

Compliance Assessment Report CAR_NRW0045657

Permit being assessed: DP3137EG.

For: Margam Green Energy Plant, **held by:** Margam Green Energy Ltd

At: Land off Longlands Lane, Margam, Port Talbot, Neath Port Talbot, SA13 2NR.

Type of assessment: Site Inspection,

Reason: Routine.

On: 07/11/2024 between 10:00 and 14:00.

Parts of permit assessed: See details below.

NRW Lead Officer: Michael Launder, accompanied by Elliot Jones.

Report sent to: General Manager, Eco2, on 20/12/2024.

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

Part of permitted activity assessed (compliance criteria)	Assessment result	Permit condition
IR1A - Installations - Management - General Management	Assessed (A)	
IR2A - Installations - Operations - Permitted activities	Assessed (A)	
IR2C - Installations - Operations - Operating techniques	Assessed (A)	
IR2E - Installations - Operations - Improvement programme	Assessed (A)	
IR4A - Installations - Information - Records	Assessed (A)	

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

Total non-compliances recorded	Total non-compliance score
0	0

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?

No action required.

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

Introduction

This Compliance Assessment Report was completed following a site visit by NRW on 7 November 2024. The aim of the visit was to review procedures for the management of incoming waste wood and outgoing combustion residues. The Eco2 General Manager and Assistant General Manager accompanied the Industry Regulation officers during the visit.

This report also covers the review of a number of outstanding improvement conditions.

Waste

- Classification of waste wood & procedures for rejected loads of waste wood

Following on from the revision of NRW Regulatory Decision RD46.6 and issuing of position statement PS032 in 2023, the operator was informed of these changes relating to classification of waste wood. Although downstream of the household waste recycling centres these notices were targeted at, the operator receives waste originating from these sites and is not permitted to take hazardous waste so was advised by NRW of the changes at the time.

To ensure that incoming waste wood is free of hazardous waste wood, the biomass fuel contract the operator has with suppliers specifies the acceptable EWC codes, none of which are hazardous. During the visit, the operator presented the August 2022 contract as an example, which specified the only allowed waste codes and explicitly stated that hazardous waste is not permitted.

Loads of wood fuel may also be rejected on delivery to site. Procedure *MGP FP0001 Sampling of Recycled Wood Fuel Material from Delivery Vehicles* outlines the steps the operator takes in sampling (by digging into the load) and visual inspection of the fuel at the weighbridge. At this stage, if wood fuel is visually contaminated with hazardous material, it will be rejected and returned to the supplier.

A further procedure *FP0006 Tipped load inspection of recycled wood fuel material from delivery vehicle* outlines the process of mixing, inspecting and sampling tipped loads after acceptance at the weighbridge. This allows inspection and sampling of the material not accessible during the weighbridge inspection, and homogenises a sample to create a single pile for sub-sampling.

On rejection, a certificate and sample results are issued to the supplier. The operator reports that they have not yet rejected a load for hazardous content, and the most common

reasons for rejection are moisture content and particle size distribution.

Deliveries and waste transfer notes, including reasons for rejection are stored in the bespoke Eco2 database.

- Storage and management of bottom ash and air pollution control residue

The combustion process at the site generates two waste streams, incinerator bottom ash (IBA) and air pollution control (APC) residue.

During the early operating period of the plant, it was anticipated that the IBA could be demonstrated (through sampling and analysis) to be classified as *EWC 19 01 12 Bottom ash and slag other than those mentioned in 19 01 11**, a mirror code of the hazardous *EWC 19 01 11**, allowing disposal as non-hazardous waste. However, after a prolonged period of operation and waste sampling, the frequency of results reporting as hazardous was c.1 in 20 samples and the operator is no longer pursuing this.

The arising hazardous IBA from the site is now sent to Trecatti Landfill in Merthyr Tydfil (EPR-RP3733PC), to a cell that accepts stable non-reactive hazardous waste.

Due to the high pH and dioxin content, APC residue is an absolute hazardous waste and classified as *EWC 19 01 07* Solid wastes from gas treatment*. This is sent from the site to a deep disposal facility in Peterborough (EPR-TP3430GW).

During the visit, the areas where IBA and APC residue are stored were visited. The IBA chute is enclosed to prevent waste material spreading across roadways and outside the site, and the bulk storage area is undercover to prevent windblown material, water ingress and run-off. Both areas are surrounded by surface water drains.



Left: IBA chute from inside plant Right: IBA bulk storage area




APC residue collection from silo

The APC residue is collected in a silo and discharged directly to tankers during collection approximately 4 times per week. Where APC residue has been extracted during maintenance operations, bagged material may be removed in a curtain sided truck.

The operator showed examples of the waste transfer notes for IBA and APC residue stored in the bespoke Eco2 database.

ECO2 Management System © - 2024

HOME

WASTE COLLECTIONS

If your session is idle for more than 60 minutes it will be closed automatically.

EXIT Fuel Checks Waste Checks Reports CCTV Grid Scaling Admin

FUEL DELIVERIES WASTE COLLECTIONS FUEL ORDERS IBA/FA ORDERS NON-CONFORMANCES REJECTIONS TRAY ANALYSIS

From	Prev Wk	To	Next Wk	Cur Wk	Supplier	Status	Product Type	Blank Advice	CLEAR FILTER	EXPORT DATA	Tot Loads:	17	Total BA:	309.08 te
28 Oct-2024		03 Nov-2024			(All Suppliers)	(Show All)	BOTTOM ASH				Tot Net:	309.08 te	Total FA:	.00 te

Wk	Status	TicketNo	LTNumber	Cons No	Customer	Timestamp_1	Timestamp_2	VRH	Hauler	Source	EWC	Product	Gross	Tare	Net
44	Approved	67818	BA55834	B3674	CIRCULAR WA...	28/10/2024 08:37:13	28/10/2024 08:52:06	WU23KSZ	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	12,900	30,140	17,240
44	Approved	67831	BA55841	B3675	CIRCULAR WA...	28/10/2024 12:16:27	28/10/2024 12:32:42	CN71SLU	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	12,800	31,620	18,820
44	Approved	67833	BA55842	B3676	CIRCULAR WA...	28/10/2024 12:42:07	28/10/2024 12:55:41	WU23KSZ	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	12,960	29,280	16,320
44	Approved	67868	BA55843	B3677	CIRCULAR WA...	29/10/2024 07:05:18	29/10/2024 07:21:53	CN71SLU	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	12,380	31,420	19,040
44	Approved	67878	BA55851	B3678	CIRCULAR WA...	29/10/2024 09:46:47	29/10/2024 09:59:28	CN71SLU	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	12,500	31,700	19,200
44	Approved	67885	BA55852	B3679	CIRCULAR WA...	29/10/2024 12:48:51	29/10/2024 13:07:46	CN71SLU	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	12,520	31,480	18,960
44	Approved	67889	BA55853	B3680	CIRCULAR WA...	29/10/2024 13:34:31	29/10/2024 13:44:26	WU23KSX	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	13,020	28,420	15,400
44	Approved	67925	BA55854	B3681	CIRCULAR WA...	30/10/2024 07:16:41	30/10/2024 07:30:51	CN65OVC	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	14,000	32,240	18,240
44	Approved	67942	BA55711	B3682	CIRCULAR WA...	30/10/2024 10:45:40	30/10/2024 10:57:15	CN65OVC	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	14,040	31,700	17,660
44	Approved	67987	BA55712	B3683	CIRCULAR WA...	31/10/2024 07:07:45	31/10/2024 07:25:46	CN71SLU	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	12,620	31,840	19,220
44	Approved	67996	BA55713	B3684	CIRCULAR WA...	31/10/2024 09:05:16	31/10/2024 09:20:35	WU23KSX	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	13,020	32,000	18,980
44	Approved	67998	BA55714	B3685	CIRCULAR WA...	31/10/2024 09:45:08	31/10/2024 10:11:51	CN71SLU	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	12,600	31,580	18,980
44	Approved	68009	BA55721	B3686	CIRCULAR WA...	31/10/2024 13:39:09	31/10/2024 13:50:22	CN71SLU	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	12,580	31,500	18,920
44	Approved	68040	BA55722	B3687	CIRCULAR WA...	01/11/2024 07:06:31	01/11/2024 07:20:26	CN71SLU	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	12,600	31,640	19,040
44	Approved	68042	BA55723	B3688	CIRCULAR WA...	01/11/2024 07:25:19	01/11/2024 07:42:07	CN65OVC	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	14,120	31,940	17,820
44	Approved	68052	BA55731	B3689	CIRCULAR WA...	01/11/2024 10:36:52	01/11/2024 10:49:57	CN65OVC	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	14,060	30,520	16,460
44	Approved	68068	BA55732	B3690	CIRCULAR WA...	01/11/2024 14:20:06	01/11/2024 14:34:59	CN71SLU	Shillibiers	Margam Green Energy	19 01 11	BOTTOM ASH	12,520	31,300	18,780

Eco2 database, showing waste transfers of IBA

Compliance

The 2024 permit compliance and Schedule 5 notifications to date were discussed. These are assessed and scored separately in CAR_NRW0045606.

Improvement Conditions

- IC9 NOx Emissions Optimisation

This improvement condition requires the operator to *"perform a study to determine the extent to which the operation of the current systems in place to minimise NOx emissions can be further optimised such that emissions are reduced as far as possible below 270 mg/Nm³ as a daily average without significantly increasing emissions of other pollutants or having a significant negative effect on plant operation, reliability or bottom ash quality."*

The operator has submitted an e-mail dated 5 December 2023 with an enclosed report *'Margam Green Energy Ltd - EPR/DP3137EG - NOx Optimisation Study - Results'* (Fichtner Consulting Engineers Ltd, 2023).

The NOx permit limit is a daily average of 270 mg/Nm³ (since 3 December 2023). The report outlines how the site operations are optimised for a setpoint of 250 mg/Nm³. During 2022, the average daily NOx emissions were 182 mg/Nm³.

The report details a series of consecutive trials, operating the site at setpoints of 235, 220, 205 and 190 mg/Nm³.

Maximum reduction of NOx emissions was reported at the setpoint of 205 mg/Nm³, with a 10% reduction observed. This was achieved with a 40% increase in use of ammonia reagent but ammonia slip (ammonia passing through the process without reacting) was increased to 3.07 mg/Nm³ compared to 1 mg/Nm³ at the baseline.

While reviewing the report NRW referred to the monitoring returns for Q3 2023, to assess the impact on ammonia emissions. This was not subject to an ELV at the time but, post December 2023 now has a limit of 22.5 mg/Nm³. From a visual review of the 2023 returns, there were no major deviations from other months, and the daily average did not approach the ELV at any point.

No change in the composition of IBA was reported but an increased in ammonia carryover to the APC residues was recorded.

The report concludes that the existing setpoint of 250 mg/Nm³, which consistently achieves daily emissions of c. 180 mg/Nm³, is appropriate without resulting in excess reagent consumption or ammonia slip.

The submitted documents demonstrate compliance with the requirements of IC9 and the condition is discharged.

- IC12 OTNOC Plan

The Margam site has been acquired by the owner of a similar design biomass plant at Templeborough near Rotherham. The operator has already taken the opportunity to identify a number of failure modes and solutions that have occurred and been implemented at Templeborough which could be relevant to Margam Green Energy. This also has the

potential to improve compliance through sharing of performance and optimisation information between the sites.

The Other Than Normal Operating Conditions (OTNOC) Management plan for Margam was due to be submitted by the operator but is being reviewed in the context of the agreed OTNOC plan and experience at Templeborough.

An extension to 31st January 2025 is agreed for IC12.

- IC11 Mercury Monitoring

This improvement condition requires the operator to *"carry out a programme of mercury monitoring over a period and frequency agreed with Natural Resources Wales. The operator shall submit a report to Natural Resources Wales with an analysis of whether the waste feed to the plant can be proven to have a low and stable mercury content."*

The operator has submitted an e-mail dated 15 January 2024 with an enclosed report 'Margam Green Energy Ltd - EPR/DP3137EG - IC11 Mercury Monitoring Improvement Condition Report' (Fichtner Consulting Engineers Ltd, 2024).

The report outlines that six triplicate monitoring samples were taken between August 2022 and October 2023. The results are lower than the published BREF ELVs and the Mercury Monitoring Protocol threshold. The operator reports that this demonstrates the levels of mercury emissions are 'low and stable'.

The submitted documents demonstrate compliance with the requirements of IC11 and the condition is discharged.

AOB

Site was due to have ISO14001 surveillance audit week commencing 11 November 2024. Operator mentioned that the site may not be subject to annual surveillance audits when incorporated into multisite certification, but will still be visited for recertification audits.

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.

If your assessment result in Section 1 is suspended, what does this mean?

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 compliance criteria (used in section 1 and 2):

1. Management

- IR1A – General management
- IR1B – Finance (only applicable to Landfill)
- IR1C – Energy efficiency
- IR1D - Efficient use of raw materials
- IR1E - Avoidance, recovery and disposal of wastes produced by the activities
- IR1F - Multiple operator installations

2. Operations

- IR2A – Permitted activities
- IR2B – The site
- IR2C – Operating techniques
- IR2D – Technical requirements
- IR2E – Improvement programme
- IR2F – Pre-operational conditions
- IR2G – Landfill engineering (only applicable to Landfill)
- IR2H – Waste acceptance (only applicable to Landfill)
- IR2I – Leachate levels (only applicable to Landfill)
- IR2J – Closure and aftercare (only applicable to Landfill)
- IR2K – Landfill gas management (only applicable to Landfill)

3. Emission and Monitoring

- IR3A – Emissions to water, air or land
- IR3B – Emissions of substances not controlled by emission limits
- IR3C – Odour
- IR3D – Noise and vibration
- IR3E – Monitoring
- IR3F – Pests
- IR3G – Air quality management plans
- IR3H – Monitoring for the purposes of the Industrial Emissions Directive (this heading includes Large Combustion Plants)
- IR3I – Fire

4. Information

- IR4A – Records
- IR4B – Reporting
- IR4C – Notification

Enforcement response

Any non-compliance with a permit condition 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 twenty 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 to 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.