Compliance Assessment Report CAR_NRW0041265

Permit being assessed: SP3537VQ.
For: Bryn Pica AD Plant EPR/SP3537VQ, held by Biogen Bryn Pica Ltd
At: Bryn Pica Landfill Site , Aberdare, Rhondda-Cynon-Taff, CF44 0BX.

Type of assessment carried out: Site Inspection, Reason: Other.
On 31/12/2022.
Parts of permit assessed: General management & Emissions

NRW Lead Officer: Mostyn Wall.
Report sent to: Kate Lister , Compliance Director on 20/02/2023.

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

Part of permitted activity assessed (criteria)	Assessment result	Permit condition
B4 - Infrastructure - Containment of stored materials	C3 Minor	1.1.1
E1 - Emissions - Air	C3 Minor	3.2
C2 - General Management - Management system and operating procedures	Action only (X)	

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
B4	• Update the Digester De-Grit safe system of work document to describe the process of de-gritting a pasteuriser and the learnings from this incident. • Add in the hazard of the lack of mixing and biogas being moved into the pasteuriser. • State level of mixing required before returning into normal operation • Ensure that mixing is of the tanks is described in the start-up procedure process and SOP. State the minimum amount of mixing time required following start up before digestate being moved to the pasteuriser. • Can any of the process parameters identify trapped gas or events that lead up to foaming events? • Ensure mixing and ways to avoid foaming events is	31/03/2023

Criteria	Action needed	Complete by
	included in staff training and all relevant SOP documents.	
E1	• Site to investigate the biogas risk of foaming events. Site to report back to NRW a review of the risk of a biogas explosion following a foaming event. • Include foaming events on DSEAR and risk assessments	31/03/2023
C2	Ensure that video footage is saved after an incident to help review the root cause analysis. Ensure this action is imbedded into the EMS and is part of the post-incident response plan.	31/03/2023

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.

At this time, we do not intend to take any further action.

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

Biogen Pasteuriser Spill

Biogen notified NRW by email on the Saturday 01.10.2022 of a spillage from the pasteuriser. A schedule 5 part A notification was sent to NRW on the 3.10.2022.

The schedule 5 part A estimated to be 15 tonnes and was contained withing the sites bunding. A part B schedule 5 notification was sent to NRW on the 7.10.2022. The part B detailed the event. In September the raw waste balance tank (RWBT) and CHP undertook scheduled maintenance. The RWBT had a de-grit where the tank was emptied to remove grit/debris. During the month-long maintenance period Biogen fed the digesters a minimal quantity to keep the biology healthy and to prevent the bacteria from becoming dormant.

When the foaming occurred the Duty Manager isolated the mixing and feeding. The whole site team attended out of hours to conduct a full clean and ensure close monitoring throughout the day on Saturday (01.10.2022). The Duty Manager and General Manager continued to monitor remotely through the evening. The Duty Manager reattended site on the Sunday, all tanks were stable. The Duty Manager made a further assessment on Monday morning and in the early hours was able to reinstate the mixing. Since the incident there have been no further incidents of foaming.

NRW held a meeting with Biogen on the 18.10.22 to discuss the incident.

Biogen refilled the pasteuriser on the 1.10.22 following the maintenance. Filling of the digester normal takes 3 hours and is a batch process. Once a batch is finished the digestate is pumped to the storage tank. A high-level alarm was triggered where the contents reach above 90% of the tank capacity. The alarm led the staff to close the manual value and turn off mixing. The cat flap pressure relief valve on the pasteuriser opened due to foaming allowing the contents to spill onto the hardstand.

A tanker was called into the site to remove the contents from the bunded area.

At the meeting NRW requested video footage of the spill from the sites CCTV. Biogen stated that their CCTV has limited storage capacity so were unable to go back to the date of the incident to get the footage. However, Biogen stated that going forward they will ensure to download and save the footage as soon as practicable after any incidents.

Actions

- Ensure that video footage is saved after an incident to help review the root cause analysis. Ensure this action is imbedded into the EMS and is part of the post-incident response plan.

Following the meeting Biogen sent NRW images of the spill, the standard operating procedure for the pasteuriser process and the process monitoring records leading up to the spill.

On the 03.02.2023 Biogen sent NRW the findings of their internal review into the incident.

The root cause of the pasteuriser spill was a result of the downtime in the hydraulic mixing on the digester that was used to feed the pasteuriser on that occasion. The hydraulic mixing had been sent off for repair, meaning there was only one mixing mechanism in that digester. We believe that there was potentially a transfer of some partially digested material and potentially some that had trapped gas pockets, which when heated and agitated in the pasteuriser it released this material becoming very active.

As a result of this investigation Biogen sent out an alert to all of its 14 AD plants to ensure the importance of mixing, the consequences of not mixing and the need to notify the Operations and Research Team when reinstating mixing if it has been offline. Biogen stated that it is our first and foremost objective is to minimise any downtime by supporting the team to reinstate mixing ASAP, hence the need to notify if mixing has been problematic for a period of 24 hours. Alongside the published alert Biogen has discussed the importance of mixing at their weekly Operations meetings which are held with all 14 sites.

The alert bulletin stated *that any mixing downtime over 24 hours in any of the AD tanks should result in the duty manager being alerted. This allows appropriate action to be discussed with the relevant Regional Operations Manager, the Research Manager and the Operations Director, and undertaken in order to:*

• *Protect the process and its biology while mixing is down.*

• Address the fault with the mixing at the first available opportunity.

• And most importantly, to CAREFULLY reinstate the mixing in the tank.

Prolonged downtime, 24 hours or more, will require an increased level monitoring of the tank conditions and level, working in conjunction with the Operations Director and Research Team to assess whether actions such as reducing feeds into the tank, reducing the tank level, for example, are required. Each incident must be assessed individually, on a case-by-case basis, as numerous factors can affect events.

IMPORTANT – BEFORE reinstating any mixing after a 24-hour or longer down time there must be a discussion with the Operations Director and Research Manager, or their nominated deputies, to ensure mixing is carefully reintroduced.

This is important as reinstating mixing could either:

• Suddenly release a pocket of trapped biogas, potentially creating a foaming incident and even loss of containment.

• Suddenly introduce a trapped bulk of food waste to regions of the process tank containing hungry bacteria, again causing a sudden release of biogas, with the potential for foaming and loss of containment.

In the document “Biogen safe system of work for Major AD process Activities – Digester De-Grit V7” step 33 states that services should be reinstated, including digester mixing, following de-grit and that in step 34 the digester returns to routine operation.

There is no text or details in "Biogen safe system of work for Major AD process Activities – Digester De-Grit V7" on the process to de-gritting a pasteuriser with a semi-dormant digester or text describing the hazard of biogas being trapped due to the absence of mixing. Start up of operations after maintenance is an area of risk for AD sites and this should be reflected in the work procedures and guidance.

Actions

- Update the Digester De-Grit safe system of work document to describe the process of de-gritting a pasteuriser and the learnings from this incident.
- Add in the hazard of the lack of mixing and biogas being moved into the pasteuriser.
- State level of mixing required before returning into normal operation
- Ensure that mixing is of the tanks is described in the start-up procedure process and SOP. State the minimum amount of mixing time required following start up before digestate being moved to the pasteuriser.
- Can any of the process parameters identify trapped gas or events that lead up to foaming events?
- Ensure mixing and ways to avoid foaming events is included in staff training and all relevant SOP documents.

The foaming event is evidence that biogas and methane was being contained in the pasteuriser. The foaming event and loss of 15t of digestate indicates that biogas and

methane was released to the environment. This is a fugitive emission of methane to the environment, a greenhouse gas with a high global warming potential and an explosion risk. The Biogen DSEAR risk assessment summary sent to NRW on the 25.10.2022 does not include any reference to foaming events or the biogas leakage related to foaming.

Action

- Site to investigate the biogas risk of foaming events. Site to report back to NRW a review of the risk of a biogas explosion following a foaming event.
- Include foaming events on DSEAR and risk assessments

Non-compliances

A category 3 non-compliance is given due to the foaming event following maintenance procedures and the spill of digestate into the bunded area. This is a breach under condition 1.1.1. **It is an offence under Regulation 38(2) of the Environmental Permitting Regulations (consolidated 2016) to breach a permit condition or emission limit. Non-compliance score 4.**

A category 3 non-compliance is given due to the fugitive release of biogas and methane to the environment. This is a breach under condition 3.2. **It is an offence under Regulation 38(2) of the Environmental Permitting Regulations (consolidated 2016) to breach a permit condition or emission limit. Non-compliance score 4.**

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.