

This form will report compliance with your permit as determined by an NRW officer

Site	Barry Energy Production Facility	Permit Ref	AB3790ZB		
Operator/Permit holder	Biomass UK No. 2 Ltd				
Regime	Installations				
Date of assessment	17/08/2018 - 03/10/2018	Time in	10:00	Out	14:00
Assessment type	Audit				
Parts of the permit assessed	1.1.1, 3.2.1, 3.4.1, 4.3.1.				
Lead officer's name	Taylor, Richard				
Accompanied by	Leakey, Antony				
Recipient's name/position	Biomass No2 UK Ltd/ Operator of permitted site	Date issued	31/10/2018		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
C1 - General Management - Staff competency/training	C3	1.1.1
E1 - Emissions - Air	C3	3.2.1
F2 - Amenity - Noise	C3	3.4.1
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	C3	4.3.1

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.

A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only, **O** = Ongoing non-compliance, not scored.

Number of breaches recorded	4	Total compliance score (see section 5 for scoring scheme)	16
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If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

Pre-commissioning incident investigation March 2018 and Site Visit Report - 17/8/18

Date of Environmental Permit coming into force

During meetings between the Local Authority Shared Regulatory Services (SRS), Natural Resources Wales (NRW) and Biomass UK No.2 Ltd (Biomass UK) it was agreed that regulation by NRW would commence when significant thermal steam raising was occurring using the support fuel-fired burners in the gasifier plant. At this point, while the emission limit values (ELVs) associated with waste wood processing would not be applied, other permit conditions associated with use of best available techniques (BAT) to prevent or minimise pollution, including noise and smoke, will be in force.

This date was originally taken to be Monday 12 March 2018, because prior to this date Biomass UK indicated that only refractory dry out activities would be taking place.

Legally the permit is in force from the date of granting, unless it's coming into effect is specifically deferred. This was not the case with Biomass UK and the permit conditions applied to any operation of the permitted activities, including steam raising and use of support fuel in the gasifier burners from 7 February 2018.

Over the weekend of Saturday 10 and Sunday 11 March several complaints were made by residents in Barry to SRS and NRW regarding noise and dark smoke from the Biomass UK installation. Investigation by NRW has indicated that as well as refractory dry out operations, steam blowing and therefore significant steam raising was taking place. Additionally, the higher temperature refractory dry-out phases required steam production in the superheater section of the boiler to control metal temperatures.

Therefore, NRW considers that the permit conditions relating to use of BAT to prevent or minimise emissions of noise and smoke were effective on 10-11th March 2018.

Dark smoke incidents

During the initial support burner set up it is expected that some fine tuning of the control parameters will be necessary, potentially resulting in brief periods of dark smoke when firing gas oil. Two issues arose at the Biomass UK installation. The first was during ramp up of burner output to a higher refractory "hold" temperature. As the fuel flow increased beyond previously tested levels the burner stoichiometry control was not set accurately enough and adjustment was required. The burner technician/engineer was not available on site and attempts were made to adjust settings by telephone discussions. There was a reluctance to shut down as the refractory hold periods are critical. Eventually the decision was taken to shut down as the stack plume was

getting worse and the burner engineer returned to site the following day.

Essential technical personnel should be available on site or within a local distance so that environmental control can be maintained during critical phases of work.

Further dark smoke events occurred up to 17 March 2018 the cause, which will have exacerbated the 10-11th March events, due to difficulties in tracing a fault with the fuel flow meter serving the overbed burner (OBB) which had had the differential pressure transmitter located too high above the plane of the orifice meter, with impulse lines too long. This resulted in fluctuating flow readings, making burner set up problematic. Pre-commissioning checks against the installation drawings of the flow meter might have detected this construction error. Critical instrumentation should be carefully checked, and it is expected that an experienced instrument technician would install a flow meter such as this correctly.

A further problem occurred with the under-bed burner (UBB) flow control valve positioner due to instrument air water contamination. This might be expected on a new partially completed instrument air system, even with air driers and filters fully commissioned. The UBB thermal rating is relatively small compared to the OBB and will not have contributed significantly to the dark smoke emissions.

Examination of the control room logs and continuous emissions monitoring (CEM) data indicates that steps were taken by Biomass UK to resolve the issues. The CEM data suggest that significant dilution air flow was provided by the main ID fan and no significant dust emissions are apparent, although the calibration status of the CEM system is uncertain and data may only be indicative.

Conservative estimates of the potential AQ impact associated with the longest duration dark smoke event on 10-11 March have found that the 24-hour mean fine particle (PM₁₀) air quality standards (AQS) could have been technically exceeded, but not by a significant margin. In practice it is unlikely that the AQS was exceeded and any nuisance effects limited by the relatively short duration of the events.

Impacts due to partial combustion products resulting from the poor combustion conditions also need to be considered. Emissions will have been orders of magnitude lower than the presumed fine particle concentrations and so the conservative estimates of the ground level concentrations and relatively short duration suggest that there would be unlikely to be significant effects.

The potential for more significant air quality impacts as a result of the issues identified above is considered to be limited because higher levels of emissions are improbable from such a small burner system and the duration of events were limited by the refractory temperature hold timing and the need to achieve efficient combustion for steam raising to undertake the turbine testing.

Never-the-less, good management of construction and commissioning activities might reasonably be expected to identify the need for specialists to be available on site and to ensure that critical instruments are functioning correctly. Therefore, Biomass UK is considered to have breached environmental permit condition 1.1.1, that requires the management arrangements to take steps to minimise the risk of pollution, including provision of sufficient competent persons and resources during operation.

An associated breach of environmental permit condition 3.2.1, for failing to take appropriate measures to limit emissions of dark smoke, is also considered to have occurred.

As outlined above, the potential for significant pollution was limited and the breach of permit conditions are therefore minor ones, Category 3, in the Regulators' Compliance Classification Scheme Guidance.

Rectification of the causes of dark smoke emissions are understood to have been fully implemented, but Biomass UK should confirm that no further measures are necessary to prevent

or minimise dark smoke emissions during the next phase of commissioning.

ACTION: Biomass UK No.2 Ltd to provide written confirmation that no further measures are necessary to prevent or minimise dark smoke emissions during the next phase of commissioning by 30th November 2018.

Off-site noise incidents

During the steam system cleaning stage, it was necessary to blow live steam from a temporary diffuser set. These periods were limited to day time hours and were as short as possible. However, this activity caused a lot of public concern over visible steam plumes and high noise levels. There was no environmental noise control design or modelling associated with the operation and no offsite noise level measurements were obtained.

Biomass UK report that the sound levels were 85 dB at about 10 metres from the diffuser enclosure. This results in approximately 55 dB at the nearest residences, which, while likely to be perceptible above background, is considered acceptable for planned short duration day time events such as steam blowing. Clearly local sound levels from the vent approaching 95 dB might prove to be less acceptable even during the daytime. There is some evidence that similar blowing vents might create sound levels of up to 95 dB, although each installation will be different. The key finding is that Biomass UK did not consider or check offsite noise levels associated with these operations.

The other aspect of noise control associated with the pre-commissioning phase is that during the higher hold temperature phases of the refractory dry out process some steam was generated to protect the superheaters from high temperature. This steam was vented either via the start-up vent silencers or possibly the drum drain legs. Again, the noise levels associated with this activity have not been modelled or measured, but the key point is that this went on overnight unavoidably because of the specified hold periods.

The night time noise complaints during this period may also have been associated with incomplete noise attenuation and cladding on the main ID fan.

NRW proposes to examine the final noise control measures associated with this plant item and other potential noise sources at a future audit prior to full commissioning of the plant.

Noise impacts associated with the start-up vent silencers will continue to be a potential source of complaint if not appropriately assessed and modified if necessary, as routine start-up post-commissioning could potentially occur at any time of day or night. It is therefore considered essential that Biomass UK assess such operations before moving to the next commissioning phase.

ACTION: Biomass UK No.2 Ltd to provide an updated noise impact assessment and details of any further measures necessary to prevent or minimise start-up noise emissions during the next phase of commissioning by 30th November 2018.

Noise measurements were not made by NRW or SRS at the nearest residences, however an NRW officer witnessed elevated noise levels attributed to the Biomass UK installation in the community during the period of concern.

Again, good management of construction and commissioning activities are expected to identify the need for impact assessment and, if necessary, implementation of measures to prevent or

minimise noise emissions.

Therefore, Biomass UK is considered to have breached environmental permit condition 3.4.1, that requires Biomass UK to use appropriate measures to prevent or minimise noise during operation.

The daytime noise events, particularly those associated with steam blowing, are largely unavoidable, although an assessment of whether further attenuation was necessary should have been carried out. Night-time noise from operations were limited in occurrence and the breach of permit condition is therefore a minor one, Category 3, in the Regulators' Compliance Classification Scheme Guidance.

This non-compliance level attracts an offence response which is included within the site warning letter. Rectification of the cause of night-time noise should be addressed by the action above, together with any further measures identified by NRW during subsequent audits.

Notification

Permit condition 4.3.1 requires Biomass UK to notify NRW of any incident which significantly affects or may significantly affect the environment. The dark smoke incident on 10-11 March 2018 might have had potential to exceed an AQS and should, therefore, have been notified to NRW without delay. This did not take place and so Biomass UK has breached the permit condition.

The underlying permit condition breach is a minor one, Category 3, in the Regulators' Compliance Classification Scheme Guidance and so the same category has been applied to the notification failure.

This non-compliance level attracts an offence and has been included within the site warning letter. Rectification of the cause requires a review of Biomass UK management reporting procedures.

ACTION: Biomass UK No.2 Ltd to undertake a review of notification and reporting procedures and provide details of any changes necessary to ensure appropriate notification to NRW before the next phase of commissioning and by 30th November 2018.

Summary of Permit Breaches from 11th – 18th March 2018.

Permit Condition	Description	Date	Penalty
1.1.1.	Failure to minimise the risk of pollution, by using sufficient competent persons and resources during operation.	10-11 th March 2018	Cat 3 (4 points)
3.2.1	Failure to take appropriate measures to limit emissions of dark smoke.	10-11 th March 2018	Cat 3 (4 points)
3.4.1.	Failure to use appropriate measures to prevent or minimise noise during operation.	13 th March 2018; 23:40 hrs.	Cat 3 (4 points)
4.3.1.	Failure to notify NRW of incidents which could have an adverse	10-17 th March 2018	Cat 3 (4 points)

	environmental effect.		
			Total 16 points

End.

EPR Compliance Assessment Report

**Report ID:
CAR_NRW0034005**

This form will report compliance with your permit as determined by an NRW officer

Site	Barry Energy Production Facility	Permit Ref	AB3790ZB
Operator/Permit holder	Biomass UK No. 2 Ltd	Date	17/08/2018

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition. Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	CCS Category	Action required/advised	Due Date
See Section 1 above			
G4	C3	Improve communications	30/11/2018
F2	C3	Improve operations	30/11/2018
E1	C3	Improve Operations	30/11/2018
C1	C3	Have specialist technicians on site during vital works.	30/11/2018

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
- Require you to take specific actions verbally or in writing
- Issue a notice
- Require you to review your procedures or management system
- Change some of the conditions of your permit
- Decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and/or suspension or revocation of the permit.

See our Enforcement and Civil Sanctions guidance for further information

This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

Data protection notice

The information on this form will be processed by the Natural Resources Wales (NRW) to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s). The NRW may also use and/or disclose it in connection with:

- Offering/providing you with its literature/services relating to environmental matters
- Consulting with the public, public bodies and other organisations (eg. Health and Safety Executive, local authorities) on environmental issues
- Carrying out statistical analysis, research and development on environmental issues
- Providing public register information to enquirers
- Investigating possible breaches of environmental law
- Assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Regulations request

The NRW may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

The NRW will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within fifteen working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with officer's line managers using the informal appeals procedure. If you wish to raise your dispute further through our official Complaints and Commendations procedure, phone our general enquiry number 0300 065 3000 (Mon to Fri 08.00 – 18.00) and ask for the Customer Contact team or send an email to enquiries@naturalresourceswales.gov.uk. If you are still dissatisfied you can make a complaint to the Public Services Ombudsman for Wales. For advice on how to complain to the Ombudsman phone their helpline on 0845 607 0987.

Welsh Language

If you would like this form in Welsh please contact your Regulatory Officer.