

Compliance Assessment Report CAR_NRW0039413

Permit being assessed: AB3790ZB.

For: Barry Energy Production Facility, held by Biomass UK No. 2 Ltd

At: Woodham Rd, Barry, CF63 4JE.

Type of assessment carried out: Site Inspection, Reason: Incident Response (Incident number 2107345).

On 03/09/2021 between 11:00 and 14:00.

Parts of permit assessed: Operating Techniques

NRW Lead Officer: Geraint Harris, accompanied by Antony Leakey.

Report sent to: Chris Lewis, Site Manager on 17/02/2022.

1. Summary of our findings (full details in section 4)

Part of permitted activity assessed (criteria)	Assessment result	Permit condition
E2 - Emissions - Land and groundwater	C3 Minor	Permit condition 3.1.1
C2 - General Management - Management system and operating procedures	C3 Minor	1.1.1

Result types are explained in more detail in the 'Important Information' section below.

Total number of non-compliances recorded	Total non-compliance score
2	8

How we use the non-compliance score to calculate your annual fee is explained in the 'Important Information' section below.

2. What action is required?

Criteria	Action needed	Complete by
E2	Clean up affected area	Already completed
C2	Provide evidence that the management systems have been updated to include the monitoring and maintenance of all pollution prevention equipment including alarms	29/04/2022

Action criteria codes are listed in the 'Important information' section below.

3. What will happen next?

Any non-compliance we have identified and recorded on this form is an offence. It can result in criminal prosecution and/or suspension or revocation of your permit.

You are non-compliant with your permit.

At this time, we are issuing you with a warning for the non-compliance recorded above. Warnings may influence future enforcement response for continued or further non-compliance.

This statement does not stop us from taking additional enforcement action if further relevant information comes to light or offences continue.

4. Details of our assessment

Biomass UK

EPR/AB3790ZB

On the 2nd September 2021, NRW received a report, via its incident communication system. This report described a release of grey/brown dust/follicles into the air and onto the adjacent road and Nissan hut roofs. Following this report, I, Senior Environment Officer Geraint Harris, visited the site that morning. A layer of brown wood dust was evident along Woodham Road and on the roofs of the adjacent Nissan Huts, situated west of the Biomass plants dust extraction unit. Evidence of the dust was seen on the floor directly below and around the dust extraction plant. Following this I entered the Biomass site and was given a tour of the area around the extraction plant. At the time the dust extraction unit had been shut down. Upon inspecting the area, the vents at the top of the baghouse on the easterly side were found to be caked in wood dust, suggesting a possible issue with the internal filter bags. The site had already been in contact with the original equipment manufacturers (OEM) and were hoping to have them inspect the equipment that Sunday. Biomass UK No.2 Ltd were asked to undertake a cleaning operation of the area including Woodham Road, the Nissan Huts and all the areas inside and outside of the permit boundary that had been covered in dust. It was suggested to the operators to employ the use of a road sweeper as part of the clean-up operations.

Having reviewed the events with NRW's technical specialist Tony Leakey, it was decided to revisit the site the following day to ascertain the root causes of the incident. Prior to the visit on the 3rd of September, Biomass UK were also informed that NRW will need to see records of the dust extraction installation checks and any subsequent checks before the recent restart of the plant. Biomass plant provided copies of the ITR A & ITR (Inspection Test Records) dated the 23rd January 2020, which correspond with the installation and commissioning dates. In addition to this an email from the O&M team stating the following was provided:

"Just to confirm that the dust extraction rotary valves and fans have been intermittently operated during the extended outage period, not just as a regular routine but also when any of the site weekly "clean ups" were undertaken,"

"Just before restart on closer inspection a few issues were identified on the fixed pipework, all these being rectified prior to the plant restart, this also involved the replacement of all flexible inlet hoses. The system was also used during the first week of operation prior to us shutting down due to the incorrectly suspected tube failure without any dust release, so when we started the system was working correctly and has only failed unexpectedly this week"

NRW also asked to see how bag filter failure is detected, and any evidence of training provided to process operators. Evidence was provided that showed that the relevant people had been trained by Air Plants Dust Extraction Ltd in March 2020. Air plants are the company who supplied and commissioned the plant for Biomass UK.

On the 3rd of September both Geraint Harris and Antony Leakey visited the site to follow up of the incident and to investigate the root cause. Prior to entering the Biomass site, a sample of the dust was taken, by NRW, from the affected area outside of the permit boundary. While in the site control room the Biomass plant operators were asked to explain the extraction system and how failure is detected. Within this closed system, dust is extracted out of the conveyor system, as part of the DSEAR requirements and fed to the Baghouse system. Air is drawn through a cyclone in which several filtration bags are housed. The filtration bags separate dust from the air with the bags being subjected to periodic pulsed air (using compressed air) to remove dust build up. The dust is then subsequently captured by sealed skips situated directly beneath the Bag House. The receiving skips are continuously sealed so to prevent the escape of the accumulating dust. These filter bags are required to be periodically cleaned to ensure they operate efficiently and to reduce the chance of a bag rupture. To do this a pulse of air is passed through the filter to dislodge the build-up of dust and force it downwards towards the skips.

During the visit Tony and I were shown the controls for the filter house system. The system is equipped with two fans which draw the wood dust into the bag house. These fans are each equipped with a 5mbar pressure differential alarm. During the time of the incident the trends in differential pressure of for these two fans showed very little fluctuation and so were not able to detect the bag blockage and subsequent burst. Filter bag houses are typically fitted with a means to monitor the differential pressure between the dirty-air side of the baghouse and the clean-air side so that any change can be recorded and alarmed to give an early warning of a malfunction. This measurement is the key indicator of how the baghouse is operating and the most important factor to consider when diagnosing and troubleshooting issues with the baghouse system. Such a system is not utilised at the biomass plant in Barry.

Following the inspection by the OEM, Biomass UK reported that the top clean section of the cyclone was found to contain dust which, on further investigation, appeared to have originated from one of the filter bags that had been dislodged. That sleeve was no longer in place on the spigot plate and there was what appeared to be a blockage around that section. The bottom hatch was removed, and it became clear there was a build-up of dust between the filter sleeves and the top spigot plate. Which was remedied to allow pulse controller to begin cleaning. The bag cleaning system was tested, and it was observed that no compressed air cleaning occurred. The compressed air line was checked and found to be intact; however, no differential pressure was being read across the pulse controller. It was observed that a “kink” in the air feed pipes was restricting the flow of compressed air. To check the operation was working correctly the system was started and stopped and the pulse controller was functioning correctly both during start up, normal running and shut down.

Following NRW’s visit and the inspection by the OEM, Biomass UK have decided to install an alarm within the supply of compressed air to the pulse cleaning system to give an early warning and allow the system to be rectified before failure. However, such appropriate measures, that prevent or minimises risks of pollution, should have been incorporated into the sites infrastructure and management systems from the start. Consequently, Biomass UK had no effective way of identifying a failure within the baghouse and this meant that the incident that occurred on the 2nd of September was able to occur throughout the night until the release of dust was discovered the following morning. Permit condition 1.1.1 requires the operator to “manage and operate the activities: in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints.” Therefore, a **CCS3 noncompliance** is being awarded for the failure to identify and minimise risk of pollution from the bag house. **Failure to comply with an environmental permit is an offence under regulation 38(2) of the Environmental Permitting Regulations (consolidated) 2016.**

Action 1: Please provide evidence that the alarm system on the supply of compressed air has been completed. Due April 29th or prior to plat start up.

Action 2: Review the current arrangement to investigate whether a burst bag detection system can be installed within the baghouse. Due March 31st 2022.

Action 3: Provide evidence that the management systems have been updated to include the monitoring and maintenance of all pollution prevention equipment including alarms. Due April 29th or prior to plat start up.

Biomass UK's permit condition 3.1.1 states "There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2 and S3.3". Biomass UK are in breach of permit condition 3.1.1. As a result of releasing wood dust beyond the site boundary and onto the adjacent property. Consequently, a **CCS3 noncompliance** is being awarded for the point source emission of wood dust to air and land. **Failure to comply with an environmental permit is an offence under regulation 38(2) of the Environmental Permitting Regulations (consolidated) 2016.**

Following the incident, Biomass UK, were asked to provide evidence that the wood dust was non-hazardous. In the absence of any previous analysis, several samples of the dust were taken, by the operator and sent for a WM3 assessment. Biomass UK hired the services of SOCOTEC UK Limited (SOCOTEC) to undertake a waste classification assessment. The initial analysis identified significant oil and grease contamination. This was a result of taking sample from around the conveyor gear box which had surface oil contamination from maintenance activities and would not be representative of dust released directly from the bag plant. Therefore, SOCOTEC were invited to the site to obtain new samples. The waste classification was undertaken with consideration for each stage of the waste treatment and processing at the site. The samples were assessed as individual samples at each separate location of the process, namely the loading bay, the conveyor belt and the skip.

According to SOCOTEC's WM3 report, the sample 'loading bay 4' gave an initial waste classification of hazardous waste due to the following hazardous properties: HP14: Ecotoxic (waste which presents or may present immediate or delayed risks for one or more sectors of the environment). These hazardous properties were attributed to elevated concentrations of zinc and copper. This sample was taken from the wood fuel left on the loading bay floor (walking floor) which contained the remnants of the last run of solid fuel. As such is not a representative sample of all fuel received at site, since heavier elements fall to the floor and are not processed through the conveying system. The sample results for the five samples from the loading bay suggests that variability was present within the samples. Biomass UK agreed to sample this material to show the link between the fuel received at site, loaded on the walking floor and then transferred through the conveyors and the dust extraction system. Since the wood dust released during this incident is more akin to the dust in the skips, the HP14 result has not been considered in the environmental impact of this assessment.

Hazardous property HP3 for flammability was triggered due to the presence of trace Total Petroleum Hydrocarbons in concentrations above the threshold in all the samples. The report discounted this hazardous property due to the absence of any identifiable free phase liquids or hydrocarbons. However, there was some ambiguity as to whether the dust displays flammable solid properties. Biomass UK have agreed to source a testing house to undertake the required testing. However, due to the plant being on stop, such testing will have to wait until an appropriate sample can be obtained when the plant is operating again. The results of this are important for the future handling and disposal of this material.

However, for this incident, even if the results of the flammable solid test indicate it's a flammable solid, the release and dispersion of the dust into open air means that these hazardous properties will not be realised

because the material was and could not be deposited with sufficient density. Therefore, this incident has been considered as a minor impact category 3 incident. However, it is important that the testing mentioned above is completed for the correct and safe storage of this material when transported and stored in bulk off site. Furthermore, the current dust extraction system is designed to comply with The Dangerous Substances and Explosive Atmospheres Regulations 2002 which are concerned with protection against risks from fire, explosion and similar events arising from dangerous substances used or present in the workplace. Therefore, it is suitable for handling solid materials with flammable properties.

END.

If you have any queries about this report, or to discuss completion of any actions, please contact the NRW Officer named above.

Important information

Legal status of this report

Your permit is issued to you under the Environmental Permitting Regulations. You have a responsibility to comply with the conditions of your permit and prevent pollution/harm of the environment. You must also ensure that you comply with any other relevant legislation that may apply to your site's operations.

This report explains the findings of our assessment and any action you are required to take. We categorise non-compliance using our guidance for assessing non-compliance at regulated sites.

When we find potential non-compliance/s we will normally give you advice on how to maintain compliance.

To correct non-compliance, we may:

- require you to take specific actions
- issue a notice
- review the conditions of your permit.

Any advice and guidance we give will be without prejudice to any other enforcement response that we consider may be required.

Assessment results and non-compliance categories (used in section 1):

Assessment result	Description
Assessed (A)	Assessed or assessed in part, no evidence of non-compliance found
Action only (X)	Action only relating to the activity assessment
Ongoing (O)	Ongoing non-compliance, not scored

Non-compliance category	Description	Score
C1 Major	Potential to have a major, serious, persistent and/or extensive impact or effect on the environment, people and/or property	60
C2 Significant	Potential to have a significant impact or effect on the environment, people and/or property	31
C3 Minor	Potential to have a minor or minimal impact or effect on the environment, people and/or property	4
C4 No environmental impact	Non-compliance at a regulated site that cannot foreseeably have any impact on the environment, people and/or property	0.1

How we use assessment scores

The number and severity of non-compliances recorded in a year will affect your annual subsistence fee the following year. A non-compliance factor is added to your site's Operator

Performance Risk Appraisal (OPRA) score when we calculate your fee to reflect the additional resource we use to assess permit compliance.

What are suspended scores?

In line with our guidance, we may suspend scores for up to six months to allow time for remedial action to be taken. Suspended scores will be re-instated if the action is not completed.

Full list of Industry and Waste action criteria (used in section 1 and 2):

A: Permitted activities

- A1 Specified by permit

B: Infrastructure

- B1 Infrastructure – Engineering for prevention and control of emissions
- B2 Infrastructure – Closure and decommissioning
- B3 Infrastructure – Site drainage engineering (clean and foul)
- B4 Infrastructure – Containment of stored materials
- B5 Infrastructure – Plant and equipment

C: General management

- C1 General management – Staff competency/training
- C2 General management – Management system and operating procedures
- C3 General management – Materials acceptance
- C4 General management – Storage, handling, labelling and segregation

D: Incident management

- D1 Incident management – Site security
- D2 Incident management – Accidents, emergency and incident planning

E: Emissions

- E1 Emissions – Air
- E2 Emissions – Land and groundwater
- E3 Emissions – Surface water
- E4 Emissions – Sewer
- E5 Emissions – Waste

F: Amenity

- F1 Amenity – Odour
- F2 Amenity – Noise
- F3 Amenity – Dust/fibres/particulates and litter
- F4 Amenity – Pests/birds and scavengers
- F5 Amenity – Deposits on road

G: Monitoring and records, maintenance and reporting

- G1 Monitoring and records, maintenance and reporting – Monitoring of emissions and environment
- G2 Monitoring and records, maintenance and reporting – Records of activity, site diary/journal/events
- G3 Monitoring and records, maintenance and reporting – Maintenance records
- G4 Monitoring and records, maintenance and reporting – Reporting and notification to Natural Resources Wales

H: Resources efficiency

- H1 Resource efficiency – Efficient use of raw materials
- H2 Resource efficiency – Energy efficiency

Enforcement response

Any permit condition non-compliance is an offence and we may take legal action against you. Action we take can include prosecution, serving a notice on you and/or suspension or revocation of your permit. See our Enforcement and Sanctions Guidance for further information.

Data protection notice

You should make sure that anyone named in this report knows that the information it contains will be processed by Natural Resources Wales to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s).

We may also use and/or disclose the report in connection with:

- offering or providing you with our literature or services relating to environmental matters
- consulting with the public, public bodies and other organisations (e.g. 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 our service
- Freedom of Information Act or Environmental Information Regulations requests.

We may also pass it on to our agents or representatives to do these things on our behalf.

Disclosure of information – this report will be available to view on-line

If you think this report contains commercially confidential information that should not be placed on our public register, you must contact your local Natural Resources Wales office within **fifteen working days** of receiving this report, using the contact details in the accompanying email or letter. You must give a full explanation of why it should not be added to our public register, including specifying which information is commercially confidential. We will assess your request and respond to you within 20 working days to let you know if we agree to your request.

What do I do if I disagree with the report or have a complaint?

If you disagree with this compliance assessment report, you should contact the lead officer without delay to discuss your concerns.

If you are unable to resolve the issue with the lead officer or their line manager you should contact our Customer Contact team on 0300 065 3000 (Monday to Friday 08:00 – 18:00), or email enquiries@naturalresourceswales.gov.uk for details of how to raise your dispute further through our Complaints and Commendations procedure.

If you are dissatisfied with our response, you can contact the Public Services Ombudsman for Wales by phone on 0300 7900203 or by email at ask@ombudsman.wales

Welsh Language Standards

We are committed to establishing Natural Resources Wales as a naturally bilingual organisation. We will provide compliance reports in your preferred language.