

Environment Agency permitting decisions

Variation

We have decided to issue the variation for Allington Incinerator operated by Kent Enviropower Limited

The variation number is EPR/BR4551IC/V008

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 applicant's proposals.

Structure of this document

- Key issues
- Annex 1 the decision checklist

Key issues of the decision

This variation permits the following changes requested by the operator:

1. Change the short term emission limit for Total Organic Carbon (TOCs) from the current ½ hour absolute figure of 20mg/m³ to 10mg/m³ for 97% of the half-hourly averages in a year, as allowed under annex IV of the Industrial Emissions Directive.
2. Amend the definition of start up and shut down to provide a clear definition of the transition point from start up to operation, and from operation to shut down.
3. The primary air for combustion is currently drawn from above the waste bunker. This keeps the waste bunker under negative pressure, minimising fugitive releases of dust or odour from the waste storage or delivery areas. Any combustible contaminants in the air are destroyed by combustion in the furnaces. This variation allows the operator to modify the primary air inlet duct for each waste stream, so that fresh air can be drawn from outside the bunker storage area as well as from the waste bunker. During start-up and shutdown, primary air would be drawn from outside the bunker storage area. Primary air would continue to be drawn from the waste bunker for the streams which are online. This is to prevent the high VOC content air being emitted from the waste bunker through the stacks when the combustion plant is not operational.
4. Condition 2.3.5 amended to set total organic carbon and loss of ignition limits for bottom ash in line with the IED

This variation incorporates the changes required by the Industrial Emissions Directive. This includes the amendment of the wording of several permit conditions relating to notifications, and also includes the addition of a condition relating to a requirement for monitoring of groundwater and soil.

This variation also includes a few amendments to bring the permit in line with current energy from waste permits and the IED. This includes the amendment to conditions 2.3.6, 2.3.7 and 2.3.9 to require waste to cease charging under relevant conditions. It also includes the addition of the standard permit condition 2.3.13 requiring at least one auxiliary burner to be in operation in each line at start up or shut down or whenever the operating temperature falls below 850°C, as required by Article 50(3) of the Industrial Emissions Directive.

Emissions of VOC's to air

Emissions of VOCs at the facility are prone to occasional short term peaks which last a few minutes. These peaks can be high enough to lead to exceedences of the current half-hourly emission limit (measured as TOC), while having no effect on compliance with the daily emission limit and having no long term environmental impact. Changing the emission limit to be based on 97% compliance with a lower emission limit would mean that non-compliances are significantly reduced without negatively impacting the long term impacts on environment.

The applicant assessed the impacts of VOC emissions by referring to the Air Quality Standards (AQS) which includes standards for two VOCs, Benzene and 1,3-butadiene. These short term peaks of emissions of VOCs do not have a measurable effect on the running annual mean ground level concentration of VOCs, as the daily emission limit continues to apply. However, there are no short-term AQS/EALs for either benzene or 1,3-butadiene.

For completeness we have considered the extremely unlikely, theoretical worse case of all three combustion flues emitting at $480\text{mg}/\text{m}^3$ of 100% aniline (the VOC with the tightest environmental assessment limit, EAL, for short term impacts), for half an hour at the same time. This would still allow the 24 hour TOC emission limit of $10\text{mg}/\text{m}^3$ to be complied with. We modelled this worst-case scenario and concluded that these emissions are not likely to lead to potential exceedences of the stringent short-term EAL for aniline.

Consequently we consider that the change from the absolute $20\text{mg}/\text{m}^3$ half hour limit for TOC's to the 97%ile $10\text{mg}/\text{m}^3$ half hour limit will not cause significant pollution. Furthermore the actual emissions from the facility will not increase as a result of this variation.

Start up/Shut down definition

IED article 49 and annex VI part 8, states that half hourly averages shall be determined within the effective operating time (excluding the start up and shut down periods if no waste is being incinerated). Consequently it is important that the start up and shut down is clearly defined in the permit.

The operator has asked to amend the definitions of start up and shut down in section 10 of the permit to better reflect the actual process, and clearly define non operational state.

Shut down

The plant is considered to have entered the shut down "process" once there is no waste being fed to the incinerator and the plant is being returned to a non-operational state. The operator states that any remaining waste in the fluidised bed is burnt out within 10 minutes of waste being stopped, but it is

not clear at this time whether the plant is being returned to a non-operational state. Therefore, the plant would only be considered to have been in “shut down” if it reaches a non-operational state which will be when all three of the following conditions are met:

- (1) waste is not being fed;
- (2) the auxiliary burners are not operating; and
- (3) the half-hourly average oxygen concentration, on a volumetric basis in wet flue gas, is above 16% for two successive half-hours.

The purpose of requiring the oxygen concentration to be achieved for two successive half-hours is to prevent the plant moving from an operational to a non-operational state and then straight back again. The operator states that if the oxygen concentration has been above 16% for this long with the burners switched off, the temperature in the combustion chamber would have dropped sufficiently that the plant could not be restarted without going through the full start-up process.

The operator has asked that these 3 conditions are incorporated in the definition of shut down. We have decided to modify the definition of shut down as follows:

“shut down” is any period where there is no waste being fed, and the auxiliary burners are not required because all waste within the combustion chamber has been completely burnt out, and the half-hourly average oxygen concentration, measured at the stack (on a volumetric basis in wet flue gas) is above 16% for two successive half-hour periods, or otherwise agreed in writing with the Environment Agency.

We have specified that the oxygen content is measured at the oxygen analyser at the stack as this monitor is MCert accredited.

To further clarify matters, if a plant shuts down and eventually achieves the “non operational state” then the shutdown is deemed to have begun from the point when the waste in the incinerator is completely burnt out (we currently accept the operators position that burn out will be achieved after 10 minutes, however this will be reviewed after the completion of improvement condition IC 9.16). This is necessary because sometimes the operator would want to keep the plant at full temperature so that waste feed can be reintroduced without the need for a full start-up process. The proposed definition of start up and non operational state would ensure that this situation would not be counted as a shutdown.

Start Up

The operator has requested that the plant would be considered to have completed the start-up process when three conditions have been met:

- (1) waste is being fed;
- (2) the auxiliary burners have been switched off; and

(3) the half-hourly average oxygen concentration, measured at the stack on a volumetric basis in wet flue gas, is below 14% for two successive half-hours.

This would ensure that start-up is definitively over, as the oxygen content would be at operating level for a significant period. Using the half-hourly average would avoid problems with fluctuating oxygen levels. A threshold of 14% was suggested because the operator stated that the data shows that this level is only achieved when waste is being burned and because the normal operating level is 10-12%, which is well below the 14% threshold.

Consequently we have decided to modify the definition of start up as follows:

“start up” is any period, where the plant has been shut-down, as defined in the Permit, until waste is being fed to the plant, the auxiliary burners have been switched off and the half hourly average oxygen concentration measured at the stack (on a volumetric basis in wet flue gas) is below 14% for two successive half hour periods or otherwise agreed in writing with the Environment Agency.

Annex 1: decision checklist

This document should be read in conjunction with the Duly Making checklist, the application and supporting information and permit/ notice.

Aspect considered	Justification / Detail	Criteria met Yes
European Directives		
Applicable directives	<p>All applicable European directives have been considered in the determination of the application.</p> <p>IED requirements are discussed in the key issues section of this document.</p>	✓
The site		
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>This variation does not affect the emissions of any pollutants relevant to sites of heritage, landscape or nature conservation, and/or protected species or habitat.</p> <p>We have not formally consulted on the application. The decision was taken in accordance with our guidance.</p>	✓
Environmental Risk Assessment and operating techniques		
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 of VOC emissions is discussed in detail in the key issues section of this document.</p> <p>Odour emissions were reviewed by the operator as a result of changes proposed to the primary combustion air extraction. Their risk assessment identifies that the impacts will be minimised by ensuring that at least one combustion line shall still be in operation, i.e. air shall still be drawn from the RDF bunker on at least one line.</p>	✓
Operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance notes.	✓

Aspect considered	Justification / Detail	Criteria met Yes
	<p>Odour</p> <p>Indicative BAT for odour minimisation (section 3.3. of EPR 5.01), states that as far as possible odorous air should be fed into the combustion process. The proposed change, to draw primary combustion air from outside the waste bunker storage area during start up and shut down, is still considered BAT. This is because the Operator states that at least air shall still be drawn from the bunker on at least one line. They further state that the waste bunker will continue to be maintained under negative pressure.</p> <p>The proposed techniques for priorities for control are in line with the benchmark levels contained in the TGN “The incineration of Waster (EPR5.01) and we consider them to represent appropriate techniques for the facility. The permit conditions ensure compliance with relevant BREFs.</p>	
The permit conditions		
Improvement conditions	<p>Based on the information on the application, we consider that we need to impose improvement conditions.</p> <p>We have imposed improvement conditions to:</p> <ol style="list-style-type: none"> 1. ensure that we are notified when the modifications to the primary air are complete and also that we are provided with a report on the efficacy of reducing VOC emissions (improvement condition 9.15) 2. submit a report to us providing evidence on how long it takes to fully burn out waste in the furnace, once the feed of waste has stopped. The Operator states that it takes 10 minutes for waste to fully burn out in the furnace but have not yet provided sufficient evidence to satisfy us that this is the case. This evidence will enable us to clarify when the auxillary burners can be turned off during the shut down period and determines the point at which monitoring data can be excluded from the effective operating time In the interim before the completion of improvement condition 9.16, we accept that monitoring data can be excluded from 	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
	<p>the effective operating time 10 minutes after waste has ceased to be charged, if the plant is in shut-down as defined in the Permit. However, this period of time may need to be changed depending on the evidence provided for improvement condition 9.16.</p> <p>3. require the operator to review the number and duration of start-ups and shut-downs for the preceding 6 month period. This review will assess the environmental impact of start-up and shut-downs periods and identify any improvements that may be required to reduce this impact</p> <p>All other improvement conditions, apart from 9.15 have been completed. The completion date for 9.15 has been set as 3 months from the issue of the variation . We have also removed the requirement to monitor for PM1.0, in line with the current requirements of new energy from waste permits.</p>	
Incorporating the application	<p>We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process.</p> <p>These descriptions are specified in the Operating Techniques table, 2.3.1, in the permit.</p>	✓
Emission limits	<p>We have decided that emission limits should be set for the parameters listed in the permit.</p> <p>This variation specifically changes the short term emission limit for total organic carbon (TOC) from the current ½ hour absolute figure of 20mg/m³ to the 97%ile 10mg/m³ limit as allowed under annex IV of the Industrial Emissions Directive.</p> <p>The reasons for this and consequences are discussed in the key issues section of this document.</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
Operator Competence		
Environment management system	There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.	✓
Financial provision	There is no known reason to consider that the Operator will not be financially able to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.	✓