

Compliance Assessment Report CAR_NRW0041167

Permit being assessed: BL3986ID.

For: Aberthaw Works EPR/BL3986ID, held by Tarmac Cement and Lime Limited

At: Aberthaw Works , East Aberthaw, Barry, Vale of Glamorgan, CF62 3ZR.

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

On 31/12/2022 between 09:00 and 17:00.

Parts of permit assessed: Emissions control, noise, monitoring, reporting and emissions

NRW Lead Officer: Antony Leakey.

Report sent to: Daniel Bound, Environmental Coordinator on 14/02/2023.

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

Part of permitted activity assessed (criteria)	Assessment result	Permit condition
B1 - Infrastructure - Engineering for prevention and control of emissions	Assessed (A)	
C2 - General Management - Management system and operating procedures	C3 Minor	1.1.1
C2 - General Management - Management system and operating procedures	C3 Minor	1.1.1
E1 - Emissions - Air	C3 Minor	3.2.1
E1 - Emissions - Air	C3 Minor	3.2.1
E3 - Emissions - Surface water	Assessed (A)	
F2 - Amenity - Noise	Assessed (A)	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	Assessed (A)	
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
4	16

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
C2	Review operational audit processes and update the house keeping check list to include key environmental aspects.	Already completed
C2	Review pressurised powder conveying systems and	Already

Criteria	Action needed	Complete by
	implement an improved inspection regime.	completed
E1	Review operational audit processes and update the house keeping check list to include key environmental aspects.	Already completed
E1	Review pressurised powder conveying systems and implement an improved inspection regime.	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.

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

Aberthaw Cement Works

Emissions and reporting review, inspection, and site incident update – 2022

Summary of previous CAR action status

Permit condition	Action summary	Due date	Action status
3.5.1	EOP4: Noise and Vibration review and noise action plan improvements.	31/12/22	Complete, but further review required (see action below)
3.2.1	Dust deposition trend review.	31/12/22	Complete.
n/a	Tarmac to identify an appropriate opportunity to vary the new kiln hood release point into the permit.	Ongoing	Ongoing
3.1.2	Review coal mill bag filter inspection and maintenance regime and burst bag detection provision.	31/3/22	Partially complete. Inspection frequency increased. Bag failure detection not investigated. To be reviewed.
3.2.1	Review environmentally critical control functions	30/6/22	Ongoing. Follow up at next site inspection.

	and provide an update on implementation of improvements to minimise dust releases		
1.1.1	Review operational audit processes.	31/12/22	Complete.
3.2.1	Review kiln restart process.	Ongoing	Quarterly updates to be provided.

Noise assessment

All planned noise control improvements have now been completed and a follow up noise survey is to be undertaken to establish the offsite impact reductions achieved. NRW is also intending to undertake a low frequency noise (LFN) assessment at a local residential property to establish if LFN is a cause of complaints.

A recent check during calm weather conditions in West Aberthaw on 25/1/23 did not identify a significant contribution from the cement works to ambient sound levels.

There remain several areas where improvements may be necessary, but these present engineering challenges due to the location and nature of the sources:

- Bucket elevator drives at the top of the pre-heater tower.
- Clinker cooler discharge chute.
- Coal mill stack.

ACTION: Tarmac to provide noise survey report when available.

Dust control

Tarmac has implemented further improvements during 2022, including improved road dust suppression. Public road sweeping is now also undertaken on Burton Hill. A review of the deposition rate data trends currently available suggests that rates are now generally comparable with typical background levels for the location. Some elevated results are usually associated with regional weather events (e.g., Saharan dust storm long-range transport) or during and at the end of long dry periods when high winds remobilise deposited dust that cannot be damped due to location and fresh rainfall washes out accumulated suspended atmospheric dust. However, it is noted that some results still include relatively high fractions of cement components, although these results do not necessarily correlate well with dust release incidents.

CEMs calibration functions

A review of the latest calibration functions was undertaken, and it was noted that the first order coefficient is significantly less than 0.9 for HCl, e.g., duty CEM: $y = 0.1150x + 3.1552$. Justification is required for these situations, noting that the CEM is reported to have passed the latest AST.

Examination of the QAL2 report suggests the HCl SRM is not trending closely with either

duty or standby CEM. The variability passes in both cases, but this may be due to the lack of variation in the SRM potentially because of large sample loss due to cold spots in the sample line or HCl absorption in the filter.

A repeat QAL2 test was due to be undertaken for HCl at the AST in 2022, but the AST was passed, and the calibration function has been retained without explanation for the low coefficient and poor trending of the CEM to the SRM.

It is noted that duty NOx analyser failed the AST and a new QAL2 was completed successfully, but the original calibration function for NOx in the annual report remains in place.

ACTION: Tarmac to provide justification for low HCl calibration function slope value and confirm that NOx duty calibration function has been implemented by 31/3/23.

Incident and complaints summary

23/3/22 – Dust deposit on car at West Aberthaw. The works restarted operations after the annual shutdown on 18 March and experienced some problems with bag filter discharge due to moisture, this requires further investigation. Clean start-ups such as this would not be expected to cause significant dust emissions. A kiln trip occurred while the bag filter issue was being addressed.

A further kiln trip occurred on 21 March when refractory material broke away from one of the main cyclone linings. This is most likely to have generated fugitive dust emissions from the kiln seals (as opposed to the stack) that may have taken a while to settle out over the area due to the variable but generally E-ENE wind direction throughout the period. This also needs more detailed investigation as the cyclone had been substantially relined during the shutdown and there may have been some engineering problems that led to this failure.

The plant restarted on 25 March and while this may have been a dirtier start due to the crash shut down of the kiln, the main stack dust emissions trends show that this event was not significantly higher than the previous or other typical restarts. The peak releases are well below the emission limit values, although there is the potential for these emissions to be of courser particles which would be prone to settle out locally. This is an inherent aspect of this type of plant operation however, Tarmac will need to investigate what further measures can be taken to minimise start up emissions.

ACTION: Tarmac to review kiln start up procedures and provide an update on implementation of improvements at next compliance meeting.

7/4/22 – Burton Hill deposit on car. Plant was operating normally during this period and winds were westerly but strong. There was also some rain after a dry period and dust deposits may have increased.

There was evidence of dust accumulation on the main road, and this could suggest poor use of the wheel wash but also accumulation during the dry spell. The wheel wash was operational, but Tarmac will need to implement a spot check programme to ensure that drivers are using the wheel wash correctly.

Subsequent investigation indicated that the quarry stone store level had been allowed to reduce below the roof allowing winds to pick up dust. This is a procedural requirement that was not implemented due to personnel changes and lack of training for newer personnel. Operational audit of practices could ensure that such lapses are detected before they cause offsite impact.

Deposition gauge results do not show a significant increase for this period at Burton Hill, although other locations do.

The isolated offsite fugitive release impact and associated procedural failure are minor category 3 non-compliances with permit conditions 3.2.1 and 1.1.1 respectively.

Tarmac has reviewed operational audit processes and updated the house keeping check list to include key environmental aspects.

30/7/22 - Failure of lime feed hose into pre-heater tower due to poor support. Leak detected by control room and isolated within 15 minutes, but rate of lime feed likely to have released 200-500 kg locally into the plant with lighter dust carried off site in westerly winds. Review of pressurised conveying hoses is required with replacement with hard pipe work where possible or improved support and inspection if necessary.

The isolated offsite fugitive release impact and associated design or maintenance failure are minor category 3 non-compliances with permit conditions 3.2.1 and 1.1.1 respectively.

Tarmac has reviewed pressurised powder conveying systems and implemented an improved inspection regime to minimise dust releases.

Waste-derived fuel trial

Assessment of compliance with the waste trial provisions in the permit was undertaken by review of risk assessments/HazOp documents, specifications, and P&IDs before and during the trial period on 20/7/22 and 27/7/22. The following issues were identified:

- The waste feed hopper grid(s) required replacement with non-metallic flame retardant grids to prevent the risk of metal-metal sparking if the grids are removed for clearing/cleaning.
- There was no provision of waste feed pump over-pressure protection. There appeared to be no integral mechanical over-pressure protection, and none was installed on the delivery pipework. There was instrumented over-pressure protection that operates on the hydraulic drive system, but it was unclear if this would protect the delivery pipework.
- It was unclear how the pump over-temperature protection works and where the temperature is measured. This may be critical due to the relatively low flashpoint of the sludge.
- Waste feed rate calibration was initially not undertaken resulting in overfeeding.
- Temperature-residence time requirements of IED Article 50 were examined, for which temperature is specified in the permit. In the context of using tyres and hydrocarbon sludge as WDF, NRW considers the “combustion chamber” to constitute part of the kiln back end, the riser and cyclone 4 gas path, which was established to be around

750-800°C according to plant instrumentation. This has potential implications for compliance with permit condition 2.3.12 if the residence time is insufficient before the gas temperature drops below 850°C.

Subsequently the trial was discontinued because stable process conditions could not be achieved. A final report into the trial outcome, including summary emissions data, and a review of compliance with permit condition 2.3.12 for tyre burning is required.

ACTION: Tarmac to submit waste fuel trial report and tyre temperature-residence time assessment by 30 June 2023.

Ferrous sulphate substitution

Proposals to utilise a waste ferrous sulphate by product from a production site landfill in Europe were made under the alternative raw materials (ARM) protocol. The material analysis suggests that the dry mineral content (equated to the dry ash content) is only 46.1%, well below the 80% minimum specification for ARMs in permit Table S2.1.

Further characterisation of the 54.2% dry basis volatile matter content will be necessary to demonstrate that this material is suitable for use according to permit condition 2.3.9. If the material is to be used as an identical substitute, then a comparative analysis of the current ferrous sulphate raw material with the proposed waste raw material will be necessary to demonstrate equivalence.

ACTION: Tarmac to provide further characterisation and comparison of waste material with usual ferrous sulphate raw material to enable consideration of like-for-like replacement.

Emissions review

The works has operated with a scheduled shutdown in February-March 2022 including implementation of noise attenuation improvements. Both replacements will improve fugitive emissions and the latter may also reduce noise levels.

Monitoring data for Q1, Q2, Q3 and Q4 2022 and annual report for 2022 have been reviewed and no breach of permit conditions was identified other than those already addressed in previous sections of this report.

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.