

Natural Resources Wales permitting decisions

Atlantic Recycling Limited

Decision Document

Variation of a Bespoke Permit

The variation number is: EPR/PP3993VS/V007.

The Operator is: Atlantic Recycling Limited

The Installation is located at: Atlantic Recycling Limited, Atlantic Eco Park, Newton Road, Rumney, Cardiff, CF3 2EJ.

We have decided to issue the variation for Atlantic Recycling Limited operated by Atlantic Recycling Limited.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise we have accepted the Operator's proposals.

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Key issues of the decision

1 Our proposed decision

We are minded to issue a permit variation to the Operator. This will allow it to operate the Installation, subject to the conditions in the consolidated Permit.

We consider that, in reaching that decision, we have taken into account all relevant considerations and legal requirements and that the permit will ensure that a high level of protection is provided for the environment and human health.

This variation application is to operate an installation which is subject principally to the Environmental Permitting Regulations 2016 (EPR) and the requirements of the Industrial Emissions Directive (IED).

The draft consolidated permit contains many conditions taken from our standard Environmental Permit template including the relevant Annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the permit, we have considered the Application and accepted the details are sufficient and satisfactory to make the standard conditions appropriate.

This document should be read in conjunction with the application and supporting information, the variation notice and consolidated permit.

2 How we reached our draft decision

2.1 Receipt of Application

The Application was accepted as duly made on 01 June 2017. This means we considered it was in the correct form and contained sufficient information for us to begin our determination, but not that it necessarily contained all the information we would need to complete that determination.

The Operator made no claim for commercial confidentiality. We have not received information in relation to the Application that appears to be confidential in relation to any party.

2.2 Consultation on the Application

The consultation requirements were identified and implemented. The decision was taken in accordance with EPR RGN 6 “Determinations involving Sites of High Public Interest”, our Public Participation Statement and our Working Together Agreements.

We advertised the Application by a notice placed on our website, which contained all the information required by the IED, including telling people where and when they could see a copy of the Application. The application consultation started on 19 June 2017 and ended on 17 July 2017.

A copy of the Application and all other documents relevant to our determination are available for the public to view. Anyone wishing to see these documents could arrange for copies to be made.

We sent copies of the Application to the following bodies, which includes those with whom we have “Working Together Agreements”:

- Dŵr Cymru/Welsh Water
- Cardiff City Council (Environmental Health)
- Cardiff City Council (Planning)
- Public Health Wales
- Cardiff and Vale University Health Board
- South Wales Fire and Rescue Service.

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly.

Further details along with a summary of consultation comments and our response to the representations we received can be found in Annex 3. We have taken all relevant representations into consideration in reaching our draft determination.

2.3 Requests for Further Information

In order for us to be able to consider the Application duly made, we needed more information. We requested further information relating to:

- How the Refuse Derived Fuel (RDF)/Solid Recovered Fuel (SRF) is treated to improve the quality of the waste as a fuel
- The capacity of the waste water treatment plant in tonnes
- Air Quality Modelling electronic files
- Correct OPRA file and application fee.

Upon receipt of this information we were able to consider the application Duly Made.

Further information was also requested by way of a Schedule 5 Notice sent on 15 September 2017, requiring information relating to the Fire Prevention and Mitigation Plan, baseline site condition report, the waste water treatment plant and again we requested clarification relating to how the treatment of SRF/RDF changes the composition of the waste. The response due date was 13 October 2017. The Operator requested additional time until 20 October 2017. The Operator's response to the Schedule 5 Notice was provided on 27 October 2017.

Due to enforcement action against the Operator that was ongoing at the time, it was deemed that this application should be put into abeyance until such time that enforcement proceedings has been completed. The information provided by the applicant, referred to above was therefore not reviewed upon receipt. Once reviewed it was not considered that the information met the requirements of the Schedule 5 Notice and feedback on the information received was provided to the applicant on 14 December 2019.

A second Schedule 5 Notice was sent to the Operator on 14 December 2018 with a response due date of 18 January 2019 requesting a Human Health Risk Assessment for emissions to air, a Best Available Techniques (BAT) assessment in respect to the European Union Waste Treatment Best Available Techniques Reference Document (BREF) and information relating to drainage, the site condition report, the waste water treatment plant and RDF/SRF production. The Operator's response was received on 18 January 2019.

Additional details on operating techniques with respect to waste types, emissions and storage were received on 15 October 2019 and additional details on the waste water treatment and discharge, with respect to temperature, were received on 27 January 2020.

A copy of the Schedule 5 information notices and e-mails requesting further information were placed on our public register as were the responses when received.

Having carefully considered the Application and all other relevant information, we are now putting our draft decision before the public and other interested parties in the form of a draft Permit, together with this explanatory document. As a result of this stage in the process, the public has been provided with all the information that is relevant to our determination, including the original Application and additional information obtained subsequently, and we have given the public two separate opportunities (including this one) to comment on the Application and its determination. Once again, we will consider all relevant representations we receive in response to this final consultation and will amend this explanatory document as appropriate to explain how we have done this, when we publish our final decision.

Finally we have consulted on our draft decision from xx/yy/zz to xx/yy/zz. A summary of the consultation responses and how we have taken into account all relevant representations is shown in Annex 4B.

3 The Legal Framework

The variation will be issued, if appropriate, under Regulation 20 of the Environmental Permitting Regulations (EPR). The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is varied to become:

- an *installation* including a *small waste co-incineration plant* as described by the EPR ;
- subject to the provisions of Chapters II (for the SRF and RDF activity) and IV of the IED (in relation to the small waste co-incineration plant);
- a *waste operation* covered by the Waste Framework Directive for the existing waste treatment activities; and
- subject to aspects of other relevant legislation which also have to be addressed.

All applicable European directives have been considered in the determination of this application.

NRW is satisfied that this decision is consistent with its general purpose of pursuing the sustainable management of natural resources in relation to Wales, and applying the principles of sustainable management of natural resources.

We consider that, if we issue the variation a high level of protection will be delivered for the environment and human health through the operation of the regulated facilities in accordance with the permit conditions.

4 The Installation

4.1 Description of the Installation and related issues

4.1.1 The permitted activities

The site has been permitted since 2005. The primary regulated activities previously carried out are waste operations as defined in Schedule 8 of EPR, comprising of a:

- Waste transfer station with treatment permitted to accept up to 112,000 tonnes per annum for treatment and 18,000 for storage only.
- Soil processing facility permitted to accept up to 30,000 tonnes of waste per annum, with a storage limit of 100,000 tonnes.
- Wood processing facility permitted to accept up to 75,000 tonnes of waste per annum.
- Refuse derived fuel and solid recovered fuel processing facility permitted to accept and treat up to 40,000 tonnes of waste per annum.

A new regulated facility in the form of an Installation has been added to the permit as a result of this variation application. This is because the Operator has applied to increase the capacity of the SRF/RDF waste operation above the threshold that makes it an installation.

It will therefore carry out activities listed in Part 2 of Schedule 1 of the EPR:

- S5.4 Part A(1)(b)(ii) Recovery of non-hazardous waste with a capacity exceeding 75 tonnes per day involving pre-treatment of waste for incineration or co-incineration (this replaces the lower quantities previously permitted as a waste management operation)
- S5.4 Part A(1)(a)(i) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving biological treatment (this is a new water treatment plant)

An installation may also comprise “directly associated activities”, which at this Installation will include a Small Waste Co-incineration Plant (SWCP) . The inclusion of the SWCP in the permit is required because such plant is subject to the EPR via the definition of “small waste incineration plant” as given in Part 1: General, paragraph 2 of the EPR:

“small waste incineration plant” means a waste incineration plant or waste co-incineration plant with a capacity less than or equal to 10 tonnes per day for hazardous waste or 3 tonnes per hour for non-hazardous waste”.

Chapter 1, article 3(41) of the IED states that “waste co-incineration plant” means:

“any stationary or mobile technical unit whose main purpose is the generation of energy or production of material products and which uses waste as a regular or additional fuel or in which waste is thermally treated for the purpose of disposal through the incineration by oxidation of waste as well as other thermal treatment processes, such as pyrolysis, gasification or plasma process, if the substances resulting from the treatment are subsequently incinerated.”

In addition to the EPR, the SWCP is therefore also subject to the provisions of Chapter IV of the IED. The IED definition of “waste incineration plants” and “waste co-incineration plants” says that it includes:

“all incineration lines or co-incineration lines, waste reception, storage, on-site pre-treatment facilities, waste, fuel and air supply systems, boilers, facilities for the treatment of waste gases, on-site facilities for treatment or storage of residues and waste water, stacks, devices for controlling incineration or co-incineration operations, recording and monitoring incineration or co-incineration conditions.”

The purpose of the SWCP is to combust waste wood to produce heat, which is used to heat water to 85°C for use in the Waste Water Treatment Plant. The plant is therefore classed as a directly associated activity (DAA) to the Waste Water Treatment Plant listed activity.

Together, the listed and directly associated activity comprise the installation regulated facility. The waste operation regulated facility is comprised of the waste transfer station with treatment, soil processing activity and the wood processing activity.

4.1.2 The Site

The site is located to the east of Cardiff, near Rumney at map reference ST 23673 78636. The surrounding area is flat and rural but with industrial areas close by to the north east and north west. It is also very close to the coast which lies approximately 450 metres to the south.

The site sits within the Gwent Levels – Rumney and Peterstone SSSI although the site boundary remains unchanged by this variation. Approximately 450 metres to the south is the Severn Estuary which is designated as a SAC, SPA, Ramsar and SSSI.

The likely emissions from the proposed changes on the nearby receptors was assessed in detail and is discussed further below.

4.1.3 Background to the variation

The Operator is applying to vary their current permit to:

- Install and operate a Waste Water Treatment Plant (WWTP). The WWTP will be designed to handle 3.5 litres/second, equivalent to approximately 100,000 tonnes per annum of surface water from the waste storage and treatment areas of the site, and includes biological treatment stages. The actual capacity of the WWTP will be approximately 70,000 tonnes per annum to allow for maintenance, breakdowns and repeat treatment of batches if required. The bespoke WWTP is designed to treat surface water to meet the numerical limits already specified in Table S3.1 of the permit. The treated waters will continue to discharge via the existing outfall point D1, and the compliance monitoring point is at D2 where water enters the SSSI re-en system.
- Install a SWCP, supplying thermal energy in the form of 85°C hot water for use in the WWTP. The SWCP will be located within a new building and will burn either untreated waste wood or treated (non-hazardous) waste wood, recycled wood chip fuel, or mixtures thereof, sourced from other on-site recycling activities, at a feed rate of approximately 330 kg/hr, depending upon the moisture content of the fuel. The recycled wood chip will be sourced from the waste wood activity currently within the permit. If sufficient fuel is not available from on-site operations it will be sourced from other local recycling operations. The SWCP will add a point source emission to air at point A1 shown on plan JCD0170-PER-002, from an 11m high stack. The boiler is a SWCP as detailed

in Section 4.1.1 of this document. It cannot be classed as an EPR Schedule 1.1 Part B activity as it is burning waste as a fuel. It cannot be classed as an EPR Schedule 5.1 Part B (v) activity as the treated (non-hazardous) wood waste fuel contains potential contaminants. The SWCP will be subject to EPR Schedule 13 and IED Chapter IV requirements.

The Operator has referred to Grade A, B and C waste wood throughout their application, based on the definitions in *PAS 111:2012 Specification for the requirements and test methods for processing waste wood*. We refer to waste wood as untreated, treated (non-hazardous) and treated (hazardous). Any reference to the waste wood fuel which will be used to fuel the SWCP, is therefore referred to as treated (non-hazardous) waste wood throughout our determination. The permit only allows for the acceptance of non-hazardous wood waste.

- Include an expanded dedicated RDF/SRF processing facility separate to the current Waste Transfer Station (WTS) activity on site including an associated increase in tonnages from 40,000 tonnes to 100,000 tonnes per annum. A dedicated building will be constructed to house the new SRF processing plant and the mobile plant currently used at the WTS to produce RDF. The new facility will process paper, plastics, cardboard and other packaging.
- Remove the current “other specifications” from Tables S3.2 – surface water monitoring and S3.3 – groundwater monitoring of the permit and replace them with new monitoring procedure references.

Since the variation application was first made in April 2017 the Operator has requested that the following change also be made:

- That the storage of all treated RDF/SRF, whether loose or wrapped/baled be outside of a building on an impermeable surface with sealed drainage system. Originally it was stated in the application that post processing of RDF/SRF waste, loose waste would be stored inside a building and baled waste outside

on an impermeable surface. This change allows the material to be stored in containers more suited to customer needs and not only baled.

There is no proposed change to the site boundary, or the wood processing and soil processing activities, as a result of this variation.

4.1.4 Key issues in the Determination

The key issues arising during this determination were:

- Emissions to air. The emissions from emission point A1 required careful consideration of the potential impacts on human health and nature conservation sites in the context of the Emission Limit Values (ELVs) set by the Industrial Emissions Directive (IED). The applicant used air dispersion modelling to establish the predicted impact of the SWCP on air quality and made comparisons against Environmental Quality Standards (EQS) for the protection of human health and standards for protected conservation areas; and
- Emissions to surface water. The drainage water generated periodically through general site drainage will be transferred to the waste water treatment plant on the installation. We are satisfied that the existing emission limits and monitoring requirements can continue to be met. We have also added an additional parameter, this being temperature. We added a temperature compliance limit because the treatment process involves warming the water to 20°C and we needed to ensure that the treated water is returned to an appropriate temperature before it is discharged to the reens.

We therefore describe how we determined these issues in more detail in this document.

4.2 The site and its protection

4.2.1 Proposed site design: potentially polluting substances and prevention measures

All areas of the site used for waste storage or treatment are provided with an impermeable surface with a sealed drainage system directed to the WWTP.

The new RDF/SRF processing facility will be located to the south of the existing WTS. The building will be 150 metres in length, 30 metres wide and 14.4 metres high to the eaves. The facility will be constructed on an impermeable hardstanding with a fully sealed drainage system.

The Applicant has a duty to ensure that soil and groundwater are protected in order to meet the requirements of Articles 14 (1)(b), 14(1)(e) and 16(2) of the IED. Permit condition 3.1.3 requires periodic soil and groundwater monitoring based on systematic appraisal of the risk of contamination, and has been added now that the Operator is carrying out an activity subject to the IED.

4.2.2 Site Condition Report

The Applicant has provided a site condition report as part of their application which sets out baseline conditions at the time of applying to become an Installation subject to the IED. We consider that the description is satisfactory.

At the definitive cessation of activities, the Applicant has to satisfy us that the necessary measures have been taken so that the site ceases to pose a risk to soil or groundwater, taking into account both the baseline conditions and the site's current or approved future use. To do this, the Applicant has to apply to us for surrender, which we will not grant unless and until we are satisfied that these requirements have been met.

4.3 Operation of the Installation – general issues

4.3.1 Administrative issues

The Applicant is the sole Operator of the regulated facilities.

We are satisfied that the Applicant is the person who will continue to have control over the operation of the regulated facilities after the issue of the variation; and that the

Applicant will be able to continue to operate the regulated facilities so as to comply with the conditions included in the consolidated Permit.

We are satisfied that the Operator's submitted OPRA profile is accurate, the OPRA score being 88 for the installation. The OPRA score will be used as the basis for subsistence and other charging, in accordance with our Charging Scheme. OPRA is Natural Resources Wales method of ensuring application and subsistence fees are appropriate and proportionate for the level of regulation required. Upon issue of this variation the Operator will have separate OPRA profiles for the Installation and waste facilities.

4.3.2 Management

The Operator has an integrated Management system that meets the requirements for an Environmental Management System (EMS) in our "How to comply with your environmental permit guidance". The operator submitted a summary of the EMS with their application. The operator has also proposed that the site will be operated by staff holding the appropriate CoTC (Certificate of technical competence).

We are satisfied that appropriate management systems and management structures will be in place for the regulated facilities, and that sufficient resources are available to the Operator to ensure compliance with all the Permit conditions.

4.3.3 Site security

CCTV is to be installed on site and will be fitted with motion detectors. The CCTV will be fed back to on-site security staff between the hours of 6am and 6pm. Outside of these hours the site will be patrolled by two security guards.

Having considered the information submitted in the Application, we are satisfied that appropriate infrastructure and procedures will be in place to ensure that the site remains secure.

4.3.4 Accident management

In order to ensure that the management system proposed by the Operator sufficiently manages the residual risk of accidents, permit condition 1.1.1 (a) requires the implementation of a written management system which addresses the pollution risks associated with, amongst other things, accidents. A Fire Prevention and Mitigation plan was submitted in accordance with NRW's guidance on 18 January 2019. This plan has been reviewed and we are satisfied that it is suitable.

4.3.5 Operating techniques

The Operator has identified the documents that provide relevant technical guidance for the proposed activities at the site. NRW agree that the operator has selected the correct guidance to cover the proposed changes and they have been included within the Operating Techniques table of the permit.

RDF/SRF Processing

The permit already allows for the production of RDF and SRF, below the threshold of 75 tonnes per day for a Schedule 1 EPR activity. The Operator wants to increase the current treatment capacity to in excess of 75 tonnes, and the annual throughput by 60,000 tonnes.

EPR RGN2 "Understanding the meaning of regulated facility" defines pre-treatment of waste for incineration or co-incineration as:

Where a waste treatment directly and intentionally improves the quality of the waste as a fuel by changing the composition of the waste in a way that changes one or more of the following 5 parameters:

- a) Calorific (or heating) value;*
- b) Moisture content;*
- c) Ash content;*
- d) Chemical composition;*
- e) Heavy metal content*

Including for example, to fulfil contractual requirements or product standard requirements, then that process is pre-treatment for incineration or co-incineration.

Where a waste treatment is carried out for some other purpose and only incidentally improves the quality of the waste as a fuel, then it is not a 5.4 A(1)(b)(ii) activity. The Operator is intentionally treating waste to produce RDF.

RDF will be produced by undertaking an initial mechanical sort to remove any bulky/unsuitable items, then by feeding the waste into a mechanical shredder for initial processing into a reduced, consistent size of <200mm. Waste will then pass via a conveyor under an overband magnet to remove any ferrous metals. The remaining shredded waste will pass through a Trommel where it will be separated and stockpiled into a 60-200 mm product and a 0-60mm product. Any oversize material will be moved to the baling plant where it will be baled under hydraulic pressure, tied with nylon ties and wrapped with an approved 25 micron plastic wrap.

Pre-Acceptance procedures to assess wastes

The operator has established pre-acceptance procedures which have been approved by NRW under the existing permit. No changes have been proposed to these procedures and they will remain appropriate following the variation.

Waste Acceptance Procedures

Waste acceptance procedures will also be carried out in accordance with established and approved procedures. Incoming waste categorised as 19 12 10 and 19 12 12 will be directed straight to the new RDF/SRF Facility. This will reduce the volume of waste subject to internal transfer around the site. The WTS will accept predominantly chapter 17 wastes (as defined in the European Waste Catalogue). Should waste be brought to the site that on inspection is more suited to treatment at another part of the site, it will be transferred.

Waste Inspection

Each load will be visually checked to ensure non-permitted waste is not included. This visual check will continue whilst the waste is being moved into the correct waste processing area.

Unacceptable Waste

If the site operative identifies waste which is not permitted or is unsure of its acceptability, the site manager will be called. The site manager will inspect the waste

and decide on the safety of the load. If possible, and if it is safe to do so, the waste will be loaded back onto the vehicle, which discharged it. If not possible or safe to do so, the site manager will consult NRW on the course of action to be taken. No tipping will be allowed in the area of this waste until a decision has been made.

Dangerous Substances

If dangerous substances are delivered and discharged at the site they will be isolated from any other area by provision of an exclusion zone marked out with cones and rope or similar and the tipping area closed. NRW will be informed immediately and advice sought on how to deal with the materials. Should there be any reason to suspect that fumes or leakage is likely to affect workers or customers the site area will be evacuated and the fire service called out and specialist advice will be sought from them. Appropriate actions to remove the substances from the site will be taken following consultations with the fire service and NRW.

Quantity Measurement

Quantities of incoming and outgoing wastes to the facility are recorded in tonnes utilising the site weighbridge via the existing access road. All site records will be collated and stored at the site office so to ascertain waste throughput at the site.

It is not proposed that any waste transferred between the WTS and the RDF/SRF processing facility be weighed separately. Once waste has initially been directed to an area of the facility it will remain recorded as accepted to that area. It is not anticipated that a significant amount of waste will be transferred around the site. The weighbridge is calibrated annually in accordance with the manufacturer's recommendations.

Waste Storage

All wastes will be stored in line with the requirements of the permit, Waste Framework Directive and associated guidance.

RDF and SRF produced will be stored in stockpiles in accordance with the Fire Prevention and Mitigation Plan.

Following treatment in the RDF/SRF processing facility, SRF will be stored inside the building and RDF stored outside in appropriate containers to prevent windblown litter.

4.3.6 Energy efficiency

The SWCP is intended specifically to recover energy, via combustion, from recycled wood chip fuel. Energy is recovered from the hot combustion flue gas in a boiler that generates 85°C hot water for use in a directly associated waste water treatment plant. The SWCP will generate approximately 8,000 MWh per annum of thermal energy that will be used in the waste water treatment plant, depending on the variability of the moisture content and calorific value of the recycled wood chip fuel.

The boiler will utilise approximately 2,500 tonnes per annum of recycled wood chip fuel. With average moisture content of 25% the heat produced from each tonne of this fuel would be expected to be 3,200 kWh.

The energy efficiency techniques include the following:

- insulation – hot water pipe-work, vessels, boiler, combustion plant (high efficiency refractory insulation);
- High-efficiency electric motors for all drives;
- Thyristor control of motors for the Induced Draft (ID) fan and Forced Draft (FD) fan.

The SWCP will be housed within a new building incorporating skylights to allow natural lighting and therefore minimal additional lighting will be required. Heating will not be required within the building as access will only be required twice a day for monitoring purposes.

Energy management techniques will be incorporated into the EMS that will direct the operation of the SWCP, however, the following provides a concise overview of the techniques and measures that Atlantic will employ:

Combustion efficiency within the SWCP will be optimised by employing the following measures:

- Minimising combustor excess air levels (whilst maximising the combustion of volatile gases released by the burning fuel on the grate). This will be achieved by careful control of air flows and combustion zone temperatures;

- Minimising boiler flue gas exit temperatures (whilst maintaining sufficient temperature to avoid acid dew-point corrosion and excessive visible plume). This will be achieved by design of the combustion and heat recovery sections of the boiler and, in operation, regular cleaning of the boiler smoke tubes to remove insulating deposits.

The parasitic electrical load used by the SWCP will be minimised by employing the following techniques:

- The use of variable speed drives for all motors operating at less than full load for significant periods, including the combustion FD and ID fans;
- The use of high efficiency motors for all drives.

The design of the SWCP will ensure that energy efficiency is optimised at all times. It is anticipated that the associated waste water treatment plant will take all of the available thermal energy generated by the biomass boiler, however any excess heat from the boiler will be used to heat water for general use at the site.

We are satisfied that the Operator will ensure that energy is used in the most efficient way possible, which is detailed in the operating techniques.

The Applicant is required to report energy usage under condition 4.2.2 and Schedule 4. This will enable Natural Resources Wales to monitor energy recovery efficiency at the Installation. Condition 1.2.1 requires that energy usage is regularly reviewed and appropriate measures taken to reduce it where possible.

4.3.7 Avoidance, recovery or disposal of wastes produced by the activities

Waste produced comprises of that produced from the administrative activities of the site which is transferred directly to the WTS for sorting along with waste accepted at the site from commercial operators.

The SWCP will also produce waste in the form of Air Pollution Control (APC) residues and Bottom Ash. It is likely that Bottom Ash will be sent off-site for recovery by land spreading or used in construction of concrete blocks. APC residues will be sent offsite for disposal in an appropriate landfill.

Having considered the information submitted in the Application, we are satisfied that the waste hierarchy referred to in Article 4 of the WFD will be applied to the generation of waste and that any waste generated will be treated in accordance with this Article.

We are satisfied that waste from the Installation that cannot be recovered will be disposed of off-site using a method that minimises any impact on the environment.

5 Minimising the Installation's environmental impact

Regulated activities can present different types of risk to the environment, these include odour, noise and vibration; accidents, fugitive emissions to air and water; as well as point source releases to air, discharges to ground or groundwater and generation of waste. All these factors are discussed in this and other sections of this document.

For an installation of this kind, the principal emissions are :

- Point Source emissions to air
- Point source emissions to surface water
- Odour
- Fugitive emissions of dust/particulates and litter.

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of emissions from the Installation on human health and the environment and what measures we are requiring to ensure a high level of protection.

5.1 Assessment of Impact on Air Quality

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the SWCP stack and its impact on local air quality.

The Operator has assessed the SWCP's potential emissions to air against the relevant air quality standards, and the potential impact upon human health. For the purpose of this application and to maximise flexibility of operation the Operator has assumed that

up to 100% of the feed for the SWCP could be treated (non-hazardous) waste wood and therefore IED emission limits for incineration plant, have been applied.

The air impact assessments, and the dispersion modelling has been based on the Installation operating continuously at the relevant long-term or short-term emission limit values, i.e. the maximum permitted emission rate.

The Air Quality Assessment considered the following substances:

- Oxides of Nitrogen (NO and NO₂ expressed as NO₂ (NO_x))
- Carbon Monoxide (CO)
- Total Dust (as PM₁₀ and PM_{2.5})
- Gaseous and vaporous organic substances, expressed as Total Organic Carbon;
- Sulphur Dioxide (SO₂)
- Hydrogen Chloride (HCl)
- Hydrogen Fluoride (HF)
- Metals (Cadmium, Thallium, Mercury, Antimony, Arsenic, Lead, Chromium, Cobalt, Copper, Manganese, Nickel and Vanadium)
- Polychlorinated dibenzo-para-dioxins and polychlorinated dibenzo furans (referred to as dioxins and furans)
- Polycyclic Aromatic Hydrocarbons (PAH, as Benzo[a]pyrene)
- Dioxin like PCBs.

We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably precautionary.

5.2 Human Health Risk Assessment (HHRA)

The Operator was asked to carry out a detailed HHRA for potential emissions from the proposed SWCP.

The submitted report modelled the potential impacts from exposure to the seventeen polychlorinated dibenzodioxin (PCDD or “dioxins”) and furan congeners considered to be toxic to humans and two dioxin-like polychlorinated biphenyls (PCBs), Aroclor 1016 and Aroclor 1254, using the Lakes Environmental Industrial Risk Assessment Program (IRAP) version 4.5.6.

For dioxins, furans and dioxin-like PCBs, the principal exposure route is through ingestion, usually through the food chain, and the main risk to health is through accumulation in the body over a period of time. The human health risk assessment calculates the dose of dioxins and furans that would be received by local receptors if their food and water were sourced from the locality where the deposition of dioxins, furans and dioxin-like PCBs is predicted to be the highest. This is then assessed against the Tolerable Daily Intake (TDI) levels established by the Committee On Toxicity (COT) of 2 picograms I-TEQ / Kg bodyweight / day.

Our check modelling broadly agrees with the submitted results for the impacts from deposition of PCDDs and dioxin-like PCBs as a result of emissions from the proposed SWCP. The results of the Applicant's assessment of dioxin intake showed that the predicted daily intake of dioxins, furans and dioxin-like PCBs at all receptors, resulting from emissions from the proposed facility, were below the recommended TDI levels.

Public Health Wales was consulted on the Application and concluded that they had no significant concerns regarding the risk to the health of humans from the operation of the SWCP. Details of the response provided by PHW to the consultation on this Application can be found in Annex 3.

NRW is therefore satisfied that the Applicant's conclusions are soundly based and we conclude that the potential emissions of pollutants including dioxins, furans and dioxin-like PCBs from the proposed SWCP are unlikely to have an impact upon human health.

5.3 Assessment of odour impact

The proposed wastes are currently handled within the permitted facility which already has an established odour management plan. The new RDF/SRF processing facility will process waste that will mainly constitute papers, plastics, cardboard and other packaging via the plant and machinery incorporating the latest technology. RDF and SRF will be processed / prepared and, where required, baled inside the processing building. The existing RDF process does not have a history of odour issues or complaints.

Any non-conforming wastes identified on site will be segregated from the site wastes and held in a sealed skip in the quarantine area for disposal off-site. The Operator's Environmental Management System includes a procedure for handling and recording odour complaints. This includes a requirement to investigate any complaint and where remedial action is taken that this be recorded and provided to NRW.

5.4 Assessment of impact to surface and ground water

There will be no point source emissions to groundwater as a result of the variation.

The permit already has a discharge point D2 which is controlled and monitored in accordance with the permit and the limits set out in Table S3.2. The WWTP will treat water prior to being discharged at point D2 in accordance with the operating techniques described earlier in this document. The WWTP is designed to treat the water to meet the limits in Table S3.2 of the permit to therefore allow for discharge into the Gwent Levels Reens, via emission point D2.

Rain water run-off from the building housing the RDF/SRF processing facility will be collected in a sealed system and used for dust suppression on site. During periods of prolonged heavy rain, run-off may exceed the storage capacity. In such scenarios the excess water will be discharged directly into the reens or field ditches. There will be no run-off from the operational area and the field ditch located to the east of the facility will be further protected by the provision of a 7m buffer zone where no activities or traffic will take place. The remainder of the site drains naturally.

The drainage system covering the area of the site on which the RDF/SRF processing operations will take place, will be a sealed drainage system that will be pumped to the WWTP.

Discharges of surface water from the site which have the potential to become contaminated will pass through interceptors and the WWTP which will be used to protect emissions to the Reens. The inclusion of the WWTP provides for treatment and monitoring of water prior to discharge and includes buffer capacity to hold any out of specification water prior to further treatment or removal off-site.

A hard, impermeable surface, subject to routine maintenance (to ensure its integrity is not compromised), will underlay all raw material storage areas to prevent fugitive emissions to the Reens should spills / leaks occur. Potential releases to any controlled watercourse would require simultaneous failure of the storage containers and secondary containment.

Bulk deliveries (i.e. diesel) will be overseen by a trained member of staff who will be responsible for checking that there is sufficient capacity in the storage vessel to receive the delivery.

Regular visual inspections of all bunds, tanks and containers will occur to ensure that the integrity is not compromised with no signs of damage or leaks. All storage tanks/containers will comprise materials which are resistant to the vessel content.

Training will also be provided to all staff relating to the use of spill kits and the Accident Management Plan and Spill Clean-Up Procedures. All site personnel will be tasked with monitoring for evidence of spillages and leakage during their day to day routine. Any evidence of spillage or leakage will be reported to the Site Manager or his nominated deputy for remedial action.

There will be no emissions to surface or groundwater from the SWCP.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent pollution of ground and surface water.

5.5 Emissions to sewer

No emissions to sewer are proposed as a result of this variation.

5.6 Fugitive emissions

The RDF/SRF processing activity is to take place wholly within a new purpose-built building and therefore any fugitive emissions of dust or litter are likely to be contained within the building. The building will be fitted with extractors which will ensure that dust from inside the building is captured in a filter. The dust will be vacuum extracted from the filters as necessary and sent to an appropriate facility for processing. The monitoring of dust and particulate generation at the facility will be visual. In addition waste materials outside will be damped down as necessary using a tractor / plant and a bowser. All RDF and SRF baling will take place within a building.

Waste wood is transported from the WTS to the fuel storage area of the boiler building housing the SWCP via a front loader. This wood chip will be between 40-80mm in dimension. Any smaller dust or sawdust will have been removed at the waste transfer station, therefore no dust should be created during transportation of wood chip between the WTS and the SWCP fuel storage area. If dust is observed during transportation, dust suppression techniques such as bowsers and spray irrigation systems will be available on site for the management of any such dusts.

The operation of the WWTP is not likely to generate fugitive emissions to air such as dust particulates due to the fitted filters. These filters will be regularly maintained as part of the EMS. Any observed failure will be reported and action taken immediately to stop the fugitive emissions occurring.

All vehicles transporting materials to and from the facility will be sheeted or have enclosed containers to prevent fugitive emissions of dust or litter from vehicles. Regular inspections will be undertaken around the site perimeter, operational area, haul roads and highway for dust. Remedial action e.g. dampening or use of a road sweeper will be undertaken if dust is identified as a problem.

All wastes and recycled waste leaving the site will be containerised and baled where required by the end user.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise fugitive emissions and to prevent pollution from fugitive emissions.

5.7 Noise Assessment

All potentially noisy activities will take place within a building including shredding and baling of SRF, RDF and recyclates. The building will be fitted with acoustic cladding to minimise any noise emission.

During the selection process for new plant and equipment, consideration has been given to the minimisation of noise. Plant and equipment will be subject to regular inspection and planned preventative maintenance schedules to maintain optimum operational performance.

The SWCP and associated equipment will be fully enclosed in a building. The boiler will be subject to regular inspection and planned preventative maintenance schedules to maintain its operational performance. During the selection process for the boiler, minimisation of noise was a key consideration. The SWCP will meet statutory guidance on noise levels.

Vehicle movements leaving the site will be reduced as a result of waste wood being used as fuel on-site rather than leaving the site. Internal vehicle movements around the site may increase slightly but this is not anticipated to increase noise significantly. Current monitoring procedures include regular inspections around the perimeter and operational area of the site to establish whether excessive noise is being produced. These will continue in accordance with current procedures following the variation. Results of noise inspections are recorded as soon as they have been completed.

There have been no noise or vibration complaints relating to the site operations or vehicle movements at the site.

5.8 Impact on Habitats sites, SSSIs, non-statutory conservation sites etc

Screening of the local area showed designated sites within the relevant distances for an EPR installation with discharges to air and water.

A full assessment of the variation application and its potential to affect the sites has been carried out as part of the permitting process. We consider that the application will not affect the features of the sites.

Based on the project specification and information provided in the application, it was considered that the Severn Estuary which is designated as a SAC, SPA and RAMSAR, had features that could be affected by the project through nutrient nitrogen deposition caused by NO_x emissions. It was considered that particulate matter would not be a cause for concern given that the Severn Estuary site is over 1.5 km from the facility.

The following Natura 2000 sites were ruled out without further consideration:

- River Usk / Afon Wysg SAC- UK0013007 – The predicted Process Contributions for nutrient deposition, SO₂, NH₃ and NO_x at this site are no greater than 1% of the critical levels for those sites. This site is at the very end of the 10km radius used for screening the effects of air emissions. We are therefore satisfied that the predicted process contribution at this site is insignificant and needs no further consideration. Furthermore, only a very small proportion of unit 3 of this Natura 2000 site is within the screening distance.
- Severn Estuary (England) SAC- UK0013030 This Natura 2000 site can also be ruled out. This site is at the very edge of the 10km radius used for screening the effects of air emissions and the process contribution at this site is negligible and needs no further consideration.

5.8.1 Assessment of Likely Significant Effect:

The project has been screened for likelihood of significant effects and, taking account of the advice received from protected sites advisors, is considered not likely to have a significant effect on any Natura 2000/Ramsar site when considered alone.

5.8.2 HRA Overall conclusion:

In light of the conclusions of the appropriate assessment, it has been ascertained that the project will not adversely affect the integrity of any Natura 2000/Ramsar site, as documented in section 6 of OGN 200 Form 1.

5.8.3 SSSI Assessment

The site lies within the footprint of the Gwent Levels (Rumney and Peterstone) Site of Special Scientific Interest (SSSI) and is surrounded by a series of drainage ditches/reens. The Severn Estuary SSSI also lies within the relevant screening distance of 2km from the site.

For the Gwent Levels – Rumney and Peterstone SSSI the predicted maximum process contribution for NO_x was 1.8 µg/m³. The existing background concentration is given as 20.02 µg/m³ on the Air Pollution Information System (APIS) database. Therefore the maximum predicted environmental concentration is 21.82 µg/m³. The critical level for this habitat is 30 µg/m³.

APIS gives a background Nitrogen deposition rate of 13.72 Kg N/Ha/year at this SSSI. However the open water feature of the Levels does not have a defined critical load for nitrogen deposition and as such there is no restriction to impose.

Given the above small process contribution to the critical level, the remaining “headroom” between the predicted environmental concentration and the critical level for this habitat, and given the lack of a relevant critical load, and that the predicted process contribution is a worst case maximum, the proposed development is not likely to damage the interest features of the SSSI.

In addition, we reviewed the water discharge and while the composition of the water discharge is not changing, the temperature may change. The operator undertook to ensure that the temperature of the discharge water is within 2 degrees of the temperature of the water in the Reens. This is not likely to damage the interest features of the SSSI.

For the Severn Estuary SSSI, the predicted maximum process contribution was confirmed as correct at 0.2 µg/m³. Therefore the proposed development is not likely to damage the interest features of the SSSI.

At the Severn Estuary SSSI we agree with the consultant that the predicted process contributions are likely to be less than 1% of the relevant critical levels.

5.8.4 Impact of abnormal operations

Article 50(4)(c) of IED requires that waste incineration and co-incineration plants shall operate an automatic system to prevent waste feed whenever any of the continuous emission monitors show that an emission limit value (ELV) is exceeded due to disturbances or failures of the purification devices. Notwithstanding this, Article 46(6) allows for the continued incineration and co-incineration of waste under such conditions provided that this period does not (in any circumstances) exceed 4 hours uninterrupted continuous operation or the cumulative period of operation does not exceed 60 hours in a calendar year. This is a recognition that the emissions during transient states (e.g. start-up and shut-down) are higher than during steady-state operation, and the overall environmental impact of continued operation with a limited exceedance of an ELV may be less than that of a partial shut-down and re-start.

Article 45(1)(f) requires that the permit shall specify the maximum permissible period of any technically unavoidable stoppages, disturbances, or failures of the purification devices or the measurement devices, during which the concentrations in the discharges into the air may exceed the prescribed emission limit values. In this case we have decided to set the time limit at 4 hours (see permit condition 2.3.10), which is the maximum period prescribed by Article 46(6).

Given that these abnormal operations are limited to no more than a period of 4 hours continuous operation and no more than 60 hour aggregated operation in any calendar year. This is less than 1% of total operating hours and so abnormal operating conditions are not expected to have any significant long term environmental impact. For the most part therefore consideration of abnormal operations is limited to consideration of its impact on short term EQSs.

The applicant has assessed the short term impact of abnormal emissions by increasing the calculated short term ground level concentrations on a pro-rata basis. Comparing these abnormal short term ground level concentrations with the relevant short term AQOs and EALs, the emissions can still be considered insignificant, We are therefore satisfied that it is not necessary to further constrain the conditions and duration of the periods of abnormal operation beyond those permitted under Chapter IV of the IED.

Natural Resources Wales agrees with this assessment and we therefore agree with the applicant's conclusions that there will be no adverse impact on human health as a result of abnormal operation at the site.

6 Setting ELVs and other Permit conditions

6.1 Emission Limits for the SWCP

Article 14(3) of IED states that BAT conclusions shall be the reference for permit conditions. Article 15(3) further requires that under normal operating conditions; emissions do not exceed the emission levels associated with the best available techniques as laid down in the decisions on BAT conclusions.

The emission limits described in the air dispersion modelling sets the worst case scenario. If this shows the emissions from the site are low and that they will not cause a breach of air quality objectives in the area then we are satisfied that the emissions from the site will not adversely impact the surrounding environment or the health of the local community.

Emission limits and monitoring requirements to ensure compliance with IED Chapter IV and Annex VI have been included in the permit in Table S3.1 and S3.1(a)

6.1.1 National and European EQSs

As detailed in section 5.1, the environmental impact of the installation has been assessed against relevant EQSs, at the level of performance required by IED. The installation will not result in the breach of any EQSs. We accept that the Operator's proposals represent BAT and that the SWCP is compliant with IED Chapter IV and Annex VI

6.2 Monitoring

We have decided that monitoring of emissions to air should be carried out for the parameters listed in Schedule 3 Table S3.1 and S3.1(a) of the permit using the methods and to the frequencies specified in those tables. These monitoring requirements have been imposed in order to demonstrate that the SWCP is working in accordance with assumptions made in the application.

A Continuous Emissions Monitoring System (CEMS) will be installed in the stack of the SWCP to enable continuous monitoring and recording of emissions concentrations for the following pollutants:

- Oxides of nitrogen (NO_x);
- Sulphur dioxide (SO₂);
- Carbon Monoxide (CO);
- Particulate Matter (PM);
- Hydrogen chloride (HCl);
- Volatile organic compounds (VOCs); in addition to,
- Water vapour (H₂O);
- Temperature; and,
- Pressure

A copy of the technical brochures and the MCERTS certificate have been provided with the application. They confirm that the monitoring equipment has been certified to EN15267-3 as required by Technical Guidance Note (TGN) M2 – “Monitoring of stack emissions to air”. Monitoring will be carried out in accordance with this TGN. All monitoring equipment will be calibrated in accordance with the relevant standard in accordance with Art 48(2) IED.

Based on the information in the Application and the requirements set in the conditions of the permit we are satisfied that air emissions monitoring techniques, personnel and equipment employed by the Operator will have either MCERTS certification or MCERTS accreditation as appropriate.

The Operator requested that “other specifications” monitoring requirements be removed from Tables S3.2 (surface water) and S3.3 (groundwater) of the permit. Discussions were held on site between the Operator and NRW in 2018. It has been previously confirmed to the Operator on 07 December 2018, that we have no objection to the removal of groundwater monitoring from the permit. Table S3.3 has therefore been removed. The Operator has been advised that despite the removal of the requirement to carry out groundwater monitoring, there will still ultimately (at surrender) be a requirement to demonstrate that there has been no deterioration of

groundwater quality during the life of the permit. Through this variation the IED requirement for periodic 5 yearly monitoring of groundwater and 10 yearly monitoring of soil has been added to the permit via condition 3.1.3.

6.3 Reporting

We have included reporting requirements for air emissions in Schedule 4 of the Permit to ensure data is reported to enable timely review by Natural Resources Wales to ensure compliance with permit conditions.

Reporting requirements for groundwater monitoring, and surface water monitoring other than at emission point D2 have been removed from the permit.

6.4 Raw materials

We have specified limits and controls on the use of raw materials and fuels.

6.5 Waste types

Waste types, descriptions and quantities, which can be accepted at the regulated facility are specified in the permit. The Operator has requested the inclusion of waste code 19 12 10 in table S2.5 of the permit for acceptance at the RDF and SRF processing facility. This code is already included within Table S2.1 at the waste transfer and treatment facility, so it not considered that there is any increase in risk by accepting this waste at the RDF and SRF processing facility.

ANNEX 1: Improvement Conditions

Five new Improvement conditions have been placed in the permit regarding the monitoring and operation of the SWCP. These have been put in place to ensure that appropriate validation of emissions and of operating parameters, thus ensuring that it operates to appropriate efficiencies and that the emissions are minimised. Full details are in the permit, IC2 to IC6.

ANNEX 2: Pre-Operational Conditions

Four new Pre-Operational conditions have been included in the permit. These four conditions again apply to the SWCP. These conditions require plans, procedures and specifications prior to first operation of this plant. The purpose again being to ensure that it operates to appropriate efficiencies and that the emissions are minimised. Full details are in the permit, PO1 to PO4.

ANNEX 3: Consultation Responses

A) Advertising and Consultation on the Application

The Application has been advertised and consulted upon in accordance with Natural Resources Wales Public Participation Statement. The way in which this has been carried out along with the results of our consultation and how we have taken consultation responses into account in reaching our draft decision is summarised in this Annex. Copies of all consultation responses have been placed on Natural Resources Wales public register.

The following statutory and non-statutory bodies were consulted:-

1) Consultation Responses from Statutory and Non-Statutory Bodies

Joint Response Received from Public Health Wales and Cardiff and Vale University Health Board	
Brief summary of issues raised:	Summary of action taken / how this has been covered
Subject to the implementation and enforcement of BAT I would have no grounds for objection based on public health considerations.	The application has been reviewed against BAT and found to be satisfactory. This is reflected in the draft permit which will then in turn be regulated by NRW.
Our comments are underpinned by an assumption that NRW are	NRW have reviewed the risk assessments and are satisfied.

<p>satisfied that the methods and outputs supplied in these assessments are in accordance with current best practice. (Risk Assessments).</p> <p>There are proposed techniques to control Dust. Emissions, as modelled, do not indicate any breach of relevant air quality objectives.</p> <p>We emphasise the need for a fire prevention plan to be agreed by the regulator.</p>	<p>Agreed.</p> <p>The fire prevention plan has been reviewed by NRW and found to be satisfactory, and incorporated into the operating techniques in table S1.2 of the permit.</p>
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2) Consultation Responses from Members of the Public and Community Organisations

A number of the issues raised during the consultation process are outside Natural Resources Wales remit in reaching its permitting decisions. Specifically questions were raised which fall within the jurisdiction of the planning system, both on the development of planning policy and the grant of planning permission. Specific planning issues raised related to the location of the site, the location of the stack, traffic movements and emissions from off-site traffic movements.

Guidance on the interaction between planning and pollution control is given in PPS23 / Planning Policy Wales. It says that the planning and pollution control systems are separate but complementary. We are only able to take into account those issues, which fall within regulatory scope of the Environmental Permitting Regulations.

a) Representations from Local MP, Assembly Member (AM), Councillors and Parish / Town / Community Councils

Response Received from	
Brief summary of issues raised:	Summary of action taken / how this has been covered
None	None

b) Representations from Community and Other Organisations

Response Received from	
Brief summary of issues raised:	Summary of action taken / how this has been covered

c) Representations from Individual Members of the Public

Response Received from	
Brief summary of issues raised:	Summary of action taken / how this has been covered