Cyfoeth Naturiol Cymru
Natural Resources Wales

Compliance Assessment Report CAR_NRW0049847

Permit being assessed: BS6149IQ.

For: Pencoed Rockwool EPR/BS6149IQ, **held by:** Rockwool Ltd

At: Rockwool Ltd , Bridgend , Mid Glamorgan , CF35 6NY.

Type of assessment: Site Inspection,

Reason: Incident Response (Incident number 2502570).

On: 19/09/2025 between 13:30 and 15:30.

Parts of permit assessed: Managment system, emissions, monitoring.

NRW Lead Officer: Antony Leakey, accompanied by Brigid Armstead.

Report sent to: Joanne Barry, Company Secretary, on 17/12/2025.

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

Part of permitted activity assessed (compliance criteria)	Assessment result	Permit condition
IR3A(2) - Installations - Emissions and monitoring - Emissions to air	C3 Minor (Suspended)	3.1.2
IR2C - Installations - Operations - Operating techniques	C3 Minor	2.3.1
IR1A - Installations - Management - General Management	C3 Minor	1.1.1
IR3B - Installations - Emissions and monitoring - Emissions of substances not controlled by emission limits	C3 Minor	3.2.1
IR3B - Installations - Emissions and monitoring - Emissions of substances not controlled by emission limits	C3 Minor	3.2.1
IR3E - Installations - Emissions and monitoring - Monitoring	C3 Minor	3.5.1
IR1A - Installations - Management - General Management	C2 Significant	1.1.1
IR3B - Installations - Emissions and monitoring - Emissions of substances not controlled by emission limits	C2 Significant	3.2.1
IR3B - Installations - Emissions and monitoring - Emissions of substances	C3 Minor	3.2.1

Part of permitted activity assessed (compliance criteria)	Assessment result	Permit condition
not controlled by emission limits		
IR3A(2) - Installations - Emissions and monitoring - Emissions to air	C3 Minor	3.1.2
IR3E - Installations - Emissions and monitoring - Monitoring	C3 Minor	3.5.1
IR3A(3) - Installations - Emissions and monitoring - Emissions to land	C2 Significant	3.2.1
IR3A(2) - Installations - Emissions and monitoring - Emissions to air	C3 Minor	3.1.2
IR3A(2) - Installations - Emissions and monitoring - Emissions to air	C3 Minor	3.1.2
IR3A(3) - Installations - Emissions and monitoring - Emissions to land	C2 Significant	3.2.1
IR3E - Installations - Emissions and monitoring - Monitoring	C3 Minor	3.5.1
IR3A(1) - Installations - Emissions and monitoring - Emissions to water	C3 Minor	3.1.2 (ammonia)
IR3A(1) - Installations - Emissions and monitoring - Emissions to water	C3 Minor	3.1.2 (phenol)

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

Total non-compliances recorded	Total non-compliance score
18	176

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
IR3A(2)	Rockwool to provide further startup and shut down criteria proposals, including technical justification and typical emissions profiles and explanation for inability of downstream abatement processes to control emissions variability during SU/SD.	31/03/2026
IR2C	Rockwool to provide confirmation that emission controls associated with prevention and detection of filter slab failures on all spinning chambers have been fully implemented and make proposals for improvements in process monitoring or operator training.	31/03/2026
IR1A	Rockwool to provide confirmation that duct inspection and cleaning associated with prevention of fires on all spinning chambers have been fully implemented and make proposals for improvements to the inspection regime.	31/03/2026

Criteria	Action needed	Complete by
IR3B	Rockwool has already implemented a hot work permitting procedure.	Already completed
IR3B	Rockwool to provide confirmation that additional measures associated with prevention of fires on all electrical installations have been fully implemented by 31 March 2026.	31/03/2026
IR3E	Improvements to the maintenance regime and new CEMS are expected to eliminate future reliability issues.	Already completed
IR1A	Rockwool has already implemented improved procedures to control excavation works and updated services drawings. The materials handling yard where the gas main was ruptured also requires surface sealing if polluting materials are to continue to be processed in that area (see below regarding surface and groundwater protection).	Already completed
IR3B	Rockwool has already implemented improved procedures to control excavation works and updated services drawings.	Already completed
IR3B	Rockwool has already implemented an improved “punking” quarantine procedure.	Already completed
IR3A(2)	Rockwool to provide further startup and shut down criteria proposals, including technical justification and typical emissions profiles and explanation for inability of downstream abatement processes to control emissions variability during SU/SD.	31/03/2026
IR3E	Improvements to the maintenance regime and new CEMS are expected to eliminate future reliability issues and will be assessed at the next Operator Monitoring Assessment (OMA).	Already completed
IR3A(3)	Rockwool to provide confirmation that all waste processing including briquette recovery/fines trommel on the raw material yard has ceased.	31/12/2025
IR3A(2)	Improve dust probe reliability and high reading investigation procedures.	31/03/2026
IR3A(2)	Improve Line 3 sulphur dioxide abatement reliability and failure alarm provision.	31/03/2026
IR3A(3)	Rockwool to provide details of actions already taken to investigate and rectify potential leakage from the process water tanks and associated drainage systems and proposals for any further investigation, repair, remediation and future inspection and pro-active maintenance regime, including timescales for implementation.	31/01/2026
IR3E	Provide further details relating to the two high dust events on line 2 cupola on 12 and 15 September 20205, including technical justification of the emissions profiles, steps taken to prevent water ingress and assessment of the environmental impact.	31/03/2026

Criteria	Action needed	Complete by
IR3A(1)	Rockwool to provide details of improvements made to procedures and measures to address the impact of intense rainfall events on surface water discharge compliance.	31/03/2026
IR3A(1)	Rockwool to provide details of improvements made to procedures and measures to address the impact of intense rainfall events on surface water discharge compliance.	31/03/2026

Compliance 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.

We are currently considering taking enforcement action against you for the non-compliance recorded above. We will contact you in due course.

4. Details of our assessment

Rockwool Limited
Emissions and reporting review December 2025

Summary of previous CAR action status			
Permit condition	Action summary	Due date	Action status
1.1.1	Review management of change process	Complete	Implementation audit required.
3.1.2	Review ammonia emissions control and abatement options.	31/12/25	Ongoing. First improvement condition report submitted.
3.5.5	CEMs performance against specified CIs	Ongoing	Ongoing – carried forward to OMA
3.5.1	Reporting to EN 17255	Ongoing	Start up and shut down definition required.
2.3.4	Pit slag recovery	Complete	Stock removed for reprocessing
n/a	PSA carbon capture trial	Ongoing	Update on trial outcome required.
PO1	Waste acceptance criteria for the Rockfon recovery	Ongoing	Review testing and compliance requirements.
3.2.1	Pit waste fugitive emissions control improvements	31/3/25	Complete
3.1.2	Line 3 SO_2 abatement improvements	31/3/25	Complete
3.4.1	Noise control maintenance	31/3/25	Complete, but barrier extension may be

	improvements		required
1.1.1	Binder QC management	31/3/25	Complete, verification required
n/a	Fly ash handling review	31/3/25	Complete
n/a	Review of plume grounding	1/3/25	Complete

Ammonia emissions reduction

Rockwool provided an update on ammonia emissions reduction through implementation of lower ammonia content in the reformulated binder. Further reductions are anticipated through reformulation. A full update will be provided in the next response to improvement condition reference IC22V.

The mass balance calculations previously submitted were based upon emissions monitoring, operating hours, waste removals and total ammoniacal nitrogen inputs to the process. The approach to mass emissions calculations seems to include errors relating to conversion of ammonium sulphate to ammonia mass supplied. Also, the process waste water losses (567 kg/year) appear low.

Action: Rockwool to provide a more detailed explanation of calculation method and if necessary updated mass balance-based ammonia emissions estimates in the next IC22V report by 31 December 2025.

CEMs reporting and data invalidation

Following an action to review SU/SD processes to minimise OTNOC periods and justify the proposed SU/SD periods Rockwool improved the response of the desox system on start-up by optimising setpoints and improving the PID controls. As a result, from September 2024 onwards, bicarbonate dosing now begins immediately when blowing starts in the cupola. This adjustment creates a protective layer on the filter, ensuring better preparation for sulphur emission spikes. Since then, system stability has significantly improved.

The implication of this welcome improvement is that the SU/SD period for sulphur dioxide emissions should be minimal and CEMS data capture should commence when cupola blow-in starts.

The proposed definition and durations for SU/SD for NOx, CO and dust need further justification and Rockwool will need to demonstrate that the combustion control system for the cupola afterburner system is optimised.

The definition and durations for SU/SD will need to be made based upon verifiable technical arguments and data:

- A case will need to be made for each pollutant and the duration of SU/SD may be pollutant-specific, e.g. as indicated for sulphur dioxide above.
- Detailed process steps descriptions, conditions and emissions trend data will be needed to justify the periods claimed for SU/SD.
- A management plan to minimise SU/SD and OTNOC emissions will need to be

produced if not already available.

Rockwool suggested that a reduced SU period from around 12 to 2 hours following process improvements is possible. However, Rockwool should try to derive some process parameters instead of a blanket time period. If the right parameters and values are selected this should maximise emissions data capture while also giving operational flexibility.

In the interim the 2 hour SU/SD criterion can be applied to NOx, dust and CO limit non-compliance with ELVs during these transitional operations. However, each situation should be raised with NRW for a case-by-case justification to support understanding and verification when appropriate criteria are proposed.

Action: Rockwool to provide further start-up and shut down criteria proposals, including technical justification and typical emissions profiles and explanation for inability of downstream abatement processes to control emissions variability during SU/SD by 31 March 2026.

A high dust reading on Line 2 cupola on 12/9/25 appears to be a CEM failure due to inadequate maintenance (allowing water ingress) and therefore failure to undertake the monitoring required (minor non-compliance with permit condition 3.5.1). The high dust data can be excluded from the valid 30-minute averages used to calculate the daily average and, as, long as there are at least 6 hours of valid 30-minute averages a valid hourly average can be calculated for comparison with the ELV (as per EN 17255). It is unclear from the information provided in the Schedule 5 what the cause of the water ingress was and whether the water ingress was inside the duct or into the electrical system associated with the dust probe.

A further high dust reading on Line 2 cupola on 15/9/25 occurred during start up. The detailed emissions profile for the event raises several questions that require resolution:

1. How high are the dust readings going (flatlining at 10 mg/m^3)?
2. Is this typical at start up and why does it happen?
3. Is the bag filter initially uncoated so allows high dust levels and if so, can it be precoated to prevent the high start-up emissions?
4. Has an impact assessment of the start-up emissions been undertaken if they are significantly above the normal operation ELV?
5. Why does the dust reading suddenly plumet, what process conditions cause this sudden improvement in abatement performance?
6. Is this a “real” dust reading or is there a flue gas humidity/dew point issue causing elevated readings, which suddenly resolves once the flue gas temperature rises sufficiently and consistently? Perhaps overlaying the flue gas temperature, bag filter differential pressure and blast flow rate may help identify the cause.
7. Is the start-up emissions profile always consistent, i.e. is there always a delay of 1-2 hours of stable melting before the dust level falls to normal?

If the dust probes are susceptible to moisture as the first issue suggests, it may be that flue gas humidity needs to be considered when setting start up parameters to trigger CEMs data capture for reporting.

A further high dust reading on Line 2 cupola on 1/12/25 occurred due to a cracked probe

housing allowing moisture ingress. Proactive maintenance of the dust probes may be necessary to minimise loss of CEM data and unnecessary shut downs.

Action: Rockwool to provide further details relating to the two high dust events on line 2 cupola on 12 and 15 September 20205, including technical justification of the emissions profiles, steps taken to prevent water ingress and assessment of the environmental impact by 31 March 2026.

Ambient air quality monitoring arrangements

The long-term average SO_2 ambient air concentrations continue to remain low and a review of the short-term raw data (10-minute averages) suggests that the short-term statistics for SO_2 ambient air concentrations at Soar Chapel are low and there is limited risk of exceedance of the 15-minute mean Air Quality Standard.

However, Rockwool should keep the short-term average data under regular review to ensure that there are no 15-minute mean Air Quality Standard exceedances during start up or shut down periods when plume buoyancy and/or abatement performance is lower than normal.

$PM_{2.5}/PM_{10}$ ambient air monitoring campaign data from Soar Chapel – this was a campaign agreed in 2024 to benchmark secondary fine particle impacts potentially associated with ammonia emissions.

Action: Rockwool to provide $PM_{2.5}/PM_{10}$ ambient air monitoring campaign data from Soar Chapel or make proposals for implementation of a monitoring campaign by 31 March 2026.

Decommissioning and removal of the pipe section machines which had lower stacks, and were identified to contribute the strongest odour in an odour survey completed May 2023 has improved odour complaint rates attributed to plume grounding.

An RCA carried out following a plume complaint identified the binder dilution water addition rate was a factor and identified control system set points that need to be adjusted for reduced plume visibility. Plume visibility is now monitored, and data is being gathered to determine set points to allow for new binder production systems and binder composition testing

The plumes were observed to be noticeably less dense while on site on 11/9/25 and 19/9/25.

Complaints and incident review

Date	Release point	Pollutant	Cause/action required	Permit non-compliance
3 January 2025	A19	NOx	Start up	n/a
17 January 2025	Line 2	Dust ELV	Start up	3.1.2, cat. 3 Suspended
28 January 2025	Line 3, spinning chamber flue	Dust/plume	Fan operating above set point, incident reference 2501136	2.3.1 and 1.1.1, cat. 3

27 February 2025	A19	NOx	Start up, potential poor combustion control	n/a
11 March 2025	Line 2	Smoke	Duct fire – DAHS data loss, incident reference 2502570	1.1.1, cat. 3
12 March 2025	Briquette plant/Line 12	Smoke	Conveyor/chute fire - incident reference 2502576	1.1.1 and 3.2.1, cat. 3
10 April 2025	n/a	Noise & dust	Adverse weather – normal operation	n/a
10 April 2025	Line 3	Smoke	Transformer fire - incident reference 2504151	3.2.1, cat. 3
26 June 2025	A19	Dust/SO_2	Inadequate CEM maintenance	3.5.1, cat. 3
8 July 2025	n/a	Natural gas	Gas main rupture during slag/iron breaking	1.1.1 and 3.2.1, cat. 2
20 July 2025	Hardstanding	Smoke	Pallet fire – hot particle “punking” escalation	3.2.1, cat. 3
12-13 August 2025	A1	SO_2	Start-up/CEM calibration	3.1.2, cat. 3
22 August 2025	Line 2	NOx	Start up	n/a
29 August 2025	Line 2	dust	Start up	3.1.2, cat. 3 Suspended
12 September 2025	Line 2	dust	CEM probe water ingress	3.5.1, cat. 3
15 September 2025	Line 3	dust	Start up, potential flue gas moisture impact on dust CEM	3.5.1, cat. 3
18 September 2025	Materials yard	Materials processing fines	Uncontained storage/remediation of dormouse corridor	3.2.1, cat. 2
25-26 September 2025	Line 2	dust	Holed bag filter	3.1.2, cat. 3
25 October 2025	Line 3	SO_2	Abatement failure	3.1.2, cat. 3
20 November 2025	Groundwater monitoring wells	Metals, ammonia	Process water tanks or stream contamination	3.2.1, cat. 2
1 December 2025	Line 2	dust	CEM probe cracked/water ingress	3.5.1, cat. 3
15 December 2025	W1	Ammonia and phenol	Storm water overflow due to rainfall	2 x 3.1.2, cat. 3

On 28/1/25 a significant visible, odorous and coloured plume from a westerly stack was reported by local residents. Rockwool subsequently confirmed that a holed filter slab contributed to the plume issue due to operating the spinning chamber exhaust fan above it's set point.

It is a concern that Rockwool was unaware of the potential for the filter slabs to become holed due to operation outside of the "safe" pressure drop envelope. It is unclear if there are there alarms or upper trip limits set in the control system to prevent this and, if so, why they were not effective.

Previous investigations into filter house problems established that the filter slabs are replaced on a rolling basis over 7 days, although it is unclear where doors 4 and 5 were in this replacement cycle.

It is understood that impingement tests are undertaken regularly in the spinning chamber flue to check for fibre breakthrough. It is unclear whether these were being undertaken and if they indicated that there may be a problem with the filter integrity.

It is unclear from information provided to date when the high pressure drop readings occurred and how long operation continued before the reports of dense coloured plume were made. A high pressure differential alarm or software limitations on exhaust fan operating range would prevent a future recurrence.

The continuously monitored surrogate parameters used to demonstrate compliance with ELVs between discontinuous measurements agreed through improvement condition reference IP14V are described as:

> Spinning chamber temperature is measured with thermocouples and the data displayed on the Win CC in the control room. Flows are measured by taking the temperature, the static and differential pressures and calculated using known factors. All data is linked to alarm systems and is monitored continuously by the plant operator to ensure normal operating conditions.

Given that retrospective assessment of relevant process parameters was necessary to identify the holed filter slabs, Rockwool has failed to operate in accordance with the permitted operating techniques set out in the response to improvement condition reference IP14V. There is also an implied failure to comply with the dust ELV and potentially others because the necessary process monitoring was not being acted upon.

Problems with binder water addition control also contributed to the plume density and had been identified as an issue previously. The new binder mixing plant and improved control arrangements are expected to address these issues.

It is not possible to infer definitively that the dust ELV was exceeded on emission point A21 Spinning Chamber 3 flue because the plume opacity will also have been affected by the additional binder water evaporation. However, the failure to act upon the process monitoring requirements constitutes non-compliance with permit conditions 2.3.1 (Operating Techniques) and 1.1.1 (Manage and operate the activities using sufficient competent persons and resources).

Examination of the air dispersion modelling undertaken for the increase in production and recommissioning of Line 1 at Rockwool, Pencoed (ref. 20190703_Rockwool_production increase_revised, Filkin & Co) shows that a 10 fold increase in particulate matter emissions from A21 would be necessary for a sustained period to cause the 24-hour mean PM10 Air Quality Standard to be exceeded. The available evidence does not suggest that this is likely and the potential for such an increase is also not credible because once holed the pressure differential would reduce preventing further damage to the filter slabs.

The non-compliances are therefore considered to be minor category level.

Action: Rockwool to provide confirmation that emission controls associated with prevention and detection of filter slab failures on all spinning chambers have been fully implemented and make proposals for improvements in process monitoring or operator training by 31 March 2026.

The Line 2 duct fire on 11/3/25 was due to poor design (dead space allowing accumulation of residue) and lack of maintenance, despite previous improvements to ducting inspection regimes following a significant filter house and duct fire on Line 3 in 2022. The fire damage also resulted in a loss of CEMS data, which were subsequently recovered from the data storage system.

It is not known if emissions were above the permitted ELVs because the spinning chamber monitoring is periodic rather than continuous. However, it is likely that smoke from burning resin residue will raise emissions with potential for exceedance of the ELVs with at least minor impact on air quality or visual amenity. The failure to manage duct maintenance to minimise impact on emissions to air is a category 3 non-compliance with permit condition 1.1.1.

Action: Rockwool to provide confirmation that duct inspection and cleaning associated with prevention of fires on all spinning chambers have been fully implemented and make proposals for improvements to the inspection regime by 31 March 2026.

The Briquette Plant conveyor fire on 12/3/25 was caused by inadequate hot work controls during welding repairs to a rubber lined hopper which transmitted to a belt conveyor.

Smoke from burning rubber conveyors is a fugitive emission not in compliance with permit condition 3.2.1 with at least minor impact on air quality or visual amenity. The failure to implement hot work management controls to prevent or minimise fugitive emissions to air is a category 3 non-compliance with permit condition 1.1.1. NRW understands that Rockwool has already implemented a hot work permitting procedure.

The Line 3 transformer fire on 10/4/25 appears to be due to contractor human error. It is unclear what scrutiny Rockwool undertake of contractor competence or correct completion of works. Additional mitigation measures have also been identified in the RCA: fire suppression and automatic disconnection.

Action: Rockwool to provide confirmation that additional measures associated with prevention of fires on all electrical installations have been fully implemented by 31 March 2026.

Dust CEM fouling due to inadequate cleaning on 26/6/25 is not an ELV exceedance, but unreliable emissions data reporting is not incompliance with permit condition 3.5.1. Improvements to the maintenance regime and new CEMS are expected to eliminate future reliability issues and will be assessed at the next Operator Monitoring Assessment (OMA).

The gas main rupture was caused by out of date mapping of underground utilities, lack of control of excavations and inappropriate location of activities with potential to damage services.

The actual impact of the incident was limited to an estimated 10-150 tonnes of fugitive methane emissions with limited global warming potential impact in the context of the annual installation emissions and will be addressed the UK ETS requirements. However, the potential impact on human health (onsite to operating personnel) was significant had ignition occurred and a small vapour cloud explosion, flash fire or jet fire occurred. The extent of the flammable gas cloud and thermal impacts due to fires has been estimated to have remained within the installation boundary with limited potential to affect offsite people, property and the environment (NRW assessment using US EPA ALOHA model and assumptions about line pressure and fracture dimensions).

The event was reportable to the Health & Safety Executive (HSE) under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) and would normally be investigated by HSE. Nevertheless, the potential impact on human health due to the failure to manage activities and take appropriate measures to prevent the fugitive emission is a significant category 2 non-compliance with permit conditions 1.1.1 and 3.2.1.

NRW understands that Rockwool has already implemented improved procedures to control excavation works and updated services drawings. The materials handling yard where the gas main was ruptured also requires surface sealing if polluting materials are to continue to be processed in that area (see below regarding surface and groundwater protection).

A pallet fire due to hot material igniting the wood (an inherent hazard associated with some grades of mineral wool production) escalated on 20/7/25 due to inadequate separation distance during quarantine.

Smoke from burning pallets and packaging is a fugitive emission not in compliance with permit condition 3.2.1 with at least minor impact on air quality or visual amenity. The failure to implement adequate quarantine management controls (separation distance) to prevent or minimise fugitive emissions to air is a category 3 non-compliance with permit condition 1.1.1. NRW understands that Rockwool has already implemented an improved “punking” quarantine procedure.

Numerous notifications of exceeded ELVs have been made by Rockwool over the year to date. These are largely minor (category 3) and some are associated with start-up issues and potentially with CEMS reliability (dust) or switch over to the new CEMS. These have been consolidated within the respective quarterly reporting period where appropriate and root cause non-compliance assessment deferred pending a period of stable operation using the new CEMS prior to a full QAL2 calibration exercise and further evaluation of start-up and shut down criteria for reporting against ELVs.

Site inspection – 11/9/25

Rockwool has revised the process associated with hot pit waste handling and a review of the SOP suggests that the changes will result in a reduction of fugitive emissions and potential for hot embers to cause fires in the logistics area.
Rockwool has reviewed dispersion characteristics and plume density from relevant stacks (that may cause odour) and improvements have been made to reduce moisture content as well as ammonia levels (see above). Closure of the pipe section machines has also reduced odour offsite. The reduced plume density was noticeable and odours were also reduced, although there was still some sulphur dioxide/combustion flue gas odour on site. This may have been associated with duct leakage, or building downwash from lower stacks.

Noise control improvements have been implemented at targeted locations. The maintenance regime will also need to ensure that degradable measures such as rubber linings are inspected and repaired before deterioration can result in excessive noise impacts.

Action: Rockwool to confirm that noise control inspection and maintenance arrangements associated with all identified potential noise sources have been implemented by 31 March 2026.

The new noise barrier at the western end of the materials yard was inspected. Rockwool reported that initial feedback from the residential receptor it was designed to protect from intrusive noise was that there was no improvement, although the prevailing weather conditions (easterly winds) that are expected to lead to significant impacts have not yet been experienced for a prolonged period. The barrier terminates at the edge of the yard at the southern end which is also aligned with the edge of the residential property.

Examination of the noise survey report undertaken to identify noise impacts and included a modelling study of the potential impact of installing different noise barriers, suggests that that the acoustic barrier should extend as far south as possible to reduce sound diffraction around the southern edge of the barrier.

Action: Rockwool to review the need for extension of the acoustic barrier by 31 March 2026.

Binder plant water addition control failures resulted in dense coloured plume reports during 2024. A new continuous binder plant has been installed and commissioned for Line 12 and this was briefly inspected from the control room where the operators were able to explain how water content is controlled and alarm actions generated to prevent off specification binder being used in the spinning chamber.

Line 3 binder plant has had process alarm and interlock improvements. Verification of the Line 3 control improvements will be undertaken at a future site inspection.

The fly ash pot changeover and cleaning procedures were reviewed following updates to minimise potential for fugitive emissions. NRW notes that control of pressure when blowing the pots is manual and depends on the operator watching and responding to a local pressure gauge to ensure that the correct pressure is maintained.

Details of fly ash pot blowing pressure control/relief arrangements to prevent over-pressurisation of hoses, joints, pipework and the pots and fugitive release of fly ash (and personnel PSSR safety issues) were not clear from the procedures.

Action: Rockwool to review and confirm pressure control/relief arrangements to prevent over-pressurisation during fly ash pot blowing make proposals for any identified improvements by 31 March 2026.

Replacement CEMS are now in operation for a stabilisation period before undergoing calibration using the full requirements of the quality assurance standard BS EN 14181. An Operator Monitoring Assessment will be undertaken after the QAL2 reports are available.

Site inspection – 19/9/25

Rockwool notified NRW of contamination in the dormouse corridor to the south of the materials handling yard on 18/9/25. The handling of process fines waste in the materials handling yard has caused waste materials to cascade down an embankment into the dormouse corridor leading to ammonia and phenol contamination and heavy metals leaching into surface water downstream of the yard. Rockwool was directed to take urgent action to prevent further spread of contamination from the yard into the dormouse corridor area. It will also be necessary to provide impermeable hardstanding with contained drainage for the yard in the medium term to prevent chronic contamination of surface and groundwater.

Surface water monitoring for the main pollutants, in particular ammonia, shows that the impact appears to be localised, with no effects observed on the named surface water resources Nant Ton-y-groes and the Nant Crymlyn.

The water quality analysis data suggest a significant impact extent over approximately 400-500 metres of un-named stream flowing eastward to the Nant Ton-y-groes. This assessment is based upon ammonia concentrations in the range 3-4 mg/l, water temperatures of 13^{o}C and pH of 8, giving estimated unionised ammonia impacts significantly above the Environmental Quality Standard for a sustained period. As the impact does not extend over several kilometres, the non-compliance with permit condition 3.2.1 (fugitive emissions causing pollution) is assessed to be category 3, because even a more catastrophic loss of material from the accumulated waste in the dormouse corridor area is unlikely to significantly affect the main water bodies due to the rapid dilution and pH buffering observed in the sampling data.

Impact assessment using benthic invertebrate surveys were undertaken at an accessible location downstream of the confluence of the contaminated un-named stream feeding Nant Ton-y-groes for comparison with existing upstream data around the permitted discharge point. The survey location results were not directly comparable with the upstream location due to differences in bed substrate (upstream gravel bed, downstream silty bed). The downstream survey results did not indicate deterioration, noting the lack of comparable upstream data, although the full survey report has not yet been received.

Other potential contaminants analysed are heavy metals, sulphides, phenol, and formaldehyde. Elevated metals, including mercury, and phenol have been detected. The latest groundwater results (see also below) show elevated metals downgradient of the site, which may be associated with chronic contamination from the materials yard. The potential

impact on groundwater by hazardous substances, such as mercury, arsenic and hexavalent chromium suggest a significant category 2 non-compliance with permit condition 3.2.1 if hazardous substances are discernible in groundwater above pre-existing levels within 50 metres of the discharge zone (the contaminated dormouse corridor). The aquifer underlying the area is a minor one, but the overlying soils are shallow and allow rapid transmission of pollutants directly to the bedrock, increasing the risk of significant impact.

In addition to immediate remediation actions (removal of waste fines from the materials yard), the clean-up of the potential chronic accumulation of contamination needs careful planning due to the risk of an acute loss of pollutant. There appears to be accumulation of wet waste fines material behind rotten fencing adjacent to the un-named west-east flowing drainage stream where runoff is entering. Catastrophic failure of this fencing “dam” could result in an acute pollution incident.

ACTION: Rockwool to provide proposals for assessment, containment, and eventual remediation, including of any groundwater contamination, of this accumulated material by 31 March 2026.

As noted above Rockwool will need to provide impermeable hardstanding with contained drainage for the yard in the medium term to prevent chronic contamination of surface and groundwater or cease pit waste and by product iron storage in the area. This is a longstanding action previously identified by NRW as being necessary and, therefore, must be expedited.

A Water and Ground Emissions Management Plan specific to the potential release of leachate from material located on unmade ground in the raw materials yard, was provided by Rockwool on 5 December 2025 in accordance with permit condition 3.2.2 and following a request by NRW on 17 November 2025 to provide one.

The plan identifies provision of hardstanding with contained drainage as a proposed additional control, but does not include a timeline for this.

ACTION: Rockwool to provide proposals for impermeable hardstanding with contained drainage for the materials yard, or alternative appropriate storage, including timescale for implementation, by 31 March 2026.

The Plan also does not directly or explicitly address the immediate requirement to cease waste processing (briquette recovery/fines trommel) on the raw material yard as set out in NRW’s email of 17 November: the emissions management plan should consider the processing of leachable materials currently undertaken in the materials yard and identify suitable solutions to ensure that this pollution source is managed, including offsite processing if suitably contained on site location is not immediately available. The plan must be submitted by 30 November 2025. Immediate action is required to address this aspect, and NRW is currently minded to serve a Regulation 37 notice to formally require the activity to cease, unless Rockwool provides confirmation as follows:

ACTION: Rockwool to provide confirmation that all waste processing including briquette recovery/fines trommel on the raw material yard has ceased by 31 December 2025.

Chronic Groundwater Contamination

During review of recent and older (2012) Site Condition Report groundwater monitoring data it has become apparent that elevated concentrations of ammoniacal nitrogen, BOD and COD in BH3 and BH4 and further downgradient in BH NRW103 are potentially due to the process water tank leaking process water into the ground. There are also elevated metals levels in BH NRW 101-105 which are considered to be “low risk” and representative of background levels. However, as noted above there may be chronic impacts associated with the materials yard pollution of the stream running West-East along the downgradient line of monitoring wells and hazardous substances which may be associated with BFS and steel slag handling such as arsenic, hexavalent chromium and mercury are not monitored routinely in all wells.

Actions to address the potential materials yard chronic pollution issues are already set above, but NRW is unaware of any ongoing activity by Rockwool to investigate and remediate the potential process water loss of containment that appears to be leading to pollution of groundwater over an increasingly extensive area up to 50 metres offsite. The potential impact on groundwater by hazardous substances, such as mercury, arsenic and hexavalent chromium and pollution by ammoniacal nitrogen suggest a significant category 2 non-compliance with permit condition 3.2.1 if hazardous substances are discernible in groundwater above pre-existing levels within 50 metres of the discharge zone (contaminated stream) or pollution extends beyond 50 metres from the process water tanks.

It is also noted in the November 2025 groundwater monitoring report that redrilling of several downgradient wells is recommended due to deterioration. This may be an opportunity to extend the downgradient monitoring network westwards to provide confidence that groundwater south of the materials yard and contaminated dormouse corridor has not been affected.

ACTION: Rockwool to provide details of actions already taken to investigate and rectify potential leakage from the process water tanks and associated drainage systems and proposals for any further investigation, repair, remediation and future inspection and pro-active maintenance regime, including timescales for implementation, by 31 January 2026.

Surface water settlement tank overflow

Ammonia and phenol emission limits to surface water were exceeded on 15 December 2025 following up to 200 mm of rainfall which overwhelmed the sewer discharge capacity allowing contaminated storm water to discharge to the local water course. Delays in obtaining process water effluent tankers prevented additional capacity being made available in time to prevent the overflow. The high dilution in the receiving water course due to the heavy rain is likely to have limited the impact potential and the incident is assessed as a minor category 3 non-compliance with permit condition 3.1.2 for each pollutant.

ACTION: Rockwool to provide details of improvements made to procedures and measures to address the impact of intense rainfall events on surface water discharge compliance by 31 March 2026.

Emissions review

Monitoring data for Q4 2024, 2024 Annual Report, Q1, Q2 and Q3 2025 have been reviewed and no breach of permit conditions was identified other than those already identified and discussed in 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.

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.