

Compliance Assessment Report CAR_NRW0038446

Permit being assessed: BR9383ID.

For: Queensferry Mineral Fibre Works , held by Knauf Insulation Ltd

At: Chemistry Lane , Queensferry, DEESIDE, Flintshire, CH5 2DA.

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

On 28/07/2021 - 06/08/2021.

Parts of permit assessed: Q2 Returns review, ELV's and Operations during WIRS reports, Part A & B's submissions for Q2

NRW Lead Officer: Berwyn Williams.

Report sent to: Graham Jones, Process and Energy Manager on 11/08/2021.

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	3.1.2
E1 - Emissions - Air	Action only (X)	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	Action only (X)	
E1 - Emissions - Air	C3 Minor	3.1.2
E1 - Emissions - Air	Action only (X)	
E1 - Emissions - Air	C3 Minor	3.1.2
E1 - Emissions - Air	C3 Minor	3.1.2
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	Action only (X)	
B5 - Infrastructure - Plant and equipment	C3 Minor	3.1
C2 - General Management - Management system and operating procedures	C3 Minor	1.1.1 (a) and 1.1.2

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

Total number of non-compliances recorded	Total non-compliance score
6	24

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	ELV breaches for SO ₂ , appear to be similar root causes; therefore need to improve the efficiency of identification, investigation and minimise/eliminate the breaches through	20/09/2021

Criteria	Action needed	Complete by
	improved operations	
E1	Need to closely monitor the impact of changes to the batch recipe including sub-standard material such as coke highlighted and consider an action plan to be submitted to NRW to manage avoidance of ELV breaches.	20/09/2021
G4	Please confirm period of the trial and ensure that actions regarding changing stone batch recipes and trialling sodium bicarbonate dosing are focussed on prevention of pollution of the environment, and therefore permitted ELVs must not be breached during the trial or you must consider a halt if adverse effects off-site are reported to NRW during this trial, whilst investigations take place.	20/09/2021
E1	ELV breaches for HCl, appear to be similar root causes; therefore need to improve the efficiency of identification, investigation and minimise/eliminate the breaches through improved operations	20/09/2021
E1	Following your submission that the modifications to the lime dosing minimum speed was unsuccessful during the Q2 test; a new abatement plan for next steps in terms of further adjustment to set up is required and needs testing. This plan should be submitted by 20/09/21 to NRW.	20/09/2021
E1	Need to clarify the reasoning behind the ammonia ELV breach along with improvements to rectify the breach.	20/09/2021
E1	CO ELV breach for Daily maximum in relation to W10 root cause. therefore need to improve the efficiency of identification, investigation and minimise/eliminate the breaches through improved operations	20/09/2021
G1	There needs to be a clearer plan on monitoring W10 in this instance and as been previously stated, to improve the efficiency/timing of implementation of root cause analysis across all emissions monitoring.	20/09/2021
B5	Need to ensure there is a back-up analyser to ensure no loss of CEMs	22/10/2021
C2	Review of Off-site investigations required	20/09/2021

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

This CAR follows the submission of a number of Schedule Notifications, Quarterly Returns of Environmental Monitoring (Q2 April to June 2021) and investigation observations following reported incidents

Environmental Monitoring

All emissions monitoring were undertaken as required by condition 3.3.1 and Tables S3.1, S3.2 and S3.3.

SO2 emissions monitoring

EP_EX_262, 265, 267, 275, 278, 279 & 280 Part A notifications submitted on 08/04/21, 09/04, 12/04, 26/04, 14/6, 22/6, 23/6 & 24/6 respectively along with subsequent Part B's, which identified that elevated SO2 emissions were as a result of Cupola batch composition (stone/slugs%) being changed in consultation with Knauf's corporate technical specialist. These resulted in minor exceedances of the permitted limit as a result of the switch in batch.

It is noted that there is still some sub-standard coke to process.

The ELV for SO2 is 1350mg/m3.

April breaches - 7/4 - **1408 mg/Nm3**, 8/4 - **1395 mg/Nm3**, 9/4 - **1406mg/Nm3**, 10/4 - **1408mg/Nm3**, 11/4 - **1408 mg/Nm3**.

June breaches - **1354.48 mg/Nm3** on 11/6/21, **1350.46 mg/Nm3** on 13/6/21, **1410.25 mg/Nm3** on 18/6/21, **1458.44 mg/Nm3** on 19/6/21, **1429.70 mg/Nm3** on 20/6/21

CCS Category 3 breach of condition 3.1.2, criteria E1 emissions to Air

ACTION:

Need to closely monitor the impact of changes to the batch recipe including sub-standard material such as coke highlighted and consider an action plan to be submitted to NRW to manage avoidance of ELV breaches by **20/09/21**.

Air Emission investigations

The Operator undertook the following actions that gave them stable operation with SO2 levels within the permitted ELV

- Changed the proportions of stone and coke in the batch to the cupola furnace
- Changed the quality (mainly size and fines related) of stone and coke
- Repaired the duct carrying cupola fume to heat exchange and oxidizer burner systems

In addition, blast furnace slag content was reduced and an alternative source used to reduce sulphur input and lime dosing was increased to reduce SO2 emission from

the cupola.

A request to trial sodium bicarbonate in place of lime for abatement of chlorides and SO₂ has been submitted via email on 15/06/21. The aim if successful, may enable further batch changes to reduce SO₂ emissions while maintaining other emission parameters within permitted ELVs, the operator has also indicated via email on 24/06/21 to apply for a variation if the trial is successful.

ACTION:

We are happy to allow the trial to take place and for data/monitoring to continue via CEMS with regular updates reporting back on the success/failure during and after the trial is complete.

Please confirm period of the trial and ensure that actions regarding changing stone batch recipes and trialling sodium bicarbonate dosing are focussed on prevention of pollution of the environment, and therefore permitted ELVs must not be breached during the trial or you must consider a halt if adverse effects off-site are reported to NRW during this trial, whilst investigations take place.

Chlorides emissions monitoring

EP_EX_266 Part A and B notifications received on 21 & 22/04/21 identified an elevated HCL result from Manual Monitoring on 16th February 2021; 10:13 – 12:21 hours.

The ELV for chloride is 10mg/m³, the results obtained show

Chlorides as HCl as:

Run 1 10:13 to 10:43 7.9 mg/m³

Run 2 10:03 to 11:33 **17.3 mg/m³**

Run 3 11:51 to 12:21 **14.2 mg/m³**

Overall result reported **13.1 mg/m³** Measurement Uncertainty +/- 1.0

CCS Category 3 breach of condition 3.1.2, criteria E1 emissions to Air.

ACTION: Following your submission that the modifications to the lime dosing minimum speed was unsuccessful during the Q2 test; a new abatement plan for next steps in terms of further adjustment to set up is required and needs testing. This plan should be submitted by **20/09/21** to NRW.

Particulate & Ammonia emissions monitoring/sampling - Point G (Cooling Zone Stack)

EP_EX_269 Part A and B notifications were received on 11/05/21 & 09/07/21 respectively and identified an elevated particulate breach of ELV (Limit is 10mg/m³).

Readings for Stack G Q2 testing -
Result 1 - **11.6 mg/m³**

Result 2 - **10.8 mg/m³**

Result 3 - 10.0 mg/m³.

The root cause was identified as an increase in dust levels within the abatement water impact jets due to a sticking non-return valve (NRV) and was identified on 15/04/21.

CCS Category 3 breach of condition 3.1.2, criteria E1 emissions to Air.

The ELV for ammonia is - 10mg/m³.

Readings for Stack G Q2 testing -

Result 1 - 2.9 mg/m³

Result 2 - 4.6 mg/m³

Result 3 - **11.8 mg/m³**.

No clear root cause identified or reported with regards to the ammonia breach, an assumption is made that the particulates breach has also impacted the ammonia ELV through the abatement of the cooling zone stack.

CCS Category 3 breach of condition 3.1.2, criteria E1 emissions to Air.

ACTION: It should be noted that the particulates breach wasn't rectified for almost 2 months from first identification to successful freeing off of the NRV and circulation of the filters restored on 06/07/21. Unsure if the same root cause was the reasoning behind the ammonia sample breach.

The operator must improve problem identification and shorten the investigation and response times, otherwise a further breach will occur and the score may be escalated, also clarify the reasoning behind the ammonia ELV breach.

CO emissions monitoring

EP_EX_270, 272, and 274 identified exceedances of the maximum daily average ELV for CO on 13th, 14th, 15th, 16th and 17th May & 8th and 9th June.

CO ELV limit - 80mg/m³.

CO Maximum Daily Average - 71.41 mg/m³ for April

CO Maximum Daily Average - **122.61 mg/m³** for May

CO Maximum Daily Average - **140.50 mg/m³** for June

CCS Category 3 breach of condition 3.1.2, criteria E1 emissions to Air.

From the first Part A submission on 17th May to the last Part B Submission 15th June there appeared to be a delay in a root cause investigation, when CO ELV is 80 mg/Nm³ and Daily average of CEMS measurements were reading:

13th May **108.6 mg/m³**

14th May **108.8 mg/m³**

15th May **122.6 mg/m³**

16th May **103.8 mg/m³**

17th May **107.7 mg/m³**.

We welcome the fact that root cause analysis did eventually identify a leak in W10 as one of the possible causes of high CO, and that action was taken to further reduce the pressure differential between 'clean' and 'dirty' sides of the tubes to minimise leakage into the clean side at that point.

ACTION: There needs to be a clearer plan on monitoring W10 in this instance and as been previously stated, to improve the efficiency/timing of implementation of root cause analysis across all emissions monitoring.

CEMs failure of measurement of NO, NO2 and SO2 for emission point A, cupola after oxidizer

EP_EX_276 identified a CEMs measurement failure caused by damage to the fibre optic cable to the AR600 analyser (UV laser) for measurement of NO, NO2 and SO2. This meant 2 days with failure of measurement device with no process control input to plant.

CCS Category 3 breach of condition 3.1.2, criteria b5 plant.

ACTION: Need to ensure there is a back-up analyser to ensure no loss of CEMs

Incidents and Responses during Q2

WIRS 2102927 - Noise

Caller complaining of a "loud droning noise" coming from the Knauf factory at 0413 hours on 05/04/21. The noise lasted 30 minutes according to the reporter.

Following an on-site investigation by the operator, it was confirmed that noise caused by oxygen being vented through a pressure relief valve.

Actions taken

Immediate action was taken and the oxygen supply from the oxygen tank was isolated at the tank to stop further venting.

The system is owned by BOC. A BOC engineer attended site to check the system resulting in a new pressure relief valve being fitted.

The issue and solution were reported to NRW on 6/4/21 in response to the complaint.

CCS Category 3 breach of condition 1.1.1 (a) and 1.1.2, criteria c2 plant.

ACTION: NRW acknowledges that surrounding businesses may be the source of incidents reported to NRW. The operator should review their procedures for incidents involving potential off-site emissions from the permitted site and submit to NRW for review to satisfy conditions 1.1.1 (a) and 1.1.2. are met fully. Please submit your procedures by **20/09/21**.

Periodic Monitoring and Improvement Conditions

Condition 3.1.3 states "Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination"

IC36 had a proposed date for the groundwater monitoring to occur by 31/03/21.

Advice only: If this has been carried out please submit your results as soon as practicable, or if not, can you submit considerations as to when this will be planned to do.

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.