BRIDGNORTH WEEE PROCESSING PLANT

Operations and Environment Management Plan

Prepared for: Circular Resources (UK) Ltd

Client Ref: 10377

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BASIS OF REPORT

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DOCUMENT REFERENCES

TABLES

1.0 Introduction

SLR Consulting Limited (SLR) has been instructed by Circular Resources (UK) Limited (CRUK) to prepare a small waste incineration plant (SWIP) environmental permit (EP) application for the Bridgnorth WEEE Processing Plant, Stanmore Industrial Estate, Bridgnorth, Shropshire, WV15 5HP, hereafter referred to as 'the Site'.

The Environmental Permitting (England and Wales) Regulations (EPR) 2016 (as amended) require regulated facilities to be operated in accordance with an EP. Regulated facilities include 'installations' as listed in Schedule 1 of the EPR.

CRUK is applying to obtain an EP to enable them to undertake the following installation activity listed in Schedule 13A of the EPR 2016:

- Schedule 13, 1(a) – small waste incineration plant.

A small waste incineration plant is defined in the EPR as an incineration or co-incineration plant with a capacity less than then limits specified in chapter 2 of the Industrial Emissions Directive (IED), i.e. a processing capacity of:

- hazardous waste – less than 10 tonnes per day; and
- non-hazardous waste – less than 3 tonnes per hour (equivalent to 72 tonnes per day).

The Site will process Waste Electrical and Electronic Equipment (WEEE) that may contain hazardous components as defined by the WEEE Regulations.

1.1 Report Context

This Operations and Environment Management Plan (OEMP) report is an integrated document which describes the process, how it will be managed, it's potential impacts upon the environment and the techniques to be implemented to the Site to ensure compliance with the conditions of the EP.

The report has been drafted to satisfy the requirements of European Commission, UK and Defra guidance (where applicable), most notably:

- European Commission – Industrial Emissions Directive 2010;
- The Environmental Permitting Regulations (England and Wales) 2016 (as amended); and
- Environmental Permitting General Guidance Manual on Policy and Procedures for A2 and B Installations 2012.

1.2 Site Location

The Site is located on the Stanmore Industrial Estate in Bridgnorth, Shropshire, WV15 5HP, approximately 3.5km to the east of Bridgnorth town centre. The National Grid Reference (NGR) for the centre of the site is SO 7470 9278. The location of the Site and surrounding receptors within 2km are shown in Drawing 001, the EP boundary is shown in Drawing 002 and the site layout is shown in Drawing 003.

The Stanmore Industrial Estate has one access point only, via the A454. A network of internal roads provides access to the Site once in the Industrial Estate. The Site has vehicular access points on its northern and southern boundaries.

2.0 Proposed Operations

CRUK are proposing to operate a pyrolysis process that will recover the metallic elements from WEEE for use in hydrometallurgical or pyrometallurgical processing plants as a direct replacement for virgin ores. The process

also produces an oversize fraction of ferrous and non-ferrous metals that will be sold into the UK scrap metals market.

2.1.1 Feedstocks

Feedstocks classified under the following European Waste Codes (EWC's) would be accepted at site:

- Wastes from the photographic industry: 09 01 07
- Wastes from electrical and electronic equipment: 16 02 14, 16 02 15* and 16 02 16
- Wastes from shredding metal containing wastes: 19 10 02
- Municipal wastes: 20 01 35* and 20 01 36

Feedstocks known to contain mercury, phosphorous pentachloride or radioactive substances will not be processed. The main categories of WEEE that are proposed to be processed initially are printed circuit boards, scrap cable and small consumer electronics. The feedstock WEEE will undergo minimal pre-processing or sorting.

Feedstock deliveries will be weighed upon arrival at site and each batch of material to be processed will be weighed prior to processing.

2.1.2 Process Description

The metal recovery process is fundamentally a pyrolysis process for the recovery of solid fractions within an innovative tiltable, rotating cylindrical processing vessel, hereafter referred to as the 'BRP'. The design of the BRP has protected Intellectual Property status. The BRP will operate on a batch basis processing a nominal charge of 300kgs of WEEE.

Feedstock WEEE is transferred to the BRP in a purpose-built container or bulk bag by Forklift Truck and connected to the BRP via the infeed system whilst the BRP is in the inverted position ready for rotation when the contents of the purpose made container or bulk bag, including the bag, are emptied into the BRP. Grinding media, e.g. steel balls, may also be included with the WEEE.

The opening through which WEEE is charged into the BRP also serves as the outlet for the evolved syngas and is referred to as the BRP Port (BRPP). Following charging with WEEE the BRP is positioned at Top Dead Centre (0°) in preparation for processing. Once in position, the syngas duct is lowered into position and secured with manual toggle clamps. The syngas ducting is connected to the BRPP with a purpose-built rotary gas tight seal to contain the generated syngas. Once the syngas duct is securely connected, the BRP is tilted to the required position for pyrolysis processing.

The BRP consists of an inner rotating processing chamber and a stationary outer annular chamber which is lined with refractory materials which is heated by the combustion of natural gas. The processing chamber also contains a bank of pipes through which an inert gas passes. The inert gas is preheated in the heating chamber and passes into the processing chamber where it assists the heating of the feedstock. The main heat for pyrolysis is provided by combustion of natural gas in the heating chamber conducting through the wall of the processing chamber.

To avoid the generation of potentially explosive atmospheres during processing, the contents of the processing chamber are initially purged with a flow of inert gas via the tuyeres. The processing chamber is rotated on its axis within the heating chamber both during purging and thereafter during pyrolysis to assist with gas/solid mixing and maximise heat transfer. The composition of gas evolved in the processing chamber is continuously monitored and inert gas purging continues until the oxygen level is below a certain safe level. Natural gas combustion in the heating chamber does not commence until this safe oxygen level has been reached.

During pyrolysis the WEEE is heated in an oxygen depleted atmosphere to a nominal temperature between 200 and 500°C which results in all the non-metal fractions of the WEEE being thermally cracked and converted to syngas containing N_2, CO_2, CO, H_2 and C_xH_y and numerous minor constituents. The temperature of gases evolved

is monitored continuously by thermocouple in the syngas ducting and the temperature of the WEEE is measured by an infrared pyrometer. The rate of heating is controlled according to a pre-defined sequence controlled by measuring the temperature of the syngas leaving the processing chamber and modulating the heating chamber burner accordingly.

The composition of the WEEE is such that the breakdown of non-metal fractions and corresponding evolution of syngas occurs over a relatively narrow temperature band(s). The heating sequence will be controlled to achieve an optimum compromise between batch cycle time and peak syngas generation rates. The Volatile Organic Carbon (VOC) content of the syngas is monitored continuously during pyrolysis with the batch end point being identified as a function of cessation of VOC detection and temperature. At the end of pyrolysis, the natural gas burner is shutdown whilst inert gas flow is continued to assist cooling of the contents. A cooling fan is also started to blow ambient air through the heating chamber, also assisting in removing heat from the system. When the contents of the processing chamber and syngas are below defined temperature limits, the inert gas flow through the tuyeres is stopped and substituted with blown air. Once a set temperature is reached for the contents and processing chamber port exhaust gas, the batch is complete.

At this point the rotation of the processing chamber is stopped, the BRP is tilted back to 0^{o}, the toggle clamps on the syngas ducting at the BRPP are released and the syngas ducting removed. A dedicated loadout chute is installed on the BRPP before continuing to tilt to Bottom Dead Centre 180^{o} to discharge the contents. Following the discharge of contents, the dedicated load out container is removed from the BRPP, a new charging container is then fitted and the process is then ready for the next batch. Operation of the BRP will be controlled by a dedicated PLC based process control system.

During the syngas evolution phase, the temperature within the Thermal Oxidiser (TO) is maintained to a minimum of 850^{o}C to ensure complete destruction of hazardous substances. The TO is a bespoke design and has been designed to provide a minimum residence time of 2 seconds. Please refer to document 410.10377.00001 _TO report included as part of this application. Emissions from the TO are cooled by a quench system before passing through a bag filter and then emitted via the dedicated stack. Please refer to drawing 004 for a schematic of the plant layout.

2.1.3 Products

The main product from the pyrolysis process is a sand like precious metal concentrate which contains very high percentage of metallic elements. It is intended that the precious metal concentrate can be used directly in a suitable hydrometallurgical or pyrometallurgical processing plant as a direct replacement for virgin ore. There is also an oversize metallic fraction produced which will be sold as scrap into the market. CRUK will be seeking End of Waste status for the produced precious metal concentrate and will seek to engage with the relevant Regulatory Authorities at an early stage to discuss.

2.1.4 Waste Generation

The BRP process is a zero waste process, all outputs are reused.

The only wastes generated on site will be municipal and engineering wastes. The engineering wastes will comprise:

Table 1 Engineering Wastes

Waste type	Annual maximum quantity
Waste oils	200 litres
Fork Lift Truck coolant	25 litres

Wastes generated in site will be disposed of in accordance with the waste hierarchy, with disposal used only when no other reuse/recycling options are available.

3.0 Management

This section details the management system that will be in place to govern the operations on site, ensuring all relevant pollution prevention and control techniques are implemented effectively and that the Site is running at an optimum standard for health and safety.

3.1 Design and Construction Quality Assurance

The site has been designed in accordance with recognised standards, methodologies and practices in every aspect.

An assurance and validation process will be conducted for the relevant elements of the Site, including:

- material selection;
- handling, storage and installation;
- conformance and performance testing; and
- inspection and validation.

A competent and suitably qualified person will supervise the construction activities and will prepare a validation report.

3.2 Environmental Issues

Environmental issues have and will be taken into account during the design, construction and operational phases of the plant. Emissions of contaminants and waste production will be kept to a minimum and the waste hierarchy will be adhered to at all times. Where possible, environmentally friendly products will be used.

The Environmental Risk Assessment, enclosed as Section 4 of the application, has assessed the risk to the environment associated with operational activities and has identified corresponding measures to minimise these risks to within acceptable levels.

3.3 Management Systems

CRUK will operate the Site using an Environment Management System accredited to ISO14001. The EMS will be certified within 12 months of the Site becoming operational.

The management system will ensure that:

- the risks that the activities pose to the environment are identified;
- the measures that are required to minimise the risks are identified;
- the activities are managed in accordance with the management system;

- performance against the management system is audited at regular intervals; and
- the environmental permit is complied with.

The management system will be reviewed at least once every four years or in response to significant changes to the activities, accidents or non-compliance. The management system will be supplemented by this Operating Techniques document which outlines the proposed operating techniques at the Site and demonstrates conformance with the requirements of relevant guidance.

3.4 Environmental Policy, Objectives and Targets

Details of the company's environmental policy including environmental targets and objectives and improvement programme will be contained within the management system.

3.5 Management Techniques

3.5.1 Operational Control, Preventative Maintenance and Calibration

Compliance with operating procedures will ensure effective control of site operations.

As part of the environmental management system, procedures will be established covering the following general topics:

- management and training;
- environmental protection and risk assessment;
- equipment registers and calibration;
- defects, non-conformance and complaints; and
- operations control and equipment maintenance.

A maintenance programme for all equipment will be implemented at the Site. This will follow the inspection and maintenance schedule recommended by the manufacturer(s). The maintenance programme will be reviewed annually to ensure any necessary changes are implemented.

Also held on site will be any operation and maintenance manuals as provided by the equipment manufacturer(s) covering:

- machinery associated with the BRP;
- machinery associated with the abatement plant;
- machinery associated with product processing;
- routine maintenance procedures and requirements;
- environmental protection; and
- emergency procedures.

Where necessary, all monitoring and process control equipment will be calibrated in accordance with manufacturers' recommendations.

3.5.2 Monitoring, Measuring and Reviewing Environmental Performance

A formalised management structure will review environmental performance and ensure any necessary actions are taken.

CRUK management will review the facility's environmental performance on a regular basis to ensure policy commitments are met, that policy remains relevant, and to ensure that actions to improve environmental performance are identified. Records of environmental performance will be maintained within an appropriate filing system on site (or appropriate alternative), or on an electronic system.

3.5.3 Staffing, Competence and Training

The Plant Manager will be responsible for ensuring that training levels for operational staff are adequate, relevant and up to date.

All staff will be under the supervision of a technically competent manager at all times.

Staff employed on site will benefit from training, which will ensure their professional and technical development continues. There will be a commitment for staff at all levels to continual improvement, prevention of pollution and compliance with legislation. The training will ensure that staff are aware of:

- skills and competencies required for each job;
- regulatory implications of the permit for the Site and activities;
- potential environmental effects from operations under normal and abnormal circumstances;
- prevention of accidental emissions and actions to be taken in response to accidents;
- control of point source and fugitive emissions to air;
- control of odour;
- waste handling, minimisation, recovery and/or disposal;
- noise;
- monitoring; and
- health and safety.

The management system and this OEMP document will be available at all times for site personnel to access. Furthermore, refresher training will be provided on site policies annually. This will reduce accidents and minimise the impact of the installation on the environment, by ensuring the Site operates correctly.

Training records will be maintained by the Plant Manager and held in the Site office.

3.5.4 Communication and reporting of actual or potential non-compliances and complaints

In the event that actual or potential non-compliances occur on site, these will be recorded in the Site Diary and communicated to the Plant Manager. The Plant Manager will investigate each event and identify a solution to remedy it and prevent it from reoccurring. If the non-compliance event is sustained, the operations may be stopped until a solution can be found, to minimise harm to the environment.

The remedial actions taken in response to the non-compliance may include:

- obtaining additional information on the nature and extent of the non-compliance;
- discussing and testing alternative solutions;
- modifying procedures and responsibilities;
- seeking approval for additional resources and training;
- contacting suppliers and contractors to seek alterations to the way they operate; and
- informing the Local Authority

Members of the public can file complaints directly to the Plant Manager. All complaints received by the Plant Manager will be recorded in the Site Diary and investigated within one working day, with a follow up response communicated to the complainant within 10 working days.

3.5.5 Auditing

The Site will benefit from regular auditing to ensure that it is compliant with the conditions of its permit, namely record keeping, monitoring and emission levels. The audit will be carried out by the Plant Manager, or other Technically Competent Person, to ensure that all activities on site are in accordance with the conditions of the EP. The outcome of the audit will be reviewed and tracked to identify any frequent non-compliances.

3.5.6 Corrective action to analyse faults and prevent reoccurrence

The Plant Manager will deal with all environmental complaints and other incidents of non-conformance. These include:

- system failure discovered at internal audit;
- incidents, accidents, and emergencies; and
- other operational system failures.

Environmental non-compliances, including remedial action taken and any changes to operation made to avoid re-occurrence will be recorded. Complaints will be reported to and investigated by the Plant Manager and remedial measures implemented as required. Changes to prevent future complaints will be proposed and implemented where appropriate. Written records of non-conformances, complaints and other incidents will be maintained in the Site log in which the date, time and nature of the event, together with the results of investigations and remedial action taken, will be recorded.

3.5.7 Reviewing and reporting environmental performance

Senior management will review environmental performance annually and take actions to ensure that policy commitments are met and that policy remains relevant.

3.5.8 Managing documentation and records

The Plant Manager will be responsible for ensuring commitments to site audits and reviews and for ensuring that documents relevant to the environmental permit are issued, revised and maintained in a consistent fashion.

An appropriate filing system will be maintained to ensure that all records relating to environmental monitoring, maintenance, reviews and audits are adequately maintained and updated. All records will be held within the Site office or electronically.

4.0 Accident Management Plan

CRUK recognise the importance of the prevention of accidents that may have environmental consequences and that it is crucial to limit those consequences.

An Accident Management Plan (AMP) will be implemented and maintained at the Site to ensure the Site's staff are fully prepared for such incidents. The AMP will be reviewed every three years as a minimum, and after any reportable incident on Site. The document will be continually improved in these reviews to include best practice and minimise the risk of accidents occurring.

An initial assessment of the risk of accidents and abnormal operating conditions posed to the environment and site personal is provided in the Environmental Risk Assessment (ERA), enclosed in Section 4 of this application.

The mitigation measures identified within the ERA will be implemented to limit the consequences of accidents on the environment and site personnel.

4.1 Action to minimise the potential causes and consequences of accidents

Action will be taken at the Site to minimise the potential causes and consequences of accidents. These actions will include:

- maintaining a list of substances that would harm the environment if they were to escape;
- raw materials and waste will be checked for compatibility with other substances with which they may come into contact;
- raw materials, products and wastes will be stored to prevent their escape into the environment;
- vehicles will follow designated routes;
- where appropriate, barriers will be constructed to prevent vehicles from damaging equipment;
- primary and secondary containment will be provided to prevent the escape of potentially polluting materials;
- CCTV will be installed to minimise the risk of unauthorised access;
- a log will be maintained of all incidents and near misses;
- responsibilities for managing accidents will be clearly defined. Clear instructions on the management of accidents will be maintained; and
- appropriate equipment will be maintained to limit the consequences of an accident.

4.2 Hazard identification

The following hazards have been identified:

- unauthorised waste receipt and processing;
- vehicle collision;
- failure of site surfacing resulting in ground contamination;
- fuel spills from vehicles;
- spillage of waste materials during delivery to the hoppers;
- major fire;
- minor fire;
- security and vandalism;
- asphyxiation and toxicity;
- failure to contain fire water;
- explosion;
- flooding;
- failure of machinery;
- failure of abatement technology; and

- failure of equipment.

For information on how these risks will be mitigated at the facility, please refer to the ERA in Section 4 of this application.

5.0 Authorised Activities

5.1 Regulated Facilities

The Environmental Permitting (England and Wales) Regulations (EPR) 2016 (as amended) require regulated facilities to be operated in accordance with an environmental permit (EP). Regulated facilities include 'installations' as listed in Schedule 1 of the EPR.

CRUK is applying to obtain an EP to enable them to undertake the following installation activity listed in Schedule 13A of the EPR 2016:

- Schedule 13, 1(a) – small waste incineration plant.

5.2 Directly Associated Activities

The following directly associated activities will be undertaken at the Site:

- receipt, storage and handling of waste; and
- storage and handling of chemicals, oils, products and residues.

5.3 Permitted Waste Types

The waste types listed in Table 2 will be accepted onto Site.

Table 2
List of Wastes

Waste Code	Description
Wastes from the photographic industry	
09 01 07	Photographic film and paper containing silver or silver compounds
Wastes from electrical and electronic equipment	
16 02 14	Discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 15*	Hazardous components removed from discarded equipment
16 02 16	Components removed from discarded equipment other than those mentioned in 16 02 15
Wastes from shredding of metal containing wastes	
19 10 02	Non-ferrous waste
Municipal wastes; separately collected fractions	
20 01 35*	Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components

Waste Code	Description
20 01 36	Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35

5.3.1 Waste Acceptance

The only wastes to be accepted on site are shown in Table 2. No other waste will be accepted.

Waste transfer documentation will be checked at the site office. From there vehicles will be directed to the unloading area.

Designated personnel will be responsible for liaising with both the driver of the waste delivery vehicle and the plant operatives to ensure the waste is deposited in the correct area.

Each load of waste will be visually inspected by trained personnel prior to offloading. In the event that non-conforming waste is identified these will be returned on the delivery vehicle.

If unsuitable material is detected by this initial inspection, the bale will be rejected and placed in a quarantine area pending transfer to a suitable treatment or disposal facility. In addition, other bales from the same origin, within the stockyard will be opened and if necessary, the material rejected back to the supplier.

5.4 Process Capacity

The Site will receive up to 3650 tonnes of WEEE feedstock per year. Initially only one BRP will be operational, with a view that additional lines will be added.

When additional BRPs are added and the capacity increases above 10 tonnes per day, the environmental permit will be varied to a Part A(1) permit issued by the Environment Agency (EA).

5.4.1 Storage Capacity

WEEE feedstock will be stored internally in separate storage bays.

Waste storage capacity is detailed in Table 2.

Table 3 Maximum Storage capacities

Facility	Maximum Storage Capacity (tonnes)
WEEE feedstock	100
Ferrous scrap	50
Non-ferrous scrap	50
Finished product	50

5.5 Operating Hours

The BRP process will operate 24 hour per day, 340 days of the year.

The Site will under normal circumstances only accept deliveries of WEEE during daytime working hours, 07:30 to 19:00 Monday to Friday and 08:00 to 17:00 on Saturday, with no delivery or dispatch of waste taking place on Sundays or bank holidays.

6.0 Best Available Techniques

Defra guidance *Environmental Permitting, General Guidance Manual on Policy and Procedures for A2 and B Installations, April 2012* Section 12 Best Available Techniques (BAT) requires applications for EPs to demonstrate how BAT has been applied for emissions to air only. The Local Authority must take account of relevant legislation, which includes European Commission Best Available Techniques Reference Documents (BRefs) for emissions to air only.

The relevant BRef for the CRUK process is for Waste Incineration published in December 2019. Table 3 illustrates how the CRUK process will comply with BAT as identified in the Waste Incineration BRef.

Table 4
BAT for Waste Incineration processes – emissions to air only

<table>
<tr><th colspan="2">BAT Requirement</th><th>Specific Measure</th></tr>
<tr><td>3</td><td>BAT is to monitor key process parameters relevant for emissions to air and water including those specified.
<table>
<tr><th>Stream</th><th>Parameter</th><th>Monitoring</th></tr>
<tr><td>Flue-gas from the incineration of waste</td><td>Flow, oxygen content, temperature, pressure, water vapour content</td><td>Continuous measurement</td></tr>
</table></td><td>Compliant.

Continuous emissions monitoring (CEMS) equipment will be installed for all identified determinands.</td></tr>
</table>

<table>
<tr><th colspan="2">BAT Requirement</th><th>Specific Measure</th></tr>
<tr><td>4</td><td>BAT is to monitor channelled emissions to air with at least the frequency specified and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.
<table>
<tr><th>Parameter</th><th>Standard</th><th>Minimum monitoring frequency</th><th>Monitoring associated with</th></tr>
<tr><td>NOx</td><td rowspan="5">Generic EN standards</td><td rowspan="5">Continuous</td><td rowspan="2">BAT 29</td></tr>
<tr><td>CO</td></tr>
<tr><td>SO_2</td><td rowspan="3">BAT 27</td></tr>
<tr><td>HCl</td></tr>
<tr><td>HF</td></tr>
<tr><td>Dust</td><td rowspan="2">BAT 25</td></tr>
<tr><td>Metals and metalloids</td><td>EN 14385</td><td>Once every 6 months</td></tr>
<tr><td>Hg</td><td>Generic EN standards & EN 14884</td><td>Continuous</td><td>BAT 31</td></tr>
<tr><td>TVOC</td><td>Generic EN standards</td><td>Once every 6 months</td><td rowspan="8">BAT 30</td></tr>
<tr><td>PBDD/F</td><td>No EN standard available</td><td>Once every 6 months</td></tr>
<tr><td rowspan="2">PCDD/F</td><td>EN 1948-1, EN 1948-2, EN 1948-3</td><td>Once every 6 months for short-term sampling</td></tr>
<tr><td>No EN standard available for long-term sampling, EN 1948-2, EN 1948-3</td><td>Once every month for long-term sampling</td></tr>
<tr><td rowspan="2">Dioxin-like PCBs</td><td>EN 1948-1, EN 1948-2, EN 1948-4</td><td>Once every 6 months for short-term sampling</td></tr>
<tr><td>No EN standard available for long-term sampling, EN 1948-2, EN 1948-4</td><td>Once every month for long-term sampling</td></tr>
<tr><td>Benzo[a]pyrene</td><td>No EN standard available</td><td>Once every year</td></tr>
</table></td><td>Compliant.

See response to BAT 3 above.

A robust monitoring regime that meets the requirements of the WI Bref will be established at the Site. This will include monitoring of all relevant determinands to the required standard and frequency.</td></tr>
</table>

<table>
<tr><th colspan="2">BAT Requirement</th><th>Specific Measure</th></tr>
<tr><td>5</td><td>BAT is to appropriately monitor channelled emissions to air from the incineration plant during OTNOC.</td><td>Not applicable.

If OTNOC occurs, the BRP process will be stopped, however the CEMS equipment would remain operational and monitor channelled emissions to air.</td></tr>
<tr><td>14</td><td>In order to improve the overall environmental performance of the incineration of waste, to reduce the content of unburnt substances in slags and bottom ashes, and to reduce emissions to air from the incineration of waste, BAT is to use an appropriate combination of the techniques specified.
<table>
<tr><th></th><th>Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>A</td><td>Waste blending and mixing</td><td>Waste blending and mixing prior to incineration includes for example the following operations:

— bunker crane mixing;

— using a feed equalisation system;

— blending of compatible liquid and

pasty wastes.

In some cases, solid wastes are shredded prior to mixing.</td><td>Not applicable where direct furnace feeding is required due to safety considerations or waste characteristics (e.g. infectious clinical waste, odorous wastes, or wastes that are prone to releasing volatile substances.</td></tr>
<tr><td>B</td><td>Advanced control system</td><td>See Section 2.1</td><td>Generally applicable</td></tr>
<tr><td>C</td><td>Optimisation of the incineration process</td><td>See Section 2.1</td><td>Optimisation of the design is not applicable to existing furnaces.</td></tr>
</table></td><td>Compliant.

The BRP process will be controlled by an advanced control system.</td></tr>
<tr><td>15</td><td>In order to improve the overall environmental performance of the incineration plant and to reduce emissions to air, BAT is to set up and implement procedures for the adjustment of the plant’s settings, e.g. through the advanced control system (see description in Section 2.1), as and when needed and practicable, based on the characterisation and control of the waste (see BAT 11).</td><td>Compliant.

The BRP system will be controlled by a closed loop advanced control system. The plant will be operated by suitably trained personnel able to respond to changes in plant performance.</td></tr>
<tr><td>16</td><td>In order to improve the overall environmental performance of the incineration plant and to reduce</td><td>Compliant.</td></tr>
</table>

BAT Requirement		Specific Measure
	emissions to air, BAT is to set up and implement operational procedures (e.g. organisation of the supply chain, continuous rather than batch operation) to limit as far as practicable shutdown and start-up operations.	The BRP process is a batch process by design.
17	In order to reduce emissions to air and, where relevant, to water from the incineration plant, BAT is to ensure that the FGC system and the waste water treatment plant are appropriately designed (e.g. considering the maximum flow rate and pollutant concentrations), operated within their design range, and maintained so as to ensure optimal availability.	Complaint. The emissions abatement system will be a bespoke system designed specifically to the BRP process.
18	In order to reduce the frequency of the occurrence of Other Than Normal Operating Conditions (OTNOC) and to reduce emissions to air and, where relevant, to water from the incineration plant during OTNOC, BAT is to set up and implement a risk based OTNOC management plan as part of the environmental management system (see BAT 1) that includes all of the specified elements.	Not applicable. If OTNOC were to occur, the BRP process would be stopped.
21	In order to prevent or reduce diffuse emissions from the incineration plant, including odour emissions, BAT is to: • store solid and bulk pasty wastes that are odorous and/or prone to releasing volatile substances in enclosed buildings under controlled subatmospheric pressure and use the extracted air as combustion air for incineration or send it to another suitable abatement system in the case of a risk of explosion; • store liquid wastes in tanks under appropriate controlled pressure and duct the tank vents to the combustion air feed or to another suitable abatement system; • control the risk of odour during complete shutdown periods when no incineration capacity is available, e.g. by: ○ sending the vented or extracted air to an alternative abatement system, e.g. a wet scrubber, a fixed adsorption bed; ○ minimising the amount of waste in storage, e.g. by interrupting, reducing or transferring waste	Compliant. The WEEE feedstock will be stored internally within the building. External doors will be kept closed at all times apart from vehicle movements. Waste acceptance procedures will be established to ensure only suitable wastes are accepted on site. Any unsuitable loads will be returned to the consigner.

<table>
<tr><th colspan="2">BAT Requirement</th><th>Specific Measure</th></tr>
<tr><td></td><td>deliveries, as a part of waste stream management (see BAT 9);
○ storing waste in properly sealed bales.</td><td></td></tr>
<tr><td>22</td><td>In order to prevent diffuse emissions of volatile compounds from the handling of gaseous and liquid wastes that are odorous and/or prone to releasing volatile substances at incineration plants, BAT is to introduce them into the furnace by direct feeding.</td><td>Not applicable.
Gaseous or liquid waste will not be processed on Site.</td></tr>
<tr><td>23</td><td>In order to prevent or reduce diffuse dust emissions to air from the treatment of slags and bottom ashes, BAT is to include in the environmental management system (see BAT 1) the specified diffuse dust emissions management features.</td><td>Not applicable.
All solid residues from the process are captured as these are the product.</td></tr>
<tr><td>24</td><td>In order to prevent or reduce diffuse dust emissions to air from the treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques specified.
<table>
<tr><th></th><th>Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>A</td><td>Enclose and cover equipment</td><td>Enclose/encapsulate potentially dusty operations (such as grinding, screening) and/or cover conveyors and elevators.
Enclosure can also be accomplished by
installing all of the equipment in a closed building.</td><td>Installing the equipment in a closed building may not be applicable to mobile treatment devices.</td></tr>
<tr><td>B</td><td>Limit height of discharge</td><td>Match the discharge height to the varying height of the heap, automatically if possible (e.g. conveyor belts with adjustable heights).</td><td rowspan="3">Generally applicable</td></tr>
<tr><td>C</td><td>Protect stockpiles against prevailing wind</td><td>Protect bulk storage areas or stockpiles with covers or wind barriers such as screening, walling or vertical greenery, as well as correctly orienting the stockpiles in relation to the prevailing wind</td></tr>
<tr><td>D</td><td>Use water sprays</td><td>Install water spray systems at the main sources of diffuse</td></tr>
</table></td><td>Not applicable, see response to BAT 23 above.
All equipment is enclosed.
All storage is internal within the building.</td></tr>
</table>

BAT Requirement				Specific Measure
			dust emissions. The humidification of dust particles aids dust agglomeration and settling. Diffuse dust emissions at stockpiles are reduced by ensuring appropriate humidification of the charging and discharging points, or of the stockpiles themselves.	
	E	Optimise moisture content	Optimise the moisture content of the slags/bottom ashes to the level required for efficient recovery of metals and mineral materials while minimising the dust release.	
	F	Operate under sub-atmospheric pressure	Carry out the treatment of slags and bottom ashes in enclosed equipment or buildings (see technique a) under subatmospheric pressure to enable treatment of the extracted air with an abatement technique (see BAT 26) as channelled emissions.	Only applicable to dry-discharged and other low-moisture bottom ashes.
25	In order to reduce channelled emissions to air of dust, metals and metalloids from the incineration of waste, BAT is to use one or a combination of the techniques specified.			Compliant. The abatement system utilises a bag filter and dry sorbent injection.
		Technique	Description	Applicability
	A	Bag filter	See Section 2.2	Generally applicable to new plants. Applicable to existing plants within the constraints associated with the operating temperature profile of the FGC system.

<table>
<tr><th colspan="2">BAT Requirement</th><th>Specific Measure</th></tr>
<tr><td></td><td>
<table>
<tr><td>B</td><td>Electrostatic precipitator</td><td>See Section 2.2</td><td rowspan="2">Generally applicable</td></tr>
<tr><td>C</td><td>Dry sorbent injection</td><td>See Section 2.2.

Not relevant for the reduction of dust emissions.

Adsorption of metals by injection of activated carbon or other reagents in combination with a dry sorbent injection system or a semi-wet absorber that is used to reduce acid gas emissions.</td></tr>
<tr><td>D</td><td>Wet scrubber</td><td>See Section 2.2.

Wet scrubbing systems are not used to remove the main dust load but, installed after other abatement techniques, to further reduce the concentrations of dust, metals and metalloids in the fluegas.</td><td>There may be applicability restrictions due to low water availability, e.g. in arid areas.</td></tr>
<tr><td>E</td><td>Fixed or moving bed adsorption</td><td>See Section 2.2.

The system is used mainly to adsorb mercury and other metals and metalloids as well as organic compounds including PCDD/F, but also acts as an effective polishing filter for dust.</td><td>The applicability may be limited by the overall pressure drop associated with the FGC system configuration.

In the case of existing plants, the applicability may be limited by a lack of space.</td></tr>
</table>
</td><td></td></tr>
<tr><td>26</td><td>In order to reduce channelled dust emissions to air from the enclosed treatment of slags and bottom ashes with extraction of air (see BAT 24(f)), BAT is to treat the extracted air with a bag filter (see Section 2.2).</td><td>Compliant.

All channelled emissions to air are routed via the abatement plant which includes a bag filter.</td></tr>
</table>

<table>
<tr><th>BAT Requirement</th><th>Specific Measure</th></tr>
<tr><td>27</td><td>In order to reduce channelled emissions of HCl, HF and SO_2 to air from the incineration of waste, BAT is to use one or a combination of the techniques specified.
<table>
<tr><th></th><th>Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>A</td><td>Wet scrubber</td><td>See Section 2.2</td><td>There may be applicability restrictions due to low water availability, e.g. in arid areas</td></tr>
<tr><td>B</td><td>Semi-wet scrubber</td><td>See Section 2.2</td><td rowspan="2">Generally applicable</td></tr>
<tr><td>C</td><td>Dry sorbent injection</td><td>See Section 2.2</td></tr>
<tr><td>D</td><td>Direct desulphurisation</td><td>See Section 2.2
Used for partial abatement of acid gas emissions upstream of other techniques.</td><td>Only applicable to fluidised bed furnaces.</td></tr>
<tr><td>E</td><td>Boiler sorbent injection</td><td>See Section 2.2
Used for partial abatement of acid gas emissions upstream of other techniques</td><td>Generally applicable</td></tr>
</table></td><td>Compliant.
The abatement system includes dry sorbent injection.</td></tr>
</table>

<table>
<tr><th>BAT Requirement</th><th>Specific Measure</th></tr>
<tr><td>28</td><td>In order to reduce channelled peak emissions of HCl, HF and SO_2 to air from the incineration of waste while limiting the consumption of reagents and the amount of residues generated from dry sorbent injection and semi-wet absorbers, BAT is to use the techniques specified.
<table>
<tr><th></th><th>Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>A</td><td>Optimised and automated reagent dosage</td><td>The use of continuous HCl and/or SO_2 measurements and/or of other parameters that may prove useful for this purpose) upstream and/or downstream of the FGC system for the optimisation of the automated reagent dosage.</td><td>Generally applicable</td></tr>
<tr><td>B</td><td>Recirculation of reagents</td><td>The recirculation of a proportion of the collected FGC solids to reduce the amount of unreacted reagent(s) in the residues.

The technique is particularly relevant in the case of FGC techniques operating with a high stoichiometric excess.</td><td>Generally applicable to new plants.

Applicable to existing plants within the constraints of the size of the bag filter.</td></tr>
</table></td><td>Complaint.

The abatement plant will utilise automated reagent dosing which will be optimised for reagent usage.</td></tr>
</table>

<table>
<tr><th colspan="2">BAT Requirement</th><th>Specific Measure</th></tr>
<tr><td>29</td><td>In order to reduce channelled NO_X emissions to air while limiting the emissions of CO and N_2O from the incineration of waste and the emissions of NH_3 from the use of SNCR and/or SCR, BAT is to use an appropriate combination of the techniques specified.
<table>
<tr><th></th><th>Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>A</td><td>Optimisation of the incineration process</td><td>See Section 2.1</td><td>Generally applicable</td></tr>
<tr><td>B</td><td>Flue-gas recirculation</td><td>See Section 2.2</td><td>For existing plants, the applicability may be limited due to technical constraints (e.g. pollutant load in the flue-gas, incineration conditions).</td></tr>
<tr><td>C</td><td>Selective non-catalytic reduction (SNCR)</td><td>See Section 2.2</td><td>Generally applicable</td></tr>
<tr><td>D</td><td>Selective catalytic reduction (SCR)</td><td>See Section 2.2</td><td>In the case of existing plants, the applicability may be limited by a lack of space.</td></tr>
<tr><td>E</td><td>Catalytic filter bags</td><td>See Section 2.2</td><td>Only applicable to plants fitted with a bag filter.</td></tr>
<tr><td>F</td><td>Optimisation of the SNCR/SCR design and operation</td><td>Optimisation of the reagent to NOx ratio over the cross-section of the furnace or duct, of the size of the reagent drops and of the temperature window in which the reagent is injected.</td><td>Only applicable where SNCR and/or SCR is used for the reduction of NOx emissions.</td></tr>
<tr><td>G</td><td>Wet scrubber</td><td>See Section 2.2.

Where a wet scrubber is used for acid gas abatement, and in particular with SNCR, unreacted ammonia is absorbed by the scrubbing liquor and, once stripped, can be recycled as SNCR or SCR reagent.</td><td>There may be applicability restrictions due to low water availability, e.g. in arid areas.</td></tr>
</table></td><td>Compliant.

The BRP process is optimised.</td></tr>
</table>

<table>
<tr><th colspan="2">BAT Requirement</th><th>Specific Measure</th></tr>
<tr><td>30</td><td>In order to reduce channelled emissions to air of organic compounds including PCDD/F and PCBs from the incineration of waste, BAT is to use techniques specified.
<table>
<tr><th></th><th>Technique</th><th>Description</th><th>Applicability</th></tr>
<tr><td>A</td><td>Optimisation of the incineration process</td><td>See Section 2.1.

Optimisation of incineration parameters to promote the oxidation of organic compounds including PCDD/F and PCBs present in the waste, and to prevent their and their precursors' (re)formation.</td><td>Generally applicable</td></tr>
<tr><td>B</td><td>Control of waste feed</td><td>Knowledge and control of the combustion characteristics of the waste being fed into the furnace, to ensure optimal and, as far as possible, homogeneous and stable incineration conditions.</td><td>Not applicable to clinical waste or to municipal solid waste.</td></tr>
<tr><td>C</td><td>On-line and off-line boiler cleaning</td><td>Efficient cleaning of the boiler bundles to reduce the dust residence time and accumulation in the boiler, thus reducing PCDD/F formation in the boiler.

A combination of on-line and off-line boiler cleaning techniques is used.</td><td>Generally applicable</td></tr>
<tr><td>D</td><td>Rapid flue-gas cooling</td><td>Rapid cooling of the flue-gas from temperatures above 400 °C to below 250 °C before dust abatement to prevent the denovo synthesis of PCDD/F.

This is achieved by appropriate design of the boiler</td><td>Generally applicable.</td></tr>
</table></td><td>Complaint.

The BRP process is optimised.

Waste feed is carefully controlled.

Flue gases are rapidly cooled below 250°C as part of the abatement system.</td></tr>
</table>

BAT Requirement				Specific Measure
			and/or with the use of a quench system. The latter option limits the amount of energy that can be recovered from the flue-gas and is used in particular in the case of incinerating hazardous wastes with a high halogen content.	
E	Dry sorbent injection	See Section 2.2. Adsorption by injection of activated carbon or other reagents, generally combined with a bag filter where a reaction layer is created in the filter cake and the solids generated are removed.	Generally applicable.	Dry sorbent injection is used as part of the abatement system.
F	Fixed or moving bed adsorption	See Section 2.2	The applicability may be limited by the overall pressure drop associated with the FGC system. In the case of existing plants, the applicability may be limited by a lack of space.	
G	SCR	See Section 2.2. Where SCR is used for NOx abatement, the adequate catalyst surface of the SCR system also provides for the partial reduction of the emissions of PCDD/F and PCBs. The technique is generally used in combination with technique (e), (f) or (i).	In the case of existing plants, the applicability may be limited by a lack of space.	
H	Catalytic filter bags	See Section 2.2	Only applicable to plants fitted with a bag filter.	
I	Carbon sorbent in a wet scrubber	PCDD/F and PCBs are adsorbed by carbon sorbent added to the wet	Only applicable to plants fitted with a wet scrubber.	

BAT Requirement		Specific Measure

		scrubber, either in the scrubbing liquor or in the form of impregnated packing elements. The technique is used for the removal of PCDD/F in general, and also to prevent and/or reduce the re-emission of PCDD/F accumulated in the scrubber (the so called memory effect) occurring especially during shutdown and start-up periods.	

	BAT Requirement	Specific Measure
31	In order to reduce channelled mercury emissions to air (including mercury emission peaks) from the incineration of waste, BAT is to use one or a combination of the techniques specified.	Not applicable. Mercury containing wastes will not be accepted at the Site.

	Technique	Description	Applicability
A	Wet scrubber (low pH)	See Section 2.2. A wet scrubber operated at a pH value around 1. The mercury removal rate of the technique can be enhanced by adding reagents and/or adsorbents to the scrubbing liquor, e.g.: — oxidants such as hydrogen peroxide to transform elemental mercury to a water-soluble oxidised form; — sulphur compounds to form stable complexes or salts with mercury; — carbon sorbent to adsorb mercury, including elemental mercury. When designed for a sufficiently high	There may be applicability restrictions due to low water availability, e.g. in arid areas.

BAT Requirement				Specific Measure
		buffer capacity for mercury capture, the technique effectively prevents the occurrence of mercury emission peaks.		
B	Dry sorbent injection	See Section 2.2. Adsorption by injection of activated carbon or other reagents, generally combined with a bag filter where a reaction layer is created in the filter cake and the solids generated are removed.	Generally applicable.	
C	Injection of special, highly reactive activated carbon	Injection of highly reactive activated carbon doped with sulphur or other reagents to enhance the reactivity with mercury. Usually, the injection of this special activated carbon is not continuous but only takes place when a mercury peak is detected. For this purpose, the technique can be used in combination with the continuous monitoring of mercury in the raw fluegas.	May not be applicable to plants dedicated to the incineration of sewage sludge.	
D	Boiler bromine addition	Bromide added to the waste or injected into the furnace is converted at high temperatures to elemental bromine, which oxidises elemental mercury to the water-soluble and highly adsorbable HgBr2. The technique is used in combination with a downstream	Generally applicable.	

BAT Requirement				Specific Measure
			abatement technique such as a wet scrubber or an activated carbon injection system. Usually, the injection of bromide is not continuous but only takes place when a mercury peak is detected. For this purpose, the technique can be used in combination with the continuous monitoring of mercury in the raw flue-gas.	
	E	Fixed- or moving bed adsorption	See Section 2.2. When designed for a sufficiently high adsorption capacity, the technique effectively prevents the occurrence of mercury emission peaks.	The applicability may be limited by the overall pressure drop associated with the FGC system. In the case of existing plants, the applicability may be limited by a lack of space.

7.0 Control of Emissions

7.1 Point Source Emissions to air

The processing of WEEE gives rise to a number of pollutants which are abated to low concentrations and regulated under the IED.

An Air Emissions Risk Assessment which includes a detailed dispersion model has been carried out in accordance with relevant guidance and is provided in Section 5 of the application, along with a summary of the stack height determination calculations undertaken. Please refer to these assessments for a detailed account of emission points, emission rates and abatement technologies provided. However, a short summary is given below.

For the purposes of the dispersion modelling assessment, to represent a precautionary (worst case) approach, it was assumed that the plant will operate for 8,760 hours per year, based on a 3 hour batch cycle, with emission concentrations at the Emission Limit Values (ELVs) associated with BAT as described in the Industrial Emissions Directive. In reality, operational hours are likely to be less than this to allow for maintenance and emissions control would reduce emissions to below the applied ELVs.

The following scenarios have been assessed:

- Normal 'daily average' emission limits; and
- Half-hourly emission limits.

The conclusions of the detailed atmospheric dispersion modelling assessment of the emissions are as follows:

- there are no predicted exceedances of air quality standards for the protection of human health at the point of maximum ground level impact for any of the scenarios assessed;
- predicted impacts upon the Bridgnorth Air Quality Management Area (AQMA) with respect to nitrogen dioxide (NO_2) concentrations are considered insignificant; and
- predicted impacts on designated sensitive habitats are considered insignificant.

7.2 Point Source Emissions to Water

7.2.1 Point Source Emissions to Sewer

The only emissions to sewer from the site are domestic sanitary wastes. There are no emissions to sewer from the processing of WEEE.

7.2.2 Point Source Emissions to Surface water

The only emission to surface water is clean uncontaminated rainwater from the building roofs which discharges into the Stanmore Business Park surface water drainage system. Rainwater will be harvested for use in the 'cooler quench' of the emissions abatement system. This water is evaporated as part of this process and emitted to air via the stack(s).

8.0 Monitoring

The Site will be subject to a comprehensive programme of monitoring to ensure it operates to the specified design standards and does not give rise to unacceptable environmental impact.

Monitoring comprises the following:

- general observations

- monitoring of infrastructure and equipment;
- monitoring of process variables; and
- emissions monitoring.

8.1 General Observations

Routine observations and monitoring will be undertaken daily by site personnel to ensure that the Site operates correctly and without giving rise to unacceptable levels of emissions.

Routine regular observations will include qualitative assessment of noise, dust, litter and odour at the installation, the results of which will be entered in the Site diary.

8.2 Monitoring of Infrastructure and Equipment

Infrastructure and equipment will be subject to regular visual inspection. In the event of deterioration or damage, appropriate remedial action will be taken to restore the infrastructure and equipment to a satisfactory condition.

8.3 Emissions Monitoring

Emissions to Air

Emissions to air will be subject to a routine monitoring programme, as described below in Table 4. Emission limits will meet the limits set out in the Industrial Emissions Directive, Annex VI.

Table 5 Emission Limits and Monitoring Programme

Substance	Emission Limit Value	Monitoring Frequency
Particulate	10mg/Nm³	Continuous
Total Organic Carbon	10mg/Nm³	Continuous
Hydrogen Chloride	10mg/Nm³	Continuous
Hydrogen Fluoride	1mg/Nm³	Continuous
Sulphur Dioxide	50mg/Nm³	Continuous
Oxides of Nitrogen	200mg/Nm³	Continuous
Cadmium and Thallium (and compounds)	0.05mg/Nm³	Periodic
Mercury and compounds	0.05mg/Nm³	Periodic
Metalloids	0.5mg/Nm³	Periodic
Dioxins and furans	0.1ng/Nm³	Periodic
Carbon dioxide	150mg/Nm³ (10 min average)	Continuous

Continuous Emissions Monitoring (CEMs) equipment to be installed will be MCERTs certified and MCERTs accredited monitoring contractors and laboratories will be used.

Emissions monitoring sample points will be designed in accordance with Technical Guidance Note M1.

To date, no monitoring of final emissions emitted from the stack has been undertaken.

9.0 Environmental Impact

9.1 Impact Assessments

A number of impact assessments have been undertaken in support of this application to demonstrate that the operation of the proposed facility at the Site will not give rise to unacceptable impact on the environment.

The assessments carried out in line with current EA guidance are as follows;

- Environmental Risk Assessment (Section 4);
- Air Emissions Risk Assessment (Section 5); and
- Noise Assessment (Section 6).

The conclusions of the assessments are summarised below.

9.2 Environmental Risk Assessment

The Environmental Risk Assessment considers numerous potential risks including, but not limited to odour, fugitive emissions, dust, releases to water, litter and potential for accidents and incidents. The assessment concludes that with the implementation of the risk management measures described, potential hazards from the proposed development are not likely to be significant.

The Environmental Risk Assessment is enclosed as Section 4 of this application.

9.3 Air Emissions Risk Assessment

An Air Emissions Risk Assessment which includes a detailed dispersion model has been carried out in accordance with EA guidance and is provided in Section 5 of the application. Please refer to the assessment for a detailed account of emission points, emission rates and abatement technologies provided. However, a short summary is given below:

- there are no predicted exceedances of air quality standards for the protection of human health at the point of maximum ground level impact for any of the scenarios assessed;
- predicted impacts upon the Bridgnorth Air Quality Management Area (AQMA) with respect to nitrogen dioxide (NO_2) concentrations are considered insignificant; and
- predicted impacts on designated sensitive habitats are considered insignificant.

9.4 Noise Assessment

A noise impact assessment has been carried out in line with BS 4142 methodology. Cumulative rating sound levels have been predicted at nearest sensitive receptors using noise modelling techniques of quantified noise emissions, established from in-situ measurements of the plant as far as could be established.

It has been concluded from the findings of this assessment that the proposed pyrolysis plant will result in acceptable acoustic effects in the environment, to support Local Authority approval for a maximum design capacity of up to 10 tonnes per day of hazardous material to be processed.

The likely acoustic effects have been established about the NOEL to LOAEL threshold of the NPSE. It has been expected that development sound will be unnoticeable to cause no effect, or just perceptible during the most

sensitive periods of assessment. In the worst-case, it has been considered possible for the sound to be audible, but not expected to cause any change in behaviour or attitude.

Following overarching requirements for planning and noise, no specific noise mitigation measures have been considered necessary to support the proposed pyrolysis waste processing development, based upon the noise impacts assessed within this report.

The Noise Impact Assessment is enclosed as Section 6 of this application.

9.5 Energy Efficiency

Waste heat from the BRP is ducted to the TO to aid in maintaining the temperature within the TO without the need to combust natural gas. The waste heat travels through pipes wrapped around the main syngas duct from the BRP to ensure that the syngas does not condense prior to reaching the TO chamber.

10.0 **Site Restoration**

10.1 Operations during the period of the Environmental Permit

The operations at the Site should not lead to a deterioration of the land by the introduction of any polluting substances due to the containment and control measures that will be implemented to ensure the processes are contained within the appropriate structure / containers.

In the unlikely event of a potentially polluting incident, which impacts the Site, the Plant Manager will record the details of the incident together with any further investigation or remediation work carried out. This will ensure that there is a continuous record of the state of the Site throughout the period of the permit.

10.2 Design of Site

Records will be maintained of the location of facilities, services, and sub-surface structures. During any modifications or alterations on the Site, care will be taken to update these records to ensure easy closure of the Site.

The design ensures that:

- there are no underground tanks for the containment of potentially polluting substances;
- there is provision for the draining and clean out of vessels and pipe work prior to dismantling; and
- materials used are recyclable, if practicable (having regard for operational and other environmental protection objectives).

All supporting equipment manuals and documentation will be maintained in duplicate in hard copy ring binder and one electronic version of all documentation and manuals will be maintained on CD and kept in the Site office.

10.3 Site Closure Plan

Definite closure will occur when the Site stops accepting WEEE feedstock. Actions that will be taken at this point to avoid pollution risk and return the Site to a satisfactory condition are set out below.

10.3.1 Communication

CRUK will inform the Local Authority (LA) in writing of the date of the cessation of feedstock acceptance. This will enable the LA to inspect the Site, approve the closure and agree upon the actions that should occur post-closure.

10.3.1 Access & Security

Security provision will be audited to ensure that the Site is in a secure condition and that unauthorised access is avoided. Site security will be maintained through the use of the Stanmore Industrial Estate general site security.

10.3.2 Restoration

Substances will be removed in such a way as to protect land and groundwater from potentially harmful contents. Containers and other structures will be dismantled in such a way as to prevent pollution risk to the surrounding environment.

Equipment will be drained and cleaned prior to dismantling, with all effluent and solid residues being contained and taken to an appropriate treatment or disposal facility.

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