

Permitting decisions

Variation

We have decided to grant the variation for Twinwoods Co-incinerator operated by Twinwoods Heat and Power Limited.

The variation number is EPR/SP3638KV/V006

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 provides a record of the decision making process. It summarises the decision making process in the decision checklist to show how all relevant factors have been taken in to account.

This decision document provides a record of the decision making process. It:

- highlights [key issues](#) in the determination
- summarises the decision making process in the [decision checklist](#) to show how all relevant factors have been taken into account
- shows how we have considered the [consultation responses](#)

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

Read the permitting decisions in conjunction with the environmental permit and the variation notice. The introductory note summarises what the variation covers.

Key issues of the decision

The variation amends the permit to

- Add the waste code 19 12 06 (Wood containing hazardous substances)
- Increase the annual throughput of the plant from 30,000 to 32,500 tonnes to take into account a higher moisture content of the supplied wood
- Add discharge of process water as an emission to sewer
- Update operating techniques to include the use of sodium bicarbonate rather than hydrated lime as flue gas abatement and
- The installation of six closed loop dry air cooling units for process cooling.

All of the above changes will be addressed separately below.

Addition of waste code 19 12 06* (Wood containing hazardous substances)

As this waste code covers hazardous substances, an assessment of those substances and any likely impact was required to be submitted as part of this application. On the first submission of the application, we did not have enough detail to allow the assessment to take place, therefore a Schedule 5, request for further information was sent to the Operator. The Operator provided a detailed analysis (Appendix A, Hazardous Wood Samples analyses dated 12/09/2018) of the proposed biomass/hazardous wastes to be received under the waste code 19 12 06*. The analysis included data to determine if the hazardous biomass will contain less than 1% halogenated organics and the Heavy Metal content of the biomass.

The analysis results showed that the hazardous waste wood has a higher net calorific value than the current non-hazardous wood waste input and therefore will generate more heat. The chlorine and fluorine content of the hazardous waste wood was shown to be significantly below 1% and the sulphur content is also very low at 0.05% on average, only marginally higher than the existing average.

The hazardous waste wood content will increase total metals in the residue from 257 mg/kg (0.0257%) to 680 mg/kg (0.0680%). This is an increase of 0.0423% which is a marginal increase overall.

The operator has submitted a BAT assessment describing the additional measures they will implement to manage the acceptance and testing of hazardous waste wood. We have reviewed these measures and we are satisfied that they comply with Best Available Techniques (BAT) for the acceptance of hazardous waste.

The site will receive waste already shredded by an intermediate waste processing plant and classified as hazardous by the waste generator, or their nominated waste carrier. Twinwoods will retain all associated paperwork with receipt of the wood with regards its hazard status. As the Twinwoods site receives regular wood deliveries from the same supplier they will undertake 3 chemical analyses per month in order to ensure the classification of the waste wood remains consistent. Ensuring they meet WM3. Deviations from the waste classification or specification will be fed back to the supplier.

There has been a change in use of materials in the abatement system, they will no longer be using hydrated lime, this will be replaced by sodium bicarbonate. The hazardous waste wood will be accepted at the fuel reception area in the same way as non-hazardous waste wood. There will be no need to adjust the reception area design, the mobile plant used for moving the wood or the walking floor as the hazardous waste wood has the same physical characteristics and is shredded prior to delivery to the same specification as the non-hazardous wood.

The process has in place the following abatement systems in order to control emissions:

- Selective non-catalytic reduction system for the control of NO_x;
- Dry acid gas abatement system utilising sodium bicarbonate for the control of acid gases;
- Bag filters for the control of particulates and capture of air pollution control residues; and
- Activated carbon injection system to control dioxins, furans and heavy metals.

These systems will remain in place and will guarantee that emissions from the plant will continue to meet IED limits. A recent periodic emissions test shows that the facility is comfortably meeting its emission limits. As the same IED limits which were modelled previously are being met this would not result in an increase in emissions and therefore no additional modelling has been undertaken.

As part of the assessment of emissions, the operator was asked to carry out testing of bottom ash in accordance with waste classification guidance WM3. They were required to demonstrate the nature of the waste and that the abatement on site will be able to cope with any additional pollutant loading, particularly but not restricted to heavy metals. The operator submitted an assessment in line with our guidance showing the bottom ash is considered to be non-hazardous. The assessment demonstrated that processing hazardous wood will increase in the metal content of approximately 0.0423%, however this will still result in emissions well below the concentration threshold and produce non-hazardous bottom ash. To further demonstrate this a set of stack emission tests were conducted in August 2018 for the periodic parameters such as heavy metals, mercury and dioxins and furans (See Appendix B of the Schedule 5 response dated 19/10/2018). The results of these tests show that emissions for all of these parameters are well below the permitted limits due to the effective operation of the dry acid gas (sodium bicarbonate) abatement system, activated carbon addition and bag filters. Based on this assessment and the supporting monitoring results

we have incorporated EWC code 19 12 06* Wood containing hazardous substances into the permit as we are satisfied the site will continue to operate within in the limits of their current permit.

Increase in plant annual throughput from 30,000 to 32,500 tonnes

In the original application form annual tonnage calculations were based on the biomass having a moisture content of 10%. The operator has carried out analysis for the first 3 months of 2018 and demonstrated the moisture content on the received wood is actually in excess of 21%. They therefore proposed to increase overall annual throughput to 32,500 tonnes to take this into consideration. 30,000 tonnes of wood with 10% moisture equates to 27,000 tonnes of wood on a dry basis, whilst at 32,500 tonnes of wood at 20% moisture this equates to 26,000 tonnes of wood on a dry basis. So, whilst the overall volume will increase, due to the additional moisture there will be no additional wood combusted on a dry basis. The operator has demonstrated there will be no additional pollutants generated on a mass balance basis as the extra weight is comprised of water. In addition the plant would meet its IED limits as it currently does and would result in no increase in point source emissions. We are therefore satisfied the increase in annual tonnage will not result in a significant impact to the environment.

Discharge of process water to sewer.

The discharge to sewer from the facility is regulated by Anglian Water who have set a discharge consent based on the following limits:

- Suspended solids 2,000 mg/l
- Chemical Oxygen demand 1,000 mg/l
- pH should be between 6.0 and 12.5
- The discharge should be no more than 45m³ day or 0.7 litres second.
- The current volume of discharge is 15 m³/day.

Twinwoods state they have not had any non-conformances with regards their discharge to sewer. The site takes monthly readings from various parts of the process to check in process water quality and to ensure that there are not likely to be any issues with regards their trade effluent consent. The boiler drum, deaerator, Reverse Osmosis (RO) storage tank, condensate and superheater steam KPI are monitored.

The discharge to sewer will be from RO reject, cooling tower discharge and some boiler blowdown. These all discharge to a combined release point into the wider Business Park sewerage system. None of these sources will generate significant levels of metals within the discharge and as the flue gas treatment system is a dry system there is no scope for any liquids from the treatment of flue gases to be discharged from site.

Replacement of hydrated lime with sodium bicarbonate

Sodium bicarbonate is to be used instead of hydrated lime as originally proposed for a number of reasons. These include:

- Sodium bicarbonate is less alkaline and therefore less hazardous to handle;
- As it is less hazardous to handle there may be more future opportunities for the air pollution control residues to have an end user rather than be disposed of; and
- Sodium bicarbonate has a better emissions performance for the abatement of acid gases as detailed within Best Available Techniques (BAT) Reference Document on Waste Incineration Draft May 2017. This shows that sodium bicarbonate can treat SO₂ to 5-25 mg/m³ compared to lime at 10-40 mg/m³ and HCl 2-8 mg/m³ compared to 5-8 mg/m³ for lime.

Based on the points above we are satisfied that sodium bicarbonate can be considered BAT for use as the reagent to control acid gases in the process.

The site has installed 6 x 500 kW Dry air liquid coolers. (closed loop)

Six closed loop dry air liquid coolers have now been installed for the purposes of cooling flue gases, there is no discharge to sewer from this system. The previous cooling towers and associated discharge to sewer have now been removed from site and replaced with the above.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential. The decision was taken in accordance with our guidance on confidentiality.
Consultation/Engagement	
Consultation	<p>The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement.</p> <p>The application was publicised on the GOV.UK website from the 08/08/2018 to 06/09/2018.</p> <p>We consulted the following organisations:</p> <p>Health and Safety Executive</p> <p>Bedford Borough Council, Planning and Environmental Health.</p> <p>The comments and our responses are summarised in the consultation section.</p>
Biodiversity, heritage, landscape and nature conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.</p> <p>We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified. (see key issue above)</p> <p>We have not consulted Natural England on the application. The decision was taken in accordance with our guidance.</p>
Environmental risk assessment	
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>The operator's risk assessment is satisfactory.</p> <p>The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment [or similar methodology supplied by the operator and reviewed by ourselves], all emissions may be categorised as environmentally insignificant. See key issues above.</p>
Operating techniques	

Aspect considered	Decision
General operating techniques	<p>We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility.</p> <p>The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.</p>
Operating techniques for emissions that screen out as insignificant	<p>Emissions of all pollutants have been screened out as insignificant, and so we agree that the applicant's proposed techniques are BAT for the installation.</p> <p>We consider that the emission limits included in the installation permit reflect the BAT for the sector.</p>
Fire prevention plan	No change to plan.
Permit conditions	
Waste types	<p>We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility.</p> <p>We are satisfied that the operator can accept these wastes for the following reasons:</p> <ul style="list-style-type: none"> • they are suitable for the proposed activities • the proposed infrastructure is appropriate; and • the environmental risk assessment is acceptable. <p>We made these decisions with respect to waste types in accordance with EPR 5.01 Incineration of Waste.</p>
Emission limits	No emission limits have been added, amended or deleted as a result of this variation.
Monitoring	Monitoring has not changed as a result of this variation.
Reporting	<p>We have amended reporting in the permit for the following parameters:</p> <p>Hazardous waste wood combusted tonnes/year, to allow the comparison/trend of hazardous/non-hazardous waste being combusted on site.</p>
Operator competence	
Management system	There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.
Technical competence	<p>Technical competence is required for activities permitted.</p> <p>The operator is a member of an agreed scheme.</p> <p>We are satisfied that the operator is technically competent.</p>

Aspect considered	Decision
Relevant convictions	<p>The Case Management System and National Enforcement Database has/have been checked to ensure that all relevant convictions have been declared.</p> <p>No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.</p>
Financial competence	<p>There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.</p>
Growth Duty	
Section 108 Deregulation Act 2015 – Growth duty	<p>We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.</p> <p>Paragraph 1.3 of the guidance says:</p> <p>“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”</p> <p>We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.</p> <p>We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.</p>

Consultation

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public, and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from
Public Health England
Brief summary of issues raised
No concerns raised
Summary of actions taken or show how this has been covered
Standard conditions have been applied.