

Compliance Assessment Report CAR_NRW0041009

Permit being assessed: BK6483IU.

For: Deeside Engine Casting Plant, held by Toyota Motor Manufacturing (UK) Ltd
At: Toyota Motor Manufacturing (UK) Ltd, Zone 3, Deeside Industrial Park, Deeside,
Flintshire, CH5 2TW.

Type of assessment carried out: Report/Data Review, Reason: Routine.

On 31/12/2022.

Parts of permit assessed: See Below

NRW Lead Officer: Philip Harper.

Report sent to: Keith Martin, Principal Engineer on 03/02/2023.

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

Part of permitted activity assessed (criteria)	Assessment result	Permit condition
E1 - Emissions - Air	C3 Minor	3.1.1
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	Assessed (A)	

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

Total number of non-compliances recorded	Total non-compliance score
1	4

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	See main text	Already completed

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

This Compliance Assessment Report relates to the quarterly and annual monitoring and reporting requirements in Permit EPR-BK6483IU for 2022. Quarterly Monitoring returns have been received by NRW and no non-compliances have been noted. Annual Monitoring returns received by NRW on 24/01/2022 Monitoring returns received as per permit requirements. No exceedances of emission limit values have been reported.

Schedule 5 Notification- ST9 Reclaim Sand Furnace Dust Emission 3rd October 2022

A part A notification was received on 17/10/22 relating to fugitive dust emissions from ST9 the Reclaim Sand Furnace on the 3rd October with a dust result of 50.84 mg/m³ compared to the permitted limit of 5 mg/m³.

“We have been notified that a Continuous Emissions Monitoring (CEMs) calibration test draft particulate result on ST9 Reclaim Sand Furnace exceeded the permit limit.

Particulate (Dust)

The particulate is sand from the furnace process that removes the phenolic resin coating from moulding sand recovered from the Low Pressure Casting process.

Date	Time	Test	Draft Result	Permit Limit	Test Method
15-16 Sept. 2022	11am – 11:37am	Compliance	2.87 mg/m ³	5 mg/m ³	BS 13284-1
03 Oct. 2022	11:55am – 15:08pm	CEMs Calibration	50.84 mg/m ³	5 mg/m ³	BS 13284-1

The CEMs unit provides an indicative particulate measurement and supports abatement performance. Whilst the CEMs measurement is not used for compliance reporting, it is calibrated via an MCERTS BS13284-1 test, the same as prescribed for compliance confirmation.

On receiving the result the process was shut down and investigated. The bagfilter abatement was found to have 2 defective filters which allowed the particulate to escape the process to atmosphere. New filters have been fitted on the 12th October and the process was restarted without incident. We are now investigating why the 2 filters failed and the CEMs unit data.”

A part B notification was received by Natural Resources Wales on the 23rd December 2023. The investigation summary is provided below:

“The metal plate and bagfilter holes were directly opposite the main incoming air flow. It was apparent that sand entrained in the exhaust air from the furnace had acted as an abrasive and worn a small hole through the metal plate, aided by the velocity of the incoming air. Once through the metal plate, the bagfilter fabric will probably have worn through quite quickly, unable to withstand the high velocity sand grains impacting upon its surface,

A similar hole in the inner wall was found during an inspection in 2012. This had been repaired over with a metal plate and it was this metal plate that had been perforated in 2022.

It is clear from the compliance results obtained in mid-September that the hole had appeared at some point after 16th September. The data from the CEM unit does not show a noticeable increase in emissions prior to the calibration test. This has been queried with the CEM unit supplier and their explanation is that the CEM unit is set-up to detect changes in very fine dust particles that would normally contribute to an emission <5mg/m³, whereas the emission >50mg/m³ will have contained both fine and coarse particles as the larger particles escaped the abatement through holes in the bags.

The location of the hole in the metal wall, directly opposite the maximum velocity from the furnace exhaust, will have exacerbated the emission concentration with a bias towards larger particles. The coarser sand grains with a higher inertia will have travelled straight through the hole whereas lighter particles with low inertia would follow the normal air flow pattern through the baghouse. The small hole size in relation to the duct size would also support this phenomenon as a larger amount of flow disruption would occur around the edges of the hole, carrying away the finer particles.

The primary root cause is thought to be the furnace baghouse design – there is no method to lower in air velocity before the metal plate wall housing. Over long periods of time, approximately 10 years at current production levels, the constant abrasion process will wear through the plate and then damage the bag filter.”

Countermeasures submitted by the operator are shown below:

PROBLEM	ROOT CAUSE	COUNTER MEASURE	COMPLETION DATE
High air flow velocity onto inner wall	Air velocity not reduced before exhaust enters baghouse	Install angled sacrificial plate to deflect air flow and also protect inner wall.	Nov 22
Particulate breakthrough not predictable	Abrasion damage extent to inner wall not known	Implement annual visual check of sacrificial plate and inner wall for abrasion damage	Nov 22
		Implement annual replacement of sacrificial plate.	Nov 22
		Implement weekly visual check of bag filter clean side	Nov 22

Natural Resources Wales is satisfied that adequate processes have been implemented and requires no further action.

The report discusses an unauthorised emission from ST9 the 3rd October 2023.

A category 3 score has been applied against permit condition 3.1.1 “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, S3.3, and, S3.4.” (E1 Emissions to air).

Although the operator notified Natural Resources Wales about the breach by phone call on the 17th October 2022, following the receipt of the analysis data. Permit condition 4.3.1(b) states that “in the event of a breach of any permit condition the operator must immediately—

- (i) inform Natural Resources Wales, and
- (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time”

Further information is provided in permit condition 4.3.2 which states that “Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.”

Schedule 5 requires that in the event of a permit breach, that a Part A notification is sent within 24 hours.

The operator has satisfied this permit condition.

Kind Regards

Phil Harper

Industry and Waste Regulation Officer NW

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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.