

Compliance Assessment Report CAR_NRW0039120

Permit being assessed: BL1096IB.

For: Padeswood Cement Works , held by Castle Cement Limited

At: PADESWOOD WORKS , PADESWOOD, MOLD, MOLD, CLWYD, CH7 4HB.

Type of assessment carried out: Check Monitoring/Sampling, Reason: Routine.

On 06/09/2021 - 07/09/2021 between 22:00 and 02:00.

Parts of permit assessed: 3.4 Noise

NRW Lead Officer: Lara Cubley, accompanied by Stuart Ross.

Report sent to: David Quick, Plant Manager on 20/01/2022.

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

Part of permitted activity assessed (criteria)	Assessment result	Permit condition
F2 - Amenity - Noise	C3 Minor	3.4.1
F2 - Amenity - Noise	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
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
F2	See Actions 3-6 in section 4 of report with specific due dates	30/06/2022
F2	See Actions 1, 2 & 7 - 17 with individual due dates in Section 4 of report	30/06/2022

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.

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

Introduction

This Compliance Assessment Report (CAR) describes:

- Noise monitoring conducted at receptors by Natural Resources Wales (NRW) and a site inspection of Padeswood Cement Work on the night of the 6/7th September 2021, and
- An update regarding noise developments / improvements
- Summary of Action relating to noise following review of consultant's noise assessment reports.

Padeswood Cement Works Noise Monitoring 6 – 7th September 2021

Monitoring was conducted by NRW Officers Lara Cubley & Stuart Ross.

Weather conditions: calm with intermittent light breeze (<5 m/s), wind direction variable (difficult to determine), 15 – 18 degrees Centigrade. No cloud cover, patchy fog developing as the evening progressed, dense in places.

B&K 2250 Sound Level Meter – Calibration Certificate valid

Instrument field calibration pre measurement +/- 0.03 dB, post measurement +/- 0.01 dB.

The Sound Level Meter was positioned on a tripod at approximately 1.4m height, all measurements were free field and attended by NRW staff.

As well as the locations described below an onsite inspection was made accompanied by the shift manager. The plant was reported to be operating normally throughout the measurement period, no abnormal operations or maintenance was being carried out.

Padeswood Cement Works – Site Operations confirmed for the duration 06/09/21 22:00 to 07/09/21 03:00 following were running:

Kiln – On

Raw Mill – On

Coal Mill – On till 22:45, then off until 2am and then started again.

Cement Mill 1 & 2 - Off

Cement Mill 3 - On

Shell Fans 2 On (not shell fan No. 8).

Packing Plant running

Cement Mill 5 – Mill 5 fan ran for the full duration however the feed was stopped several times during the monitoring. See table below for feed on & off times:

Start	Stop	Comments
10:13	10:40	
10:56	11:29	Interruption to feed @11:25
11:41	11:53	

12:02	12:06	
12:10	01:08	
01:16	01:41	
01:42	03:00	Interruption to feed @01:54

Clinker cooler heat exchanger fans (FN09 - 11) were confirmed to be running at over 99.6% for the duration of the monitoring exercise. Undergrate cooler fans FN03 & FN04 confirmed as running over 99.6% for the duration, FN05 over 92.7 - 94.98% and FN06 68.14 - 69.99%.

Hazel Drive/Chester Road, Penyffordd

22:00 Subjective assessment, local road traffic noise dominates, during occasional lulls in road traffic a faint but distant sound could be detected that may be Padeswood Cement Works. Sound contribution from the cement works was not deemed to constitute a pollution. No measurements taken.

The location was re-visited 01:39 and a 5 minute measurement was taken on Chester Road outside a residents' property. The location was very quiet with the exception of one passing car on an adjacent road. With the car excluded an LAeq of 28.7 dB and LA90 of 26 dB were recorded. Subjectively officers could barely hear any contribution from the cement works, there may have been a barely perceptible distant drone from the works but it was difficult to be sure. Objective tonal analysis of the sound file (ISO 1996-2 2007) identifies no significant tones. Sound contribution from the cement works was not deemed to constitute a pollution.

Bannel Lane – Garden of dwelling to East of Cement Works (<500m off Installation boundary)

22:03 – 23:18, the sound from cement works dominates at this location, fan noise with constant low frequency rumble that oscillates in a regular rhythm. Some pulse air and air cannon punctuate the sound. Intruder alarm sounding locally. Occasional distant road noise (very little contribution). LAeq 42.2 dB and LA90 40.9 dB.

Objective tonal analysis of the sound file (ISO 1996-2 2007) identifies no significant tones.

Kiln Shell Fan No.8 was run up and down at the request of NRW, it was not audible at this location.

FFT analysis at this location identifies several peaks including 70 Hz that may match a peak identified from the clinker cooler building/heat exchanger area. Subjectively the sound of the clinker cooler fans or most likely the heat exchanger fans was the source of the low frequency rumble described above. This appears to support Castle Cement's own recent investigation that concluded Fan 11 on the cooler heat exchanger may be the source of a recent complaint at the measurement location.

This ~70Hz tone was later identified and confirmed to originate from three clinker cooler heat exchanger fans.

NRW is of the opinion that this is a breach of Condition 3.4.1 (F2 Amenity - Noise - CCS=3). At the time of monitoring at this location, authorised officers of NRW concluded that the character and tonal element of the sound constituted a noise pollution. Measures to control fans speeds have since been undertaken. Further monitoring and assessment of appropriate measures are required - see actions

below.

The location was re visited and a 5 minute sound level measurement taken 01:20 – 01:25. On this occasion Cement Mill 5 was also operating. The sound from the cement works was as previously observed. What sounded like two cars passing on local roads were clearly audible during the measurement. LAeq 44.5 dB (43.9 dB with passing cars excluded) and LA90 42.8 dB (42.7 dB with passing car excluded).

Whilst only a limited measurement and observation, Cement Mill 5 did not appear to make any significant change to the sound level or character at this location and sound emissions from the site were subjectively similar if not identical to that observed earlier in the night.

Update - Developments

- New ID Fan impeller installed and silencer to main stack installed in August 2021 shutdown. 24th & 25th August 2021 measurements show some improvements to 120Hz tone.
- Castle Cement Ltd's noise consultant (INVC) conducted noise surveys August & November 2021 and 6th - 15th October 2021 at Chester Rd, Penyffordd (resident's garden).
- 70Hz tone identified to originate from three cooler heat exchanger fans. Operator confirmed that further monitoring at defined fan speeds identified that limiting fan speeds to 5% difference has resulted in an improvement. Operator reports that this improvement was implemented on 17/11/21.
- Noise monitoring survey planned for February 2022.

ACTION 1: The BAT actions programme should be updated following the November 2021 survey and resubmitted to NRW by 15/02/22

Recent Noise Monitoring/Assessments & Actions

INVC report R10058 following 17th & 18th November noise monitoring/assessment and report R10024 noise assessment following 6th - 15th October noise monitoring in Chester Road resident's garden were provided to NRW on 23/12/21.

6th - 15th October noise monitoring in Chester Road

The resident refused the offer of monitoring equipment being installed inside the property which was a limitation of the study. The 9 days of monitoring within the garden of the property showed the external average night-time LAeq to be below 45dB(A). The results indicated that within the resident's garden specific acoustic characteristics were identified which could be attributed to the Padeswood Cement Works. A ~70Hz beating tone attributed to the cooler heat exchange fans was identified as the main potential root cause of complaints in part due to its dominance, level difference above background and fluctuating level. See November noise monitoring/assessment below regarding this noise source.

A ~35Hz 'low impact' tone was identified as second to the ~70Hz beating tone for investigation and mitigation. See action below.

17th & 18th November noise monitoring/assessment***~120Hz – main stack fan***

This current assessment indicated that the retrofitting of the silencer to the main stack in August 2021 has significantly reduced the off-site impact (10dB drop) of the ~120Hz tone.

The assessment indicates that whilst the 120Hz tone could still be identified at some locations it is no longer clearly audible.

Quiet fan insert noise mitigation measures planned for January 2022 shutdown.

ACTION 2: Following the completion of the January shutdown, provide NRW with summary of steps taken with respect to installing the quiet fan insert by 15/02/22.

~70Hz cooler heat exchange fans

The 70Hz tone was previously found to originate from three cooler heat exchanger fans. Monitoring various scenarios/fan speeds found that limiting to 5% difference has resulted in an improvement in character of the noise.

ACTION 3: The Operator should provide a summary in writing to NRW of the controls that were reportedly put in place on the 17th November 2021 to limit fan speeds. This should include:

- an assessment of the risks to plant and equipment associated with such changes,
- any scenarios under which such limiting of fan speeds cannot be achieved and why and
- confirmation of plans to implement the limiting of FN09 – FN11 fan speeds in order to reduce the impact on a permanent basis or timescales otherwise.

Please do so by 15/02/22.

ACTION 4: The Operator should undertake a review of FN09 fan speed fluctuation noted during the assessment to understand the possible causes of such fluctuations and implications for noise mitigation. A summary of this report together with any recommendations for improvement in controls shall be provided to NRW in writing by 31/03/22.

ACTION 5: The Operator should undertake longer term monitoring including annoyance recorder in reporter's property at Bannel Lane. A report detailing such monitoring together with an assessment of findings should be submitted to NRW by 31/03/22.

ACTION 6: Complete a BAT assessment for noise control measures for these fans / heat exchanger unit. The review should look at various options and include a cost benefit analysis. Findings of the review should be submitted to NRW in writing by 30/06/22.

Mid/high frequency broadband noise

High levels of mid/high broadband noise were detected at location E.

ACTION 7: The Operator must provide a summary of all process vents (forced ventilation), the noise mitigation measures in place (such as silencers), when they were last checked to ensure they were in good working order with findings of such checks and next planned date for checking. This summary shall be provided to NRW in writing by 28/02/22.

ACTION 8: The Operator should conduct further source investigations as suggested during or prior to the next quarterly monitoring (February 2022). The report including such investigations shall be provided to NRW in writing by 31/03/22.

~35Hz tone ground floor of Clinker Cooler building and heat exchanger

All 5 fans in this area (FN03 – FN06 and nose ring fan) were found to generate a tone at ~35Hz.

ACTION 9: Sufficient mechanical details, as recommended in the report, should be made available to consultant to enable further investigation into the noise generating mechanism of ~35Hz tone. Further source investigation/assessment shall be provided to NRW in writing within the February 2022 quarterly monitoring report by 31/03/22.

Kiln Shell Cooling Fans

Low level tones and harmonics were detected at some off-site receptor locations attributed to the Kiln Shell cooling fans, particularly the fixed type. From the report it was not clear which shell fans were monitored and the crude design of such fans is noted.

ACTION 10: Complete a BAT assessment for noise control measures for these fans. The review should look at various options and include a cost benefit analysis. Findings of the review should be submitted to NRW in writing by 30/06/22.

318Hz tone – Kiln Elevator

A low level 318Hz tone was detected at location G, however, not subjectively audible. This has been previously attributed to the kiln elevator with works already undertaken to improve acoustic shielding.

ACTION 11: The Operator shall improve shielding further as recommended in the report. Details of improvements made to be provided to NRW in writing on completion by 31/03/22.

496Hz tone – Temporary Blower CM5

A 496Hz tone and its harmonics were detected at a few receptor locations. This was attributed to the temporary blower at CM5.

ACTION 12: The Operator should update NRW in writing with proposed plans for retaining this temporary blower with timescales and plans for any improvements for noise mitigations measures by 15/02/22.

ACTION 13: The Operator must review its management plans to ensure any changes/ temporary hire of plant/equipment are assessed for potential noise impact and mitigation measures suggested. Provide a summary of the review to NRW in writing by 31/03/22 together with any suggested improvements with timescales.

Plastic Packing Fan

A 197Hz tone and its harmonics was attributed to the plastic packing fan. No further investigation/assessment provided.

ACTION 14: The Operator should investigate the cause of the noise without delay and check that the fan, filters, extraction vents and silencers are in good working order and meet BAT requirements. A summary of the investigation and its findings shall be provided to NRW by 31/03/22.

ACTION 15: The Operator should undertake an assessment of the impact at off site receptors during the next noise monitoring survey February 2022 and provide report to

NRW by 31/03/22.

Penymynydd Road

Monitoring conducted indicated some low level tones particularly at ~129Hz.

ACTION 16: The Operator should provide NRW with a summary of details of any complaints associated with this monitoring location by 12/02/22.

ACTION 17: The Operator should undertake further monitoring and assessment to understand whether tone is attributed to the Padeswood Cement Works. This can be conducted during the next noise monitoring survey February 2022 with report provided to NRW by 31/03/22.

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.