, until the temperature of 1150°C has been reached;
- Whenever the temperature of 1150°C is not maintained;
- Whenever the continuous measurements show that any emission limit value is exceeded due to disturbances or failures of the purification devices; and
- Whenever stoppages, disturbances, or failure of the purification devices or the measurement devices may result in the exceedance of the emission limit values.

3.21.9 The heat recovery steam generators shall be equipped with an automatic cleaning system and designed for periodic collection of dust in order to minimise the reformation of dioxins and furans and prevent fouling.

3.21.10 The waste pre-treatment and solid recovered fuel storage areas shall be equipped with the following:-

3.21.10.1 A fire detection system (or equivalent) with alarm and water cannon for fire control; and

3.21.10.2 A detector for the presence of explosive gases.

3.22 Abnormal Operation / breakdown

3.22.1 In the case of a breakdown, the licensee shall shut down pyrolysis plant operations as soon as practicable and until normal operations can be restored. The licensee shall not resume pyrolysis operations except in accordance with a protocol to be agreed by the Agency.

3.22.2 In the case of abnormal operations:

3.22.2.1 The licensee shall under no circumstances continue to pyrolyse SRF and combust char for a period of more than four hours uninterrupted where emission limit values specified in *Schedule B.1: Emission Limits to Air*, of this licence are exceeded, and

3.22.2.2 The cumulative duration of abnormal operation over one calendar year shall be less than 60 hours, and

3.22.2.3 The total dust content of the emissions from the stack (A2-1) shall under no circumstances exceed 150 mg/m³ (expressed as a half-hourly average) and

3.22.2.4 The emission limit values specified in *Schedule B.1: Emission Limits to Air* of this licence for CO and TOC shall not be exceeded.

3.23 There shall be no bypass of the air abatement and syngas cleaning systems.

3.24 The licensee shall provide and use adequate lighting during the operation of the installation in hours of darkness.

3.25 Engineering Works

3.25.1 All construction works shall be supervised by an appropriately qualified person, and that person, or persons, shall be present at all times during which relevant works are being undertaken.

3.25.2 Following the completion of infrastructural works, the licensee shall commission an independent construction quality assurance validation and submit the validation report to the Agency on completion. The report shall, as appropriate, include the following information:-

- A description of the works;
- As-built drawings of the installation;

- Records and results of all integrity and validation tests carried out (including failures) including a report on the details of the computational fluid dynamic modelling of the pyrolysis plant;
- Drawings and sections showing the location, capacity and discharge points of all pipes, drains, bunds, bunkers and waste storage areas;
- Name(s) of contractor(s)/individual(s) responsible for undertaking the work;
- Records of any problems and the remedial works carried out to resolve those problems; and
- Any other information requested in writing by the Agency.

Reason: To provide for appropriate operation of the installation to ensure protection of the environment.

Condition 4. Interpretation

4.1 Emission limit values for emissions to atmosphere in this licence shall be interpreted in the following way:

4.1.1 Continuous Monitoring

4.1.1.1 The half-hourly average values and the 10-minute averages shall be determined within the effective operating time (excluding the start-up and shut-off periods if no char is being incinerated) from the measured values after having subtracted the value of the confidence interval specified at Condition 4.1.1.2 below. The daily average values shall be determined from those validated average values.

4.1.1.2 At the daily emission limit value level, the values of the 95% confidence intervals of a single measured result shall not exceed the following percentages of the emission limit values:

Carbon monoxide:	10%
Sulphur dioxide:	20%
Nitrogen dioxide:	20%
Total dust:	30%
Total organic carbon:	30%
Hydrogen chloride:	40%
Hydrogen fluoride:	40%
Ammonia:	40%

4.1.1.3 To obtain a valid daily average value no more than five half hourly average values in any day shall be discarded due to malfunction or maintenance of the continuous measurement system. No more than ten daily average values per year shall be discarded due to malfunction or maintenance of the continuous measurement system.

4.1.2 Non-Continuous Monitoring

4.1.2.1 For periodic measurements, compliance shall be determined from the measured value after having subtracted the uncertainty error for the selected method of sampling and analysis for each relevant pollutant.

4.1.2.2 For any parameter where, due to sampling/analytical limitations, a 30 minute sampling period is inappropriate, a suitable period between 30 minutes and 8 hours should be employed and the value obtained therein shall not exceed the emission limit value.

4.1.2.3 For all other parameters, no 30 minute mean value shall exceed the emission limit value.

- 4.1.2.4 For flow, no hourly or daily mean value shall exceed the emission limit value.
- 4.2 The concentration and volume flow limits for emissions to atmosphere specified in this licence shall be achieved without the introduction of dilution air and shall be based on gas volumes under standard conditions of:
- 4.2.1 From non-combustion sources:
Temperature 273K, Pressure 101.3 kPa (no correction for oxygen or water content).
- 4.2.2 From combustion sources:
Temperature 273K, Pressure 101.3 kPa, dry gas; **5% oxygen for synthesis gas, 11% oxygen for solid char.**
- 4.3 Noise
- Noise from the installation shall not give rise to sound pressure levels ($L_{Aeq, T}$) measured at **NSLs** of the installation which exceed the limit value(s).

Reason: *To clarify the interpretation of limit values fixed under the licence.*

Condition 5. Emissions

- 5.1 No specified emission from the installation shall exceed the emission limit values set out in *Schedule B: Emission Limits*, of this licence. There shall be no other emissions of environmental significance.
- 5.2 **The licensee shall ensure that there are no discharges of waste water from the cleaning of synthesis gas or other sources to surface water, sewer or ground.**
- 5.3 No emissions, including odours, from the activities carried on at the site shall result in an impairment of, or an interference with amenities or the environment beyond the installation boundary or any other legitimate uses of the environment beyond the installation boundary.
- 5.4 No substance shall be discharged in a manner, or at a concentration, that, following initial dilution, causes tainting of fish or shellfish.
- 5.5 **The licensee shall maintain negative air pressure in the waste reception hall and waste pre-treatment area unless otherwise agreed by the Agency. Air extracted from these areas shall be treated and discharged via the stacks at emission points A2-1 and A2-6.**
- 5.6 The licensee shall ensure that all or any of the following:
- Vermin
 - Birds
 - Flies
 - Mud
 - Dust
 - Litter
- associated with the activity do not result in an impairment of, or an interference with, amenities or the environment at the installation or beyond the installation boundary or any other legitimate uses of the environment beyond the installation boundary. Any method used by the licensee to control or prevent any such impairment/interference shall not cause environmental pollution.
- 5.7 **The licensee shall ensure that all vehicles delivering waste to and removing waste from the installation are appropriately covered, and sealed in the case of hazardous residues.**
- 5.8 **The licensee shall, during the Test Programme / Commissioning Plan for the pyrolysis of waste, determine the PM_{10} and $PM_{2.5}$ fraction of the Total Dust from Emission Point Reference No. A2-1.**

Reason: To provide for the protection of the environment by way of control and limitation of emissions.

Condition 6. Control and Monitoring

- 6.1 The licensee shall carry out such sampling, analyses, measurements, examinations, maintenance and calibrations as set out below and as in accordance with *Schedule C: Control & Monitoring*, of this licence.
- 6.1.1 Analyses shall be undertaken by competent staff in accordance with documented operating procedures.
- 6.1.2 Such procedures shall be assessed for their suitability for the test matrix and performance characteristics shall be determined.
- 6.1.3 Such procedures shall be subject to a programme of Analytical Quality Control using control standards with evaluation of test responses.
- 6.1.4 Where any analysis is sub-contracted it shall be to a competent laboratory.
- 6.2 The licensee shall ensure that:
- (i) sampling and analysis for all parameters listed in the Schedules to this licence; and
- (ii) any reference measurements for the calibration of automated measurement systems;
- shall be carried out in accordance with CEN-standards. If CEN standards are not available, ISO, national or international standards that will ensure the provision of data of an equivalent scientific quality shall apply. **Automated measuring systems shall be subject to control by means of parallel measurements with the reference methods at least once per year.**
- 6.3 All automatic monitors and samplers shall be functioning at all times (except during maintenance and calibration) when the activity is being carried on unless alternative sampling or monitoring has been agreed in writing by the Agency for a limited period. In the event of the malfunction of any continuous monitor, the licensee shall contact the Agency as soon as practicable, and alternative sampling and monitoring facilities shall be put in place. The use of alternative equipment, other than in emergency situations, shall be as agreed by the Agency.
- 6.4 Monitoring and analysis equipment shall be operated and maintained as necessary so that monitoring accurately reflects the emission/discharge (or ambient conditions where that is the monitoring objective).
- 6.5 The licensee shall ensure that groundwater monitoring well sampling equipment is available/installed on-site and is fit for purpose at all times. The sampling equipment shall be to Agency specifications.
- 6.6 All treatment/abatement and emission control equipment shall be calibrated and maintained in accordance with the instructions issued by the manufacturer/supplier or installer. **For Pyrolysis Plant, the appropriate installation and functioning of the automated monitoring equipment for emissions into air (emission point No. A2-1) shall be subject to an annual surveillance test. Calibration shall be done by means of parallel measurements with the reference methods at least every three years.**
- 6.7 **Subject to the requirements and provisions of Article 48 and Annex VI of Council Directive 2010/75/EU on industrial emissions**, the Agency may amend the frequency, locations, methods and scope of monitoring, sampling and analyses, as set out in this licence, following evaluation of test results.
- 6.8 The licensee shall prepare a programme, to the satisfaction of the Agency, for the identification and reduction of fugitive emissions using an appropriate combination of best available techniques. This programme shall be included in the Environmental Management Programme.

- 6.9 The integrity and water tightness of all underground pipes, tanks, bunding structures and containers and their resistance to penetration by water or other materials carried or stored therein shall be tested and demonstrated by the licensee prior to use. This testing shall be carried out by the licensee at least once every three years thereafter and reported to the Agency on each occasion. This testing shall be carried out in accordance with any guidance published by the Agency. A written record of all integrity tests and any maintenance or remedial work arising from them shall be maintained by the licensee.
- 6.10 The drainage system (i.e., gullies, manholes, any visible drainage conduits and such other aspects as may be agreed) and bunds, silt traps and oil separators shall be inspected weekly and desludged as necessary. All sludge and drainage from these operations shall be collected for safe disposal. The drainage system, bunds, silt traps and oil interceptors shall be properly maintained at all times.
- 6.11 The licensee shall, at a minimum of one week intervals, inspect the installation and its immediate surrounds for nuisances caused by litter, vermin, birds, flies, mud, dust and odours.
- 6.12 An inspection system for the detection of leaks on all flanges and valves on over-ground pipes used to transport materials other than water shall be developed and maintained prior to the commencement of the activity.
- 6.13 **Storm Water**
- 6.13.1 A visual examination of the storm water discharges shall be carried out daily. A log of such inspections shall be maintained.
- 6.13.2 The licensee shall, **prior to** commencement of the activity, establish suitable trigger levels for **total suspended solids, pH, TOC and electrical conductivity** in storm water discharges, such that storm waters exceeding these levels will be diverted for retention and suitable disposal. The licensee shall have regard to the Environmental Protection Agency "Guidance on the setting of trigger values for storm water discharges to off-site surface waters at EPA IPPC and Waste licensed facilities" when establishing the suitable trigger levels.
- 6.14 **Noise**
- The licensee shall carry out a noise survey of the site operations annually. The survey programme shall be undertaken in accordance with the methodology specified in the 'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)' as published by the Agency.
- 6.15 **Pollutant Release and Transfer Register (PRTR)**
- The licensee shall prepare and report a PRTR for the site. The substance and/or wastes to be included in the PRTR shall be as agreed by the Agency each year by reference to EC Regulations No. 166/2006 concerning the establishment of the European Pollutant Release and Transfer Register. The PRTR shall be prepared in accordance with any relevant guidelines issued by the Agency and shall be submitted electronically in specified format and as part of the AER.
- 6.16 The licensee shall, within six months of the date of grant of this licence, develop and establish a Data Management System for collation, archiving, assessing and graphically presenting the monitoring data generated as a result of this licence.
- 6.17 **The readouts from continuous emission monitors shall report monitoring compliance information that enables direct comparison with the emission limit values specified in *Schedule B: Emission Limits* of this licence.**
- 6.18 **Groundwater monitoring trigger levels agreed with the Agency shall be used in the assessment of, and response to, groundwater monitoring data.**
- 6.19 **Residues from the pyrolysis plant shall be subject to the monitoring and analysis specified in *Schedule C.4: Monitoring of Residues* of this licence. The monitoring and analysis shall establish the physical and chemical characteristics and polluting potential of the residues.**

Reason: To provide for the protection of the environment by way of treatment and monitoring of emissions and to provide for the requirements of Section 99E of the EPA Acts 1992 as amended.

Condition 7. Resource Use and Energy Efficiency

7.1 Energy Efficiency

7.1.1 The licensee shall operate the installation to achieve an energy efficiency of, as a minimum, 0.65 using the formula below to calculate Energy Efficiency:

$$\text{Energy Efficiency} = [E_p - (E_f + E_i)] / [0.97 \times (E_w + E_i)] \text{ where}$$

E_p = annual energy produced as heat or electricity (GJ/year) (heat produced for commercial use is multiplied by 1.1 and electricity is multiplied by 2.6)

E_f = annual energy input to the system from fuels contributing to the production of steam (GJ/year)

E_w = annual energy contained in the waste input using the net calorific value of the waste (GJ/year)

E_i = annual energy imported excluding E_w and E_f

And 0.97 is a factor accounting for energy losses.

The calculation shall be completed annually and reported in the AER and shall be based on municipal solid waste only, and in accordance with the European Commission's Guidelines on the Interpretation of the R1 Energy Efficiency Formula for Incineration Facilities Dedicated to the Processing of Municipal Solid Waste According to Annex II of Directive 2008/98/EC on Waste.

7.1.2 The licensee shall carry out an audit of the energy efficiency of the site **within one year of the date of commencement of the activity**. The audit shall be carried out in accordance with the guidance published by the Agency, "Guidance Note on Energy Efficiency Auditing". The audit shall be repeated annually and reported to the Agency in the AER. The energy efficiency audit report shall include:

- (i) A review of opportunities for increasing the overall energy efficiency of the installation.
- (ii) Progress with those opportunities identified in the previous report.
- (iii) The net usable energy produced per tonne of waste processed (i.e. energy consumption of the installation and unused energy discharged from cooling operations to be deducted).

The report shall include a full breakdown of the calculation of each parameter in the equation referred to in Condition 7.1 and the net usable energy produced per tonne of waste processed.

7.1.3 The audit shall identify all practicable opportunities for energy use reduction and efficiency and the recommendations of the audit will be incorporated into the Schedule of Environmental Objectives and Targets under Condition 2 above.

7.2 The licensee shall identify opportunities for reduction in the quantity of water used on site including recycling and reuse initiatives, wherever possible. Reductions in water usage shall be incorporated into Schedule of Environmental Objectives and Targets.

7.3 The licensee shall undertake an assessment of the efficiency of use of raw materials in all processes, having particular regard to the reduction in waste generated. The assessment should take account of best international practice for this type of activity. Where improvements are identified, these shall be incorporated into the Schedule of Environmental Objectives and Targets.

Reason: To provide for the efficient use of resources and energy in all site operations.

Condition 8. Materials Handling

- 8.1 Disposal or recovery of waste on-site shall only take place in accordance with the conditions of this licence and in accordance with the appropriate National and European legislation and protocols.
- 8.2 Waste shall be accepted at/removed from the installation only from/by an authorised or exempted carrier under National or European legislation or protocols. Copies of the waste collection permits shall be maintained at the installation.
- 8.3 **Operational Controls – Waste Acceptance/Removal and Treatment**
- 8.3.1 The quantity of waste to be accepted at the installation on a daily basis shall not exceed the appropriate storage capacity available for such waste.
- 8.3.2 The licensee shall maintain detailed written procedures for the acceptance and handling of all wastes at the facility. These procedures shall provide for the characterisation of wastes as necessary to demonstrate compliance with the requirements of this licence.
- 8.3.3 The waste acceptance/removal and characterisation procedures shall also include methods for the characterisation of waste sent off-site for disposal/recovery, in order to distinguish between inert, non-hazardous and hazardous wastes. In the case of materials dispatched to landfill, such methods shall have regard to the EU decision (2003/33/EC) on establishing the criteria and procedures for the acceptance of waste at landfills or any revisions pursuant to Article 16 and Annex II of Directive (1999/31/EC) on the landfill of waste.
- 8.3.4 The documentation of waste arriving at the facility shall be checked at the point of entry to the facility. Subject to its verification, the waste shall be weighed, recorded and directed to the waste acceptance/quarantine area as appropriate.
- 8.3.5 All waste processing shall take place inside the building.
- 8.3.6 Any waste deemed unsuitable for processing at the facility and or in contravention of this licence shall be immediately separated and removed from the facility at the earliest possible time. Temporary storage of such wastes shall be in a designated Waste Quarantine Area. Waste shall be stored under appropriate conditions in the quarantine area to avoid odour nuisance, the attraction of vermin and any other nuisance or objectionable condition.
- 8.3.7 Waste shall be accepted at the facility from known customers or new customers subject to initial waste profiling and waste characterisation off-site. The written records of this off-site waste profiling and characterisation shall be retained by the licensee for all active customers and for a two year period following termination of licensee/customer agreements.
- 8.3.8 The licensee shall determine the calorific values and the content of pollutants as required to provide for the management of waste input to the pyrolysis process to ensure compliance with the emission limit values set out in this licence.
- 8.3.9 Waste shall be stored in designated areas, protected as may be appropriate against spillage and leachate run-off. The waste shall be clearly labelled and appropriately segregated.
- 8.3.10 Waste for disposal/recovery off-site shall be analysed in accordance with *Schedule C: Control & Monitoring*, of this licence.
- 8.4 **Solid Recovered Fuel**
- 8.4.1 Solid recovered fuel produced at the facility shall be produced to a technical specification that has regard to any published or, as appropriate, draft Irish or international standard or guidance document relevant to the supply of solid

recovered fuel and as appropriate for this installation. Any departure from such a relevant standard or guidance document shall be agreed by the Agency.

8.4.2 The technical specification referred to in Condition 8.4.1 shall set out the criteria to be met in order that pyrolysis of the solid recovered fuel will not lead to failure to comply with the conditions of the licence.

8.4.3 The licensee shall monitor the SRF quality on a quarterly basis to confirm it meets the required specification and shall retain records accordingly.

8.4.4 No solid recovered fuel classified as waste shall be supplied to another installation or facility without the prior agreement of the Agency.

8.5 Waste Pre-treatment

8.5.1 In the case of municipal waste, only waste that has been subject to pre-treatment shall be accepted for pyrolysis at the installation.

8.5.2 Pre-treatment shall reflect published EPA technical guidance as set out in Municipal Solid Waste – Pre-treatment and Residuals Management, EPA, 2009.

8.6 Synthesis gas specification

8.6.1 The applicant shall agree a quality specification for the synthesis gas with the Agency prior to its use in the gas engines.

8.6.2 In the event that the licensee cannot meet the synthesis gas quality specification, the production of synthesis gas shall cease and any residual quantities shall be flared.

8.7 Waste sent off-site for recovery or disposal shall be transported only by an authorised waste contractor. The waste shall be transported from the site of the activity to the site of recovery/disposal only in a manner that will not adversely affect the environment and in accordance with the appropriate National and European legislation and protocols.

8.8 The licensee shall ensure that, in advance of transfer to another person, waste shall be classified, packaged and labelled in accordance with National, European and any other standards which are in force in relation to such labelling.

8.9 The loading and unloading of materials shall be carried out in designated areas protected against spillage and leachate run-off.

8.10 No waste classified as green list waste in accordance with the EU Shipment of Waste Regulations (Council Regulation EEC No. 1013/2006, as may be amended) shall be consigned for recovery without the agreement of the Agency.

8.11 Unless approved in writing, in advance, by the Agency the licensee is prohibited from mixing a hazardous waste of one category with a hazardous waste of another category or with any other non-hazardous waste.

8.12 The licensee shall neither import waste into the State nor export waste out of the State except in accordance with the relevant provisions of Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14th June 2006 on shipments of waste and associated national regulations.

8.13 Pyrolysis Residues

8.13.1 Vitrified slag shall be stored at dedicated areas within the pyrolysis building on concrete hardstanding with contained drainage, or other covered hardstanding areas agreed with the Agency.

8.13.2 The licensee shall ensure that vitrified slag is suitably treated, either on-site or off-site, before final disposal or recovery.

8.14 The licensee shall ensure that waste generated in the carrying on of the activity shall be prepared for re-use, recycling or recovery or, where that is not technically or economically possible, disposed of in a manner which will prevent or minimise any impact on the environment.

Reason: To provide for the appropriate handling of material and the protection of the environment.

Condition 9. Accident Prevention and Emergency Response

- 9.1 The licensee shall, **in advance of the commencement of the activity**, ensure that a documented Accident Prevention Procedure is in place that addresses the hazards on-site, particularly in relation to the prevention of accidents with a possible impact on the environment. This procedure shall be reviewed annually and updated as necessary.
- 9.2 The licensee shall, **in advance of the date of commencement of the activity**, ensure that a documented Emergency Response Procedure is in place that addresses any emergency situation which may originate on-site. This procedure shall include provision for minimising the effects of any emergency on the environment. This procedure shall be reviewed annually and updated as necessary.
- 9.3 **Incidents**
- 9.3.1 In the event of an incident the licensee shall immediately:
- (i) carry out an investigation to identify the nature, source and cause of the incident and any emission arising therefrom;
 - (ii) isolate the source of any such emission;
 - (iii) evaluate the environmental pollution, if any, caused by the incident;
 - (iv) identify and execute measures to minimise the emissions/malfunction and the effects thereof;
 - (v) identify the date, time and place of the incident;
 - (vi) notify the Agency and other relevant authorities.
- 9.3.2 The licensee shall provide a proposal to the Agency for its agreement within one month of the incident occurring or as otherwise agreed by the Agency, to:
- (i) identify and put in place measures to avoid recurrence of the incident; and
 - (ii) identify and put in place any other appropriate remedial actions.
- 9.3.3 The licensee shall, where an incident or accident that significantly affects the environment occurs, without delay take measures to limit the environmental consequences of the incident or accident and to prevent further incident or accident.
- 9.4 **Emergencies**
- 9.4.1 In the event of a complete breakdown of equipment or any other occurrence which results in the shutdown of the pyrolysis plant or process line, any waste stored or awaiting processing at the installation shall, subject to the agreement of the Agency, be transferred to an appropriate facility within three days of shut-down, unless otherwise agreed with the Agency.
- 9.4.2 All significant spillages occurring at the installation shall be treated as an emergency and immediately cleaned up and dealt with so as to alleviate their effects.
- 9.4.3 A fire outbreak at the installation shall be treated as an emergency and appropriate action shall be taken immediately. Notify the appropriate authorities, including the Agency, in such circumstances.

Reason: To provide for the protection of the environment.

Condition 10. Decommissioning & Residuals Management

- 10.1 Following termination, or planned cessation for a period greater than six months, of use or involvement of all or part of the site in the licensed activity, the licensee shall, to the satisfaction of the Agency, decommission, render safe or remove for disposal/recovery any soil, subsoil, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.
- 10.2 Decommissioning Management Plan (DMP)
- 10.2.1 The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for the decommissioning or closure of the site or part thereof. This plan shall be submitted to the Agency for agreement in advance of the commencement of the activity.
- 10.2.2 The plan shall be reviewed annually and proposed amendments thereto notified to the Agency for agreement as part of the AER. No amendments may be implemented without the agreement of the Agency.
- 10.2.3 The licensee shall have regard to the Environmental Protection Agency's *Guidance on assessing and costing environmental liabilities* when implementing Condition 10.2.1 above.
- 10.3 The Decommissioning Management Plan shall include, as a minimum, the following:
- (i) a scope statement for the plan;
 - (ii) the criteria that define the successful decommissioning of the activity or part thereof, which ensures minimum impact on the environment;
 - (iii) a programme to achieve the stated criteria;
 - (iv) where relevant, a test programme to demonstrate the successful implementation of the decommissioning plan; and
 - (v) details of the costings for the plan and the financial provisions to underwrite those costs.
- 10.4 A final validation report to include a certificate of completion for the Decommissioning Management Plan, for all or part of the site as necessary, shall be submitted to the Agency within three months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment.

Reason: *To make provision for the proper closure of the activity ensuring protection of the environment.*

Condition 11. Notification, Records and Reports

- 11.1 The licensee shall notify the Agency, in writing, one month in advance of the intended date of commencement of the Scheduled Activity.
- 11.2 The licensee shall notify the Agency by both telephone and either email or webform, to the Agency's headquarters in Wexford, or to such other Agency office as may be specified by the Agency, as soon as practicable after the occurrence of any of the following:
- (i) any release of environmental significance to atmosphere from any potential emissions point including bypasses;
 - (ii) any emission that does not comply with the requirements of this licence;
 - (iii) any malfunction or breakdown of key control equipment or monitoring equipment set out in *Schedule C: Control and Monitoring*, of this licence which is likely to lead to loss of control of the abatement system; and

- (iv) any incident with the potential for environmental contamination of surface water or groundwater, or posing an environmental threat to air or land, or requiring an emergency response by the Local Authority.

The licensee shall include as part of the notification, date and time of the incident, summary details of the occurrence, and where available, the steps taken to minimise any emissions.

- 11.3 The licensee shall notify the Agency, in a format as may be specified by the Agency, without delay after:**

- (i) an incident or accident that significantly affects the environment, and/or
- (ii) the occurrence of any breach of one or more of the conditions attached to this licence.

- 11.4 The following shall be notified, as soon as practicable after the occurrence of any incident which relates to a discharge to water:**

- (i) **Inland Fisheries Ireland, in the case of discharges to receiving waters.**
- (ii) **Marine Institute (MI), Sea Fisheries Protection Authority (SFPA), Food Safety Authority of Ireland (FSAI) and an Bord Iascaigh Mhara (BIM) in the case of discharges to or likely to impact a shellfish water.**
- (iii) **Irish Water and/or Water Services Authority, in the case of any incident where the discharge is upstream of a drinking water abstraction point.**

- 11.5** The licensee shall make a record of any incident. This record shall include details of the nature, extent, and impact of, and circumstances giving rise to, the incident. The record shall include all corrective actions taken to manage the incident, minimise wastes generated and the effect on the environment, and avoid recurrence. The licensee shall, as soon as practicable following incident notification, submit to the Agency the incident record.

- 11.6** The licensee shall record all complaints of an environmental nature related to the operation of the activity. Each such record shall give details of the date and time of the complaint, the name of the complainant (if provided), and give details of the nature of the complaint. A record shall also be kept of the response made in the case of each complaint.

- 11.7** The licensee shall record all sampling, analyses, measurements, examinations, calibrations and maintenance carried out in accordance with the requirements of this licence and all other such monitoring which relates to the environmental performance of the installation.

- 11.8** The licensee shall as a minimum ensure that the following documents are accessible at the site:

- (i) the licences relating to the installation;
- (ii) the current EMS for the installation;
- (iii) the previous year's AER for the installation;
- (iv) records of all sampling, analyses, measurements, examinations, calibrations and maintenance carried out in accordance with the requirements of this licence and all other such monitoring which relates to the environmental performance of the installation;
- (v) relevant correspondence with the Agency;
- (vi) up-to-date site drawings/plans showing the location of key process and environmental infrastructure, including monitoring locations and emission points;
- (vii) up-to-date Standard Operational Procedures for all processes, plant and equipment necessary to give effect to this licence or otherwise to ensure that standard operation of such processes, plant or equipment does not result in unauthorised emissions to the environment;
- (viii) any elements of the licence application or EIS documentation referenced in this licence.

This documentation shall be available to the Agency for inspection at all reasonable times.

- 11.9** The licensee shall submit to the Agency, by the 31st March of each year, an AER covering the previous calendar year. This report, which shall be to the satisfaction of the Agency, shall include as a minimum the information specified in *Schedule D: Annual Environmental Report*,

of this licence and shall be prepared in accordance with any relevant guidelines issued by the Agency.

- 11.10. A full record, which shall be open to inspection by authorised persons of the Agency at all times, shall be kept by the licensee on matters relating to the waste management operations and practices at this site. This record shall be **maintained on a monthly basis and shall as a minimum contain details of the following:**
- (i) the tonnages and EWC Code for the waste materials **imported and/or** sent off-site for disposal/recovery;
 - (ii) the names of the agent and carrier of the waste, and their waste collection permit details, if required (to include issuing authority and vehicle registration number);
 - (iii) details of the ultimate disposal/recovery destination facility for the waste and its appropriateness to accept the consigned waste stream, to include its permit/licence details and issuing authority, if required;
 - (iv) written confirmation of the acceptance and disposal/recovery of any hazardous waste consignments sent off-site;
 - (v) details of all waste consigned abroad for Recovery and classified as 'Green' in accordance with the EU Shipment of Waste Regulations (Council Regulation EEC No. 1013/2006, as may be amended). The rationale for the classification must form part of the record;
 - (vi) details of any rejected consignments;
 - (vii) details of any approved waste mixing;
 - (viii) the results of any waste analyses required under *Schedule C: Control & Monitoring*, of this licence; and
 - (ix) the tonnage and EWC Code for the waste materials recovered/disposed on-site.
 - (x) **failure to meet the standard for SRF.**
- 11.11 The licensee shall maintain a written record for each load of waste arriving at and departing from the facility. The licensee shall record the following:
- (i) the date and time;
 - (ii) the vehicle registration number;
 - (iii) the name of the carrier (including if appropriate, the waste carrier registration details);
 - (iv) the trailer, skip or other container unique identification number (where relevant);
 - (v) the name of the producer(s)/collector(s) of the waste as appropriate;
 - (vi) the name of the waste facility (if appropriate) from which the load originated
 - (vii) including the waste licence or waste permit register number;
 - (viii) a description of the waste including the associated EWC/HWL codes;
 - (ix) the quantity of the waste, recorded in tonnes;
 - (x) details of the treatment(s) to which the waste has been subjected;
 - (xi) the classification and coding of the waste, including whether MSW or otherwise;
 - (xii) whether the waste is for disposal or recovery and if recovery for what purpose;
 - (xiii) the name of the person checking the load; and where loads or wastes are removed or rejected, details of the date of occurrence, the types of waste and the facility to which they were removed.
- 11.12 The licensee shall submit report(s) as required by the conditions of this licence to the Agency's Headquarters in Wexford, or to such other Agency office as may be specified by the Agency.

11.13 All reports shall be certified accurate and representative by the installation manager or a nominated, suitably qualified and experienced deputy.

11.14 The licensee shall maintain a record/log of the use of the emergency generator. A summary of the record/log shall be included as part of the AER.

11.15 Waste Recovery Report

The licensee shall as part of the Annual Environmental Report for the site submit a report on the contribution by this facility to the achievement of the waste recovery objectives stated in Condition 2.3.2.2 and as otherwise may be stated in National and European Union waste policies and shall, as a minimum, include tonnages on the following:

- (i) the recovery of metals;
- (ii) the recovery of C & D derived waste materials;
- (iii) the recovery/treatment of biowaste and organic fines, including a statement on the contribution of the facility to the pre-treatment targets in the EU Landfill Directive;
- (iv) the separation and recovery of other recyclable materials;
- (v) the recovery of energy through syngas and char combustion.
- (vi) the recovery of pyrolysis residues on site, off-site and their final use.

Reason: To provide for the collection and reporting of adequate information on the activity.

Condition 12. Financial Charges and Provisions

12.1 Agency Charges

12.1.1 The licensee shall pay to the Agency an annual contribution of **€56,684**, or such sum as the Agency from time to time determines, having regard to variations in the extent of reporting, auditing, inspection, sampling and analysis or other functions carried out by the Agency, towards the cost of monitoring the activity as the Agency considers necessary for the performance of its functions under the Environmental Protection Agency Acts 1992 to 2013. The first payment shall be a pro-rata amount for the period from the **date of grant of licence** to the 31st day of December, and shall be paid to the Agency within one month from the date of grant of the licence. In subsequent years the licensee shall pay to the Agency such revised annual contribution as the Agency shall from time to time consider necessary to enable performance by the Agency of its relevant functions under the Environmental Protection Agency Acts 1992 to 2013, and all such payments shall be made within one month of the date upon which demanded by the Agency.

12.1.2 In the event that the frequency or extent of monitoring or other functions carried out by the Agency needs to be increased, the licensee shall contribute such sums as determined by the Agency to defray its costs in regard to items not covered by the said annual contribution.

12.2 Environmental Liabilities

12.2.1 The licensee shall as part of the AER, provide an annual statement as to the measures taken or adopted at the site in relation to the prevention of environmental damage, and the financial provisions in place in relation to the underwriting of costs for remedial actions following anticipated events (**including closure**) or accidents/incidents, as may be associated with the carrying on of the activity.

12.2.2 The licensee shall arrange for the completion, by an independent and appropriately qualified consultant, of a comprehensive and fully costed Environmental Liabilities Risk Assessment (ELRA) which addresses the liabilities from past and present activities. The assessment shall include those liabilities and costs identified in Condition 10 for execution of the DMP. A report on this assessment shall be submitted to the Agency for agreement **in advance of the commencement of the**

activity. The ELRA shall be reviewed as necessary to reflect any significant change on site, and in any case every three years following initial agreement. Review results are to be notified as part of the AER.

- 12.2.3 **In advance of the commencement of the activity,** the licensee shall, to the satisfaction of the Agency, make financial provision to cover any liabilities associated with the operation (including closure). The amount of indemnity held shall be reviewed and revised as necessary, but at least annually. Proof of renewal or revision of such financial indemnity shall be included in the annual 'Statement of Measures' report identified in Condition 12.2.1.
- 12.2.4 The licensee shall revise the cost of closure annually and any adjustments shall be reflected in the financial provision made under Condition 12.2.3.
- 12.2.5 The licensee shall have regard to the Environmental Protection Agency Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provision when implementing Conditions 12.2.2 and 12.2.3 above.

<p>Reason: <i>To provide for adequate financing for monitoring and financial provisions for measures to protect the environment.</i></p>

SCHEDULE A: Limitations

A.1

The following waste related processes are authorised:

- i. Mechanical treatment of non-hazardous waste including sorting, separation, shredding, crushing, trommelling, screening, drying and baling.
- ii. Recovery of dry recyclables
- iii. Production of solid recovered fuel.
- iv. Use of waste as a fuel.
- v. Cleaning and conditioning of syngas.

No additions to these processes are permitted unless agreed in advance with the Agency.

A.2 Waste Acceptance

Table A.1 Waste Categories and Quantities

A.2 Waste Accepted

Waste Type		Maximum (Tonnes Per Annum)
Non- Hazardous Wastes ^{Note 1}	Mixed Municipal Waste (European Waste Catalogue Code 20 03 01)	65,000

Note 1: Any proposals to accept other compatible non-hazardous waste types must be agreed in advance by the Agency.

SCHEDULE B: Emission Limits**B.1 Emissions to Air**

Emission Point Reference No:	A2-1 (Primary Stack)
Location:	Main Building
Volume to be emitted:	Maximum in any one day: 435,168 m ³ Maximum rate per hour: 18,132 m ³
Minimum discharges height:	30 m above ground

Parameters	Units	Half Hour Average		Daily Average	Periodic
		A	B		
Total dust	mg/m ³	30 ^{Note 1}	10 ^{Note 1}	10	-
Gaseous and vaporous organic substances, expressed as total organic carbon	mg/m ³	20 ^{Note 1}	10 ^{Note 1}	10	-
Hydrogen chloride (HCl)	mg/m ³	60 ^{Note 1}	10 ^{Note 1}	10	-
Hydrogen fluoride (HF)	mg/m ³	4 ^{Note 1}	2 ^{Note 1}	1	-
Sulphur dioxide (SO ₂)	mg/m ³	200 ^{Note 1}	50 ^{Note 1}	50	-
Oxides of Nitrogen (NO and NO ₂ , expressed as NO ₂)	mg/m ³	400 ^{Note 1}	200 ^{Note 1}	175	-
The sum of Cadmium (as Cd) and thallium (as Tl), and their compounds ^{Note 2}	mg/m ³	-	-	-	0.05
Mercury (as Hg) and its compounds ^{Note 2}	mg/m ³	-	-	-	0.05
The sum of antimony (as Sb), arsenic (as As), lead (as Pb), chromium (as Cr), cobalt (as Co), copper (as Cu), manganese (as Mn), nickel (as Ni), and vanadium (as V) ^{Note 2}	mg/m ³	-	-	-	0.5
Dioxins/furans (TEQ) ^{Note 3}	ng/m ³	-	-	-	0.1
Carbon monoxide (CO)	mg/m ³	100 ^{Note 4}	-	50 ^{Note 5}	150 ^{Note 4}

Note 1: Either none of the half-hourly average values shall exceed any of the emission limit values set out in column A, or, 97 % of the half-hourly average values over the year shall not exceed any of the emission limit values set out in column B.

Note 2: All average values over a sampling period of a minimum of 30 minutes and a maximum of 8 hours. Metals include both gaseous and vapour and solid phases as well as their compounds (expressed as the metal or total as specified).

Note 3: Average values shall be measured over a sampling period of a minimum of 6 hours and a maximum of 8 hours. The emission limit value refers to the total concentration of dioxins and furans calculated using the concept of toxic equivalence in accordance with Part 2 of Annex VI of Directive 2010/75/EU.

Note 4: At least 95% of all 10-minute values taken in any 24 hour period or all the half-hourly average values taken in the same period shall not exceed the emission limit values specified.

Note 5: At least 97% of the daily average values over the year shall not exceed the emission limit value.

Emission Point Reference No: A2-2, A2-3, A2-4, A2-5 (Gas Engine Exhausts)
Location: Main Building
Volume to be emitted (each gas engine): Maximum in any one day: 221,376 m³
 Maximum rate per hour: 9,224 m³
Minimum discharges height: 30 m above ground

Parameter	Emission Limit Value
Oxides nitrogen (as NO ₂)	50 mg/m ³
Carbon monoxide	50 mg/m ³
Particulate Matter	10 mg/m ³
Volatile organic compounds (as C)	10 mg/m ³



Emission Point Reference No: A2-6 (Waste Drying Stack)
Location: Main Building
Volume to be emitted: Maximum in any one day: 5,184,000 m³
 Maximum rate per hour: 216,000 m³
Minimum discharges height: 18.9 m above ground

Parameter	Emission Limit Value
Particulate matter	3 mg/m ³



B.2 Emissions to Water

There shall be no emissions to water of environmental significance.



B.3 Emissions to Sewer

There shall be no emissions to sewer.



B.4 Noise Emissions

Daytime dB L _{Ar,T} (30 minutes)	Evening time dB L _{Ar,T} (30 minutes)	Night-time dB L _{Aeq,T} (15-30 minutes)
55	50	45 ^{Note 1}

Note 1: There shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise-sensitive location.



SCHEDULE C: Control & Monitoring

C.1.1: Process Control ^{Note 1}

Emission Point Reference No:

A2-1

Description of Treatment:

Process control and ceramic filter

<i>Monitoring of Fuel Feed (SRF) Input</i>		
Control Parameter	Monitoring (continuous unless otherwise stated in licence)	Key Equipment ^{Note 2}
SRF input	Feedstock level	Compactor hopper level indicators
SRF input	Piston pressure	Pressure monitors
SRF input	Piston stroke length	Linear transducers
SRF input	Feedstock level	Infeed hopper level indicators
SRF input	Water jacket flow and temperature	Thermal dispersion flow sensors
<i>Monitoring of Char Generation, Char Feed & Char Combustion</i>		
Control Parameter	Monitoring (continuous unless otherwise stated in licence)	Key Equipment
Char feed	Char hopper level	Paddle level switches
Combustion	Combustion chamber temperature ^{Note 3}	Thermocouples
Combustion	Combustion chamber pressure	Pressure monitors
Combustion	Combustion air flow	FD (forced draught) duct mass air flow meter and FD fan speed
Combustion	Flue gas O ₂	O ₂ analysers
Exhaust gas	Exhaust gas pressure	Pressure monitors
<i>Monitoring of Energy Recovery (Residual Pyrolysis Exhaust Heat Utilised in Heat Recovery Steam Generator, Steam Directed to Steam Turbine)</i>		
Control Parameter	Monitoring (continuous unless otherwise stated in licence)	Key Equipment
Energy recovery	Steam Flow, Condenser Control, Turbine Control	Flow meter, Temperature, Pressure analysers
Boiler outlet gas	Pressure	Pressure monitor
Boiler outlet gas	Temperature	Thermocouple
Feed water supply	Water rate and level	Flow meter and level switches

C.1.1 (Continued)

<i>Flue gas cleaning</i>		
Location	Item/Parameter	Monitoring Equipment
Reagent addition (SNCR)	Ammonia dosage rate	Flow meter
	Ammonia storage	Low level alarm
	Rotary atomiser	Weekly cleaning
	Outlet temperature	Thermocouple
Reagent re-circulation (SNCR)	Re-circulated flue gas cleaning residues supply hopper	Low and high level alarms
Flue gas	Pressure differential across ceramic filters	Pressure sensors
Flue gas discharge	HCl and SO ₂ concentration	Inline flue gas analyser
	Flue gas pressure	Pressure sensors at inlet

Note 1: Or other monitoring equipment agreed in advance by the Agency

Note 2: The licensee shall maintain appropriate access to standby and/or spares to ensure the operation of the system.

Note 3: The temperature shall be measured at the top of the secondary cyclonic convertor, at the retort surface, and the inlet and outlet of the residence tube (or other representative location agreed by the Agency).



Emission Point Reference No:

A2-2, A2-3, A2-4, A2-5 (Engine Stacks)

Description of Treatment:

Process control and ceramic filter

<i>Monitoring of Syngas Generation (Pyrolysis)</i>		
Control Parameter	Monitoring (continuous unless otherwise stated in licence)	Key Equipment ^{Note 2}
Syngas Quality	Retort temperature (and expansion length)	IR sensors
Pyrolysis	Pressure in retort	Pressure monitors
Pyrolysis	Secondary cyclonic convertor exhaust gas temperature	Thermocouple
Pyrolysis	Oxygen in retort	O ₂ analyser
Pyrolysis	Nitrogen in retort	N ₂ analyser
<i>Monitoring of Syngas Cleaning & Conditioning</i>		
Control Parameter	Monitoring (continuous unless otherwise stated in licence)	Key Equipment
Syngas cleaning	Syngas temperature at inlet of quench vessel	Thermocouple
Syngas cleaning	Syngas temperature at top of gas wash chambers	Thermocouple
Syngas cleaning	Flow (syngas wash chambers)	Flow switches and low level alarm
Syngas cleaning	Differential pressure (syngas wash chambers/scrubber towers)	Pressure monitors (between syngas wash and exit of second scrubber tower) with alarm
Syngas cleaning	Water level (scrubber towers)	Level switch with high level alarm
Syngas conditioning	Activated carbon dosing	Dosage rate meter and dosing bin weight
Syngas conditioning	Pressure differential across ceramic filters	Pressure sensors

C.1.1 (Continued)

Monitoring of Energy Recovery (Syngas combustion and residual engine exhaust heat utilised in heat recovery steam generator (HRS), steam directed to steam turbine)		
Control Parameter	Monitoring (continuous unless otherwise stated in licence)	Key Equipment
Syngas combustion	Temperature	Thermocouples
Syngas combustion	Pressure	Pressure monitors
Syngas combustion	%O ₂ in syngas	O ₂ analyser before engines
Energy Recovery (HRS) and steam turbine	Steam flow, condenser control, turbine control	Flow meter, temperature and pressure analysers
Boiler outlet gas	Pressure	Pressure sensors
Boiler outlet gas	Temperature	Thermocouple
Feed water supply	Water rate and level	Flow meter and level switches
Energy recovery (Syngas engines)	Syngas flow, condenser control, engine control	Gas meter, temperature and pressure analysers

Flue gas cleaning

Location	Item/Parameter	Monitoring Equipment
Reagent addition (Selective Catalytic Reduction, SCR)	Urea dosage rate	Flow meter
	Urea storage	Low level alarm
	Rotary atomiser	Weekly cleaning
	Outlet temperature	Thermocouple
Reagent re-circulation	Re-circulated flue gas cleaning residues supply hopper	Low and high level alarms
Flue gas discharge	Flue gas pressure	Pressure sensors at inlet

Note 1: Or other monitoring equipment agreed in advance by the Agency
 Note 2: The licensee shall maintain appropriate access to standby and/or spares to ensure the operation of the system.
 Note 3: Near the inner wall of the combustion chamber (or other representative location agreed by the Agency).

Emission Point Reference No:

A2-6 (Dryers Stack)

Description of Treatment:

Activated carbon and baghouse filters

<i>Monitoring of Pre-treatment</i>		
Control Parameter	Monitoring (continuous unless otherwise stated in licence)	Key Equipment ^{Note 2}
Moisture content	Dryer outlet temperature	Thermocouple
<i>Flue gas cleaning</i>		
Location	Item/Parameter	Monitoring Equipment
Dryer stack discharge (Air discharge system)	Flue gas temperature	Thermocouple
	Flue gas pressure	Pressure transmitters
Dryer Stack (Activated carbon filter)	Activated carbon filter status	Manual monitoring and sampling
Dryer Stack (Baghouse filters)	Pressure differential across baghouse filters	Differential pressure indicator
	Temperature of discharge hopper Level	Thermocouple Level alarm

Note 1: Or other monitoring equipment agreed in advance by the Agency

Note 2: The licensee shall maintain appropriate access to standby and/or spares to ensure the operation of the system.



C.1.2. Monitoring of Emissions to Air

Emission Point Reference No:

A2-1

Parameters	Monitoring Frequency ^{Note 1}	Analysis Method / Technique
Total dust	Continuous	Iso-kinetic/gravimetric
PM ₁₀	Quarterly	To be agreed by the Agency
PM _{2.5}	Quarterly	To be agreed by the Agency
Gaseous and vaporous organic substances, expressed as total organic carbon	Continuous	Flame Ionisation Detector
Hydrogen chloride (HCl)	Continuous ^{Note 1}	Infra red analyser
Hydrogen fluoride (HF)	Continuous ^{Note 1}	To be agreed by Agency
Sulphur dioxide (SO ₂)	Continuous ^{Note 1}	Infra red analyser
Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	Continuous	Infra red analyser
Cadmium (as Cd) and thallium (as Tl), and their compounds	Biannual measurement, average value over sample period of between 6 and 8 hours. (Quarterly for first 12 months from date of grant of licence)	To be agreed by the Agency
Mercury (as Hg) and its compounds	Biannual measurement, average value over sample period of between 6 and 8 hours. (Quarterly for first 12 months from date of grant of licence)	To be agreed by the Agency
Antimony (as Sb), arsenic (as As), lead (as Pb), chromium (as Cr), cobalt (as Co), copper (as Cu), manganese (as Mn), nickel (as Ni), and vanadium (as V) and their compounds	Biannual measurement, average value over sample period of between 6 and 8 hours. (Quarterly for first 12 months from date of grant of licence)	To be agreed by the Agency
Dioxins/furans	Biannual measurement, average value over sample period of between 6 and 8 hours. (Quarterly for first 12 months from date of grant of licence)	CEN method (EN 1948, parts 1,2, and 3)
Carbon monoxide (CO)	Continuous	Infra red analyser

Emission Point Reference No: A2-2, A2-3, A2-4, A2-5

Parameter	Monitoring Frequency	Analysis Method/Technique
Oxides of Nitrogen (as NO ₂)	Biannually	Flue gas analyser
Carbon Monoxide	Biannually	Flue gas analyser
Volatile organic compounds (as C)	Quarterly	Standard Method
Particulate Matter	Quarterly	Standard Method



Emission Point Reference No: A2-6

Parameter	Monitoring Frequency	Analysis Method/Technique
Particulate Matter	Quarterly	Standard Method



Emission Point Reference No: A2-7

Parameter	Monitoring Frequency ^{Note 1}	Analysis Method/Technique
Oxides of Nitrogen (as NO ₂)	On installation	Flue gas analyser
Carbon Monoxide	On installation	Flue gas analyser
Total organic carbon (as C)	On installation	Standard Method
Particulate Matter	On installation	Standard Method

Note 1: Monitoring to be carried out on installation and thereafter as instructed by the Agency.



C.2.1. Control of Emissions to Water

There shall be no emissions to water of environmental significance.



C.2.2. Monitoring of Emissions to Water

There shall be no emissions to water of environmental significance.



C.2.3. Monitoring of Storm Water Emissions

Emission Point Reference No: SW1

Parameter	Monitoring Frequency	Analysis Method/Technique
Flow	Continuous	As agreed with the Agency
pH	Continuous	Standard method
Conductivity	Continuous	Standard method
Total organic carbon (as C)	Continuous	Standard method
Temperature	Continuous	Standard method
Visual Inspection	Daily	Sample and examine for colour and odour.



C.3.1. Control of Emissions to Sewer

There shall be no process effluent emissions to sewer.



C.3.2. Monitoring of Emissions to Sewer

There shall be no process effluent emissions to Sewer.



C.4 Monitoring of Residues

Waste Class	Parameter	Frequency ^{Note 1}
Vitrified slag residue	TOC, metals ^{Note 2} and their compounds, chloride, fluoride, sulphate, dioxins/furans and dioxin-like PCBs. Classification (hazardous/non-hazardous)	Weekly during the test programme, quarterly thereafter.
Intermediate residual char	TOC, metals ^{Note 2} and their compounds, chloride, fluoride, sulphate, dioxins/furans and dioxin-like PCBs. Classification (hazardous/non-hazardous)	Weekly during the test programme, quarterly thereafter.
Solid flue gas treatment residues	TOC, metals ^{Note 2} and their compounds, chloride, fluoride, sulphate, dioxins/furans and dioxin-like PCBs.	Weekly during the test programme, annually thereafter.
Scrubber water treatment residues	TOC, metals ^{Note 2} and their compounds, chloride, fluoride, sulphate, dioxins/furans and dioxin-like PCBs.	Weekly during the test programme, annually thereafter.
Oil based residues	TOC, metals ^{Note 2} and their compounds, chloride, fluoride, sulphate, dioxins/furans and dioxin-like PCBs.	Weekly during the test programme, annually thereafter.
Other ^{Note 3}		

Note 1: All analysis to be undertaken at an accredited laboratory, where possible, employing accredited procedures.

Note 2: Metals shall include Ba, Cd, Mo, Sb, Se, Zn, Tl, Hg, Pb, Cr, Cu, Mn, Ni, As, Co, V, and Sn.

Note 3: Analytical requirements to be determined on a case by case basis.



C.5 Noise Monitoring

No additional noise monitoring is required in this schedule.

C.6 Meteorological Monitoring

Monitoring Location: On-site weather monitoring station. AA2

Parameter	Monitoring Frequency	Analysis Method/Technique
Precipitation Volume	Daily	WMO Standard ^{Note 1}
Temperature (min/max.)	Daily	WMO Standard ^{Note 1}
Wind Speed and Direction	Continuous	WMO Standard ^{Note 1}
Atmospheric Pressure	Continuous	WMO Standard ^{Note 1}

Note 1: World Meteorological Organisation Standards and Recommendations.

C.7 Ambient Monitoring**Groundwater Monitoring**

Location: AGW1-1 and AGW1-2

Parameter	Monitoring Frequency	Analysis Method/Techniques
Total Organic Carbon (as C)	Annually	Standard Method
Total Ammonia	Annually	Standard Method
Conductivity	Annually	Standard Method
pH	Annually	pH electrode/meter
Nitrate	Annually	Standard Method
Nitrite	Annually	Standard Method
Chloride	Annually	Standard Method
Heavy metals (Cd, Tl, Hg, Pb, Cr, Cu, Mn, Ni, As, Co, V, Sn) and their compounds	Annually	Standard Method
Organohalogens ^{Note 1}	Annually	GC-MS
Total coliforms	Annually	Standard Method
Faecal coliforms	Annually	Standard Method
Hazardous Compounds ^{Note 2}	Annually	Standard Method

Note 1: Screening for pollutant list substances (such as US EPA volatile and/or semi-volatile compounds).

Note 2: The relevant hazardous substances for monitoring in groundwater shall be identified by the licensee by undertaking a risk based assessment. The Licensee shall have regard to the 'Classification of Hazardous and Non-hazardous Substances in Groundwater' issued by the Agency. Monitoring for the identified hazardous substances shall be carried out at least annually, unless a case for less frequent monitoring is agreed by the Agency

SCHEDULE D: Annual Environmental Report

Annual Environmental Report Content ^{Note 1}
<p>Reporting Period. Waste activities carried out at the installation. Quantity and composition of waste accepted, recovered and disposed of during the reporting period and each previous year (relevant EWC codes to be used). Waste recovery report. Full title and a written summary of any procedures developed by the licensee in the year which relates to the installation operation. Summary record of the use of the emergency generator. Report of particulates monitoring. Emissions from the installation Waste management record. Resource and energy consumption summary. Complaints summary. Schedule of Environmental Objectives and Targets. Environmental management programme – report for previous year. Environmental management programme – proposal for current year. Pollutant Release and Transfer Register – report for previous year. Pollutant Release and transfer Register – proposal for current year. Noise monitoring report summary. Ambient monitoring summary. Tank and pipeline testing and inspection report. Reported incidents summary. Energy efficiency audit report summary. Report on the assessment of the efficiency of use of raw materials in processes and the reduction in waste generated. Report on progress made and proposals being developed to minimise water demand and the volume of trade effluent discharges. Development/Infrastructural works summary (completed in previous year or prepared for current year). Reports on financial provision made under this licence, management and staffing structure of the installation, and a programme for public information. Review of decommissioning management plan. Statement of measures in relation to prevention of environmental damage and remedial actions (Environmental Liabilities). Environmental Liabilities Risk Assessment Review (every three years or more frequently as dictated by relevant on-site change including financial provisions). Any other items specified by the Agency.</p>

Note 1: Content may be revised subject to the agreement of the Agency.

Sign off for Proposed Determinations/Decisions

Signed on behalf of the said Agency _____
 On the xx day of xxxxx, 200X xxxxxxxxxxxx **Authorised Person**

Sign Off for Final Licences/Decisions

Sealed by the seal of the Agency on this the ** day of ** 201*.

PRESENT when the seal of the Agency
Was affixed hereto:

XXXX Director/Authorised Person