

Compliance Assessment Report CAR_NRW0039934

Permit being assessed: JP3632ZH.

For: Barry CHP , held by Dow Silicones UK Limited

At: Wimborne Road - Dock 2, Barry, Vale of Glamorgan, CF63 3DH.

Type of assessment carried out: Site Inspection, Reason: Routine.

On 07/04/2022 between 09:00 and 16:00.

Parts of permit assessed: Operating Techniques

NRW Lead Officer: Geraint Harris.

Report sent to: Christopher Chadwick, Environment Manager on 20/05/2022.

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

Part of permitted activity assessed (criteria)	Assessment result	Permit condition
E1 - Emissions - Air	Ongoing (O)	3.1.2

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

Total number of 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?

Criteria	Action needed	Complete by
E1	Investigate reason for excessive NOX levels	06/06/2022

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.

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

Dow Silicones UK Limited

EPR-JP3632ZH

Dow's CHP permit was varied following the publication of the revised Best Available Techniques

(BAT) Reference Document (BREF) for Large Combustion Plant (LCP). The associated BAT conclusions to this document were published on 17 August 2017 in the Official Journal of the European Union. Following the publication of the BREF and the incorporation of the Industrial Emissions Directive (IED), lower emission limits were introduced into the CHP permit on 30th June 2020. To meet the new lower NO_x permit requirements, Dow undertook a multi-million-pound project involving upgrading the two gas turbine machines using dry low NO_x (DLN) technology. As mentioned in CAR_NRW0037553 these two gas turbines have been successfully upgraded during the latter part of 2020.

Gas turbine A was upgraded and fully commissioned, online and handed over to operations on 28th June 2020. Gas Turbine B was handed over on 15th November 2020. Some delays were incurred during the project due to Covid19 and resource availability. Emission results from both gas turbines post DLN installation had consistently been below both LCPD and IED schedule 3(a) and 3(b) permit emission values. Improvement condition 7 (IC7) within the permit states "Following the commissioning of dry low NO_x (DLN) conversion of the CHP gas turbines and a period of operation for optimisation, the Operator shall submit a written post-commissioning report to Natural Resources Wales for approval". This report was received on 9th November 2021. As mentioned in CAR_NRW0039130, the report has satisfied the requirements stated within IC7 except for start-up, shut down thresholds and effective DLN threshold and CEMS performance. During the site visit on the 7th April these thresholds along with the CEMS performance were discussed.

The main change in emission limits and monitoring following the publication of the LCP BREF is the inclusion of annual limit values which were not previously required. Chapter III of the IED requires compliance with the Annex V ELVs from 70% load for daily and monthly ELV's. For the annual limit BAT-AELs apply only when the Dry Low NO_x (DLN) system is 'effective' although this condition is undefined. The E-DLN can be agreed to be equal to or greater than the 70% ISO Base Load for compliance with the annual mean, provided that compliance with the IED Daily and Monthly ELV's can be maintained above 70% load.

Dow have attempted to plot NO_x vs relative gas turbine Load (%) in an attempt to establish the effective DLN implementation figure. However, the data generated two distinct plots within the same graph due to supplementary firing. Therefore, Dow were unable to establish a cohesive plot in which to establish a site-specific Effective-DLN load point. Therefore, they have requested that the start-up and shutdown thresholds stated with Table S1.4 of the permit, be utilised. Since Dow operate their gas turbines at full load and given that they ramp up quickly to full load it has been agreed that the thresholds in Table S1.4 can apply.

Action1: Please can you update IC7 -written post-commissioning report, stating the start up, shut down thresholds and effective DLN thresholds

CEMS Range:

During the site visit we discussed the use of appropriate CEM ranges for the Gas Turbines following the successful commissioning of the dry low NO_x (DLN) technology. The reduction in ELVs under the LCP BREF may lead to the existing certification ranges becoming inadequate. Dow stated during the meeting that they have began work on investigating the suitability of the current CEMS and DAHS system. During the site meeting Dow explained that they had reviewed the revised IED (LCP BREF) Protocol for advice on suitable ranges but were unsure on which ELV the multiplier of 2.5 referred

to on page 61. Since the meeting I have reviewed 'Technical Guidance Note (Monitoring) M20 - Quality assurance of continuous emissions monitoring systems - application of EN 14181'. Page 5 states "to simplify matters, our approach for selecting suitable CEMs is to apply range multipliers, whereby the lowest certified range is not more than 1.5x the daily average (DA) ELV for incineration processes and not more than 2.5x the DA-ELV for large combustion plant and other types of process (or 48-h ELV for some installations under Chapter III of the IED)." Therefore, Dow need to review the ranges against the Daily average ELV as stated in the permit. if Dow decide that the instruments are not to be replaced, they will have to demonstrate continuing fitness for purpose by passing all of the remaining QA requirements, noting that the statistical tests within the QA process become tighter as the ELV is reduced, i.e., it becomes harder to pass the remaining requirements. Page 6 of the 'Technical Guidance Note (Monitoring) M20', explains these QA requirements.

Action 2: Taking into account the following two documents please assess the adequacy of the current CEMS range and provide a plan for any actions that may be required.

[Technical Guidance Note M20 \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/106444/Technical-Guidance-Note-M20.pdf)

[*publication.html \(energy-uk.org.uk\)](https://www.energy-uk.org.uk/publication.html)

Fired Boiler:

Operation above the Annex V NO_x ELV was necessary due to restrictions resulting from the Covid Pandemic. A proportionate response has been taken to this non-compliance based on the very limited environmental impact and a Regulatory Decisions made by NRW to ensure critical medical supply chain businesses could continue to operate during the pandemic. The restrictions resulting from Covid-19 continued for a significant period and so the Fired Boiler continued to be operated, intermittently, under this agreement until late February 2022. In March 2022, Dow were able to successfully complete the commissioning of the fired boiler with both the monthly and daily mean recorded as 53.75 mg/m³ against a limit of 100 and 110 mg/m³. Dow have Improvement condition IC8 within their permit which requires them to submit a written CHP post-commissioning report to Natural Resources Wales for approval. Dow have stated that they intend to submit this report after they have had a prolonged period of operation for optimisation of the HP boiler.

Annual Returns:

The Annual report for 2021 has been reviewed and no breach of permit conditions was identified other than those already addressed in previous correspondence.

Q1 Monitoring Returns:

The monitoring returns for Q1 were received on the 26th April 2022 along with a schedule 5 notice for the breach in daily and monthly mean NO_x ELV's during March. The investigation and subsequent noncompliance scoring will be dealt with separately following a root cause investigation by Dow.

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.