Cyfoeth Naturiol Cymru Natural Resources Wales

Compliance Assessment Report

Report ID: CAR_NRW0026577

This form will report compliance with your permit as determined by an NRW officer					
Site	Queensferry Mineral Fibre Works	Permit Ref	BR9383ID		
Operator/Permit holder	Knauf Insulation Ltd				
Regime	Installations				
Date of assessment	22/09/2016	Time in	13:00	Out	17:00
Assessment type	Unknown				
Parts of the permit assessed	2.3.1, 3.1.1, 3.1.2, 3.2.1, 3.3.1, 3.3.2, 3.5.1, 4.3.2				
Lead officer's name	Voice, Elizabeth				
Accompanied by	Wright, Paul				
Recipient's name/position	Claire Keouski/ EHS Manager	Date issued	17/03/2017		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
B5 - Infrastructure - Plant and equipment	C3	3.1.2
	C3	3.2.1
	C3	3.3.1
	C3	3.1.2
	C3	3.1.2
C2 - Infrastructure - Management system and operating procedures	C3	2.3.1, 3.1.1
E1 - Infrastructure - Air	C3	3.1.2
	C3	2.3.1, 3.1.1
	C3	3.1.2
	C3	3.1.2
	C3	3.1.2
	C3	3.1.2
F2 - Infrastructure - Noise	C3	3.5.1
F3 - Infrastructure - Dust/fibres/particulates and litter	C3	2.3.1, 3.2.1
G1 - Infrastructure - Monitoring of emissions and environment	C3	3.3.1
G2 - Infrastructure - Records of activity, site diary/journal/events	C4	3.3.2
G4 - Infrastructure - Reporting and notification to Natural Resources Wales	C4	4.3.2

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.
A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,
O = Ongoing non-compliance, not scored.

Number of breaches recorded	**17**	**Total compliance score** (see section 5 for scoring scheme)	60.2

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

Requirement - Permit Section 3.1.2 (Emissions and Monitoring) and 4.3.2 (Notifications)

Emission Point A Q1 2016

Finding

1. Breach of Emission Point A on 23/02/16. Reference EX 157 Part A, Part B 02/08/16

Two cupola abatement oxidise burner trips during start-up resulted in the daily average of CO emission of 197.33mg/m3 versus the emission limit value of 80mg/m3. Furnace emissions were re-directed through the Emergency By-pass Stack (Emission point B) for a total of 24 minutes. The by-pass is used when furnace set point temperatures, pressures or flows are outside of their safe limits.

Investigation into the incident by Knauf identified that the burner trips were caused by a safety chain issue on the flue gas abatement system, however the operator does not know which part of the chain. The plant is to increase and improve SCADA visualisation and increase the number of analytical tags to the monitoring software to aid future analysis of plant trends.

Compliance/Action

B5 **CCS3** plant and equipment

E1 **CCS3** emission to air

G4 **CCS4** failure to submit Part B as soon as reasonably practicable

ACTION: Submit all outstanding Part B notifications. Review the Part B submission procedure to ensure it is sufficient that it allows the operator to meet the submission time criteria.

Provide route cause analysis as to which part of the safety chain caused the burners to trip. Follow up actions to prevent reoccurrence.

DATE: 31/01/17

Emission Point A Q2 2016

2. Breach of Emission Point A on 27/06/16. Reference EX 162, No part B submitted.

Annual monitoring of HCl provided results of 33.9, 23.7 and 28.0 mg/m3 against the emission limit value of 10mg/m3.

The **HCl** emission limit value has been breached for the last three years. We accept that the site has carried out several investigations into this, but the issue is unresolved. The Best Available Technique (BAT) document from the Official Journal of the European Union section 1.7.4 states that 'BAT is to reduce HCl emissions from the melting furnace using one or a combination of the following techniques: (i) selection of raw materials…with a low content of chlorine, and (ii) dry or

semi-dry scrubbing, in combination with a filtration system.' BAT AEL has an upper limit of 30mg/m3.

Compliance/Action

E1 **CCS3** emission to air

ACTION: Submit proposals for BAT as part of the permit variation.

G4 **consolidated** Failure to submit Part B.

ACTION: Submit Part B, to include details as to why the HCl has increased over the last 3 years.

DATE: 31/12/16

Emission Point A Q3 2016

3. Breach of Emission Point A on 15-16/08/16. Reference EX 163, EX 164, EX 165 and EX 166. No Part B submitted.

15/08/16 Oxides of sulphur 1577mg/m3 against elv 1350mg/m3

16/08/16 Oxides of sulphur 2200mg/m3 against elv 1350mg/m3.

15/08/16 Oxides of nitrogen 305mg/m3 against elv 300mg/m3

16/08/16 Oxides of nitrogen 514mg/m3 against elv 300mg/m3

Maintenance work was carried out on a temperature thermocouple during site shutdown in August. The plant started up on the 15/08/16 and the temperature thermocouple oscillated between 0^{o}C and 600^{o}C causing the air damper to open and close resulting in a drop of pressure within the combustion chamber. The problem was identified on 16/08/16 at 09:00 as the stack flow from V50 fan was high. It was found that the temperature thermocouple had been incorrectly wired and was corrected at 09:41.

The maintenance department are to implement measures to prevent wiring faults following thermocouple work.

Compliance/Action

Further information is required from the Part B submission for full compliance assessment, however the breaches to air are recorded in this Compliance Assessment Report. The compliance scores have been consolidated for both breaches.

E1 **CCS3** emission to air

a. Provide an explanation as to why the breach of emission limit values was not acted on on 15/08/16.
b. Provide details of the measures being implemented by the Maintenance Department to prevent wiring following thermocouple work.

G4 **consolidated** Failure to submit Part B.

ACTION: Submit Part B.

Date: 31/12/16

Emission Point C Q1 2016

4. **Breach on 02/02/16 Emission Point C. Reference EX 158**

Particulate Matter 76 mg/m3 and 51 mg/m3 versus the elv of 50mg/m3

Emission point C had a breach during monitoring in October 2015. A re-test was carried out 02/02/16 with the results provided to Knauf 29/02/16. Since the re-test, remedial work has been undertaken to address the build-up of solids, including the refurbishment of the incline screw and maintenance work on weirs.

Compliance/Action

E1 **CCS3** emission to air

B5 **CCS3** Inadequate preventative maintenance

See below for actions.

Emission Point C Q2 2016

5. Breach 28/06/16 Emission Point C. Reference EX 161

Breach of emission limits for particulate matter and ammonia, undertaken as part of the 6 monthly monitoring required by the permit.

Particulate matter: 81.9, 74.9, 62.7 mg/m3 against the emission limit values of 50mg/m3

Ammonia: 53.7, 55.4, 61.2 mg/m3 against the emission limit values of 50mg/m3

Remedial work was carried out on the tent filter tank during the August shutdown to address the build-up of solids, which included the refurbishment of the bottom screw. A re-test for 15th August 2016 was arranged following plant start-up. The results came back as 15.4mg/m3 for particulate matter and 47.9 mg/m3 ± 5.8mg/m3.

Further monitoring carried out August 2016 had results within the emission limit value, at 15mg/m3 and 47.9 mg/m3 for particulate and ammonia respectively.

Compliance/Action

E1 breach of ammonia and particulate matter elv combined score **CCS3**

B5 **CCS3** Inadequate preventative maintenance

ACTION: Increase the frequency of monitoring of ammonia and particulate matter to quarterly until Knauf are able to demonstrate ongoing compliance, after which Knauf may revert back to the monitoring frequency in the permit. To start after the November shutdown.

Ensure the preventative maintenance programme is sufficient to meet emission limit values.

Date: 31/12/16

Emission Point B Q2 2016

6. Breach on 10/07/16 Emission Point B. Reference EX 160

Emission Point B (Emergency stack) was open several times totalling 1 hour 21 minutes. The emergency stack was used due to high temperature in the abatement plant. It was found that a damper which cools the gases was unable to open more that 15%. The damper was subsequently stripped down and reinstated. A planned maintenance routine is to be set up for 6 monthly inspection and testing of specific dampers.

Compliance/Action

B5 **CCS3** Inadequate preventative maintenance of equipment.

Action Submit a review of the environmentally critical equipment list by 28/02/17. Ensure such equipment are included on the preventative maintenance programme and provide documentation to demonstrate this.

Date: 28/02/17

Requirement – Permit Section 3.3.1 (Monitoring)

3.3.1 The operator shall…undertake monitoring carried out the monitoring specified in the following tables in Schedule 1 to this permit; (a) point source emissions specified in tables S3.1.

No monitoring of CO 29/05/16 to 15/06/16 Reference EX 159. No Part B.

The fibre optics cable for the CO (CO_2 and H_2O) CEMS failed during the May shutdown. This was not detected until 15/06/16, and the CEMs Service Engineer identified the failure date as 29/05/16.

A full assessment of compliance issues cannot be made until the Part B is submitted.

Compliance/Action

G1 **CCS3** monitoring of emissions to the environment

B5 **CCS3** (plant and equipment) failure of fibre-optic lead.

G2 **CCS4** failure to keep records of monitoring data

G4 **score consolidated** Failure to submit Part B

ACTION:

Provide details of the management procedures for checking the daily data, approach to limit actions, and alarms, to include responsibilities. Submit Part B.

Date: 31/12/16

Requirement – Permit Section 2.3.1 (Operating Techniques) and 3.1.1 (Emissions and Monitoring)

2.3.1(a) The activities shall…be operated using the techniques and in the manner documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by Natural Resources Wales.

3.1.1 There shall be no point source emissions to…air…except form the sources and emission points listed in Schedule 3 tables S3.1, S3.2 and S3.3

Unauthorised release point

NRW received a complaint from a business on Factory Road on 25/08/16 regarding fumes coming from Knauf. A Part A was submitted 13/09/16 reference EP **EX 167.** No Part B has been submitted.

To summarise, the slat pre-heater chamber needs to be kept at negative pressure to ensure there is no leakage of fumes from the curing oven. To achieve this, the oxidiser combustion chamber fan must be operated at a higher volume rate than the slat pre-heater chamber fan. The set points for the fans are product dependent, and are a manually controlled system. The operator believes that the oven leakage may have been caused by the manual changes made between product

changes, with insufficient change to the oven oxidiser fan flow.

On 27/08/16 the Knauf installed a programme modification to the oven control systems whereby the oxidiser fan would automatically run at 2000Nm3/hr higher than the slat pre-heater fan. This was increased to a 4000Nm3/hr increase after a further fume complaint on 05/09/16.

Knauf are trending pressure data within the slat pre-heater chamber in conjunction with existing process parameters to look for potential correlations.

The emission contains particulate, phenol, formaldehyde, ammonia and amine when manufacturing products made with PF binder, which is believed to be 60% of production.

During the site visit 22/09/16, the stack and emission point from the curing oven was viewed. NRW have no record of this being installed. Knauf believe it has been in place for 9 years and are unsure as to its purpose, possibly to remove heat. Knauf do not know the concentrations and flow rate of the emission. The ducting was removed on the 11/10/16, therefore there is no longer an unauthorised release point.

Compliance/Action

E1 CCS3 Emission to air

C2 CCS3 Failure of the Management Systems which has resulted in the unauthorised release point.

G4 score consolidated Part B has not been submitted**.**

Action

Submit Part B to include estimation of the concentration of the substances emitted from the oven leakage, and confirmation of the length of time that the stack has been in place. Calculate % PF operation.

Date: 31/12/16

Requirement – Permit Section 3.2.1 (Fugitive Emissions) and 3.5.1 (Noise and Vibration)

NRW received several night time noise complaints from Rectors Lane for August and September which were forwarded to Knauf. The description of the noise was reversing beepers and scraping sound as if skips are being dragged on the floor. EV met CK on site 01/09/16 to discuss. CK explained that the shot pit is emptied every 45 minutes at night whilst in production, and that production was running normally. The JCB used has a loud reverse beeper which was required for safety of operators. This was followed up with details of vehicle usage in an email 14/09/16;

- Deliveries and tipping of raw materials Monday to Friday 07:00-18:00
- Silo loading Monday to Friday 07:00 to 18:00, Saturday – Sunday 8 hour shift
- Road sweeper Monday to Friday from 07:00
- Wheeled loading shovel machine is used for night time removal of shot pit waste and has a reverse beeper.

Knauf are investigating the replacement of the loading shovel beepers with directional white noise, sensor technology and/or blue flashing lights. Ensure that Health and Safety issues are not compromised.

Upon visiting the shot pit on 22/09/16, it was apparent that the shot pit waste contained a lot of fibrous content. The Hot End operator explained that there were process issues and that the fibrous content was abnormally high, resulting in increased quantity of waste. The area was dusty.

The fibrous shot waste was being stored with the washwater waste at the site perimeter, and as it is drier than the washwater waste and more fibrous than is normal there is increased potential for

dust issues.

There was evidence that the loading shovel was scrapping along the concrete floor during loading. This would tie in with the complainant description of 'skips being dragged on the floor'.

Compliance/Action

F2 CCS3 Intermittent noise from vehicle loading during the night.

F3 CCS3 Dust on site roads adjacent to the shot pit and washwater waste, and dusty fibrous material stored on site perimeter with potential to escape from site to adjacent properties.

a. Update procedures for shot waste loading so that the shovel does not touch the floor during loading.
b. Follow site operating procedures to ensure that the shot waste is stored in the correct location and not at site perimeter. Provide confirmation to NRW that shot waste is stored as in the operating procedures.
c. Reduce fibrous content of shot waste to reduce quantity of waste. Submit the plan.
d. Submit the plan for removal of reverse beepers from the mechanical shovels.
e. Ensure dust is kept to a minimum at the shot pit area. Provide confirmation.

Date: 10/12/16

Permit variation

The Curing Oven Oxidiser Project, Main Line Widening Project and Improvement Condition 35 were emailed to NRW on 29/07/16. The advice provided by the Permitting Team was that a minor technical variation may be sufficient for the Line Widening Project, however this advice was given without being made aware of all of the facts and compliance issues at site. A minor technical variation application was not submitted in any case. Based on current compliance this variation cannot be considered a minor technical variation. An assessment on impact to air is required, and depending on the conclusions of this the variation type will be normal or substantial. Once the air assessment is complete the variation type can be confirmed. The statutory time for permit determination is 3 months for a minor technical and normal variation and 4 months for a substantial variation'. Any development on site prior to permit determination is at the sites risk.

ACTION

Submit appropriate permit variation, to include additional monitoring to demonstrate compliance with emission limit values.

Improvement Condition 35

Particulate and ammonia emission limit values have been breached for the mainline cooling zone **emission point G** since 2014. Improvement Condition 35 was submitted 29/08/16. This stated that the curing oven is a significant source of ammonia which is entrained with the cooling zone emissions. The proposal is to improve the seals of the curing oven, and to centrally locate the cooling suction box rather than to one side to reduce the fibre drawn from the product and reduce particle matter. The document lacks detail.

ACTION

Submit further detail and timescales for improvement by 31/11/16.

NOTE

Note that the table in Section 4 has consolidated all Part B submissions into one score with one date of submission of 31/12/16. However due to the number of submissions, please refer to the

individual breach for the actual date of submission.

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0026577**

This form will report compliance with your permit as determined by an NRW officer

Site	Queensferry Mineral Fibre Works	Permit Ref	BR9383ID
Operator/Permit holder	Knauf Insulation Ltd	Date	22/09/2016

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition.
Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	CCS Category	Action required/advised	Due Date
See Section 1 above			
B5	C3	Provide root cause analysis as to which part of the safety chain caused the burners to trip. Follow up actions to prevent reoccurrence.	31/01/2017
E1	C3	As for B5 permit section 3.1.2	31/01/2017
B5	C3	Submit a review of the environmentally critical equipment list. Ensure such equipment are included on the preventative maintenance programme and provide documentation to demonstrate this.	28/02/2017
E1	C3	Release point has been removed. Submit Part B, to include estimation of the concentration of the substances emitted from the oven leakage, and confirmation of the length of time that the stack has been in place. Calculate the % PF operation.	31/12/2016
C2	C3	Included in C3 2.1.1,3.1.1	31/12/2016
F2	C3	a) Update procedures for shot waste loading so that the shovel does not touch the floor during loading. b) Follow site operating procedures to ensure that the shot waste is stored in the correct location and not at site perimeter. Provide confirmation to NRW that shot waste is stored as in the operating procedures. c) Reduce fibrous content of shot waste to reduce quantity of waste. Submit the plan. d) Submit the plan for removal of reverse beepers from the mechanical shovels. e) Ensure dust is kept to a minimum at the shot pit area. Provide confirmation.	10/12/2016
F3	C3	See section F2 noise	10/12/2016
E1	C3	(a) Provide an explanation as to why the breach of emission limit values was not acted on on the 15/08/16. (b) Provide details of measures being implemented by the Maintenance Department to prevent wiring faults following thermocouple	31/12/2016

		work. (c) Submit Part B,	
G1	C3	Provide details of the management procedures for checking the daily data, approach to limit actions and alarms, to include responsibilities.	31/12/2016
B5	C3	See G1 C3	31/12/2016
E1	C3	See Q2 breach to air from Emission Point C	31/12/2016
B5	C3	See Q2 breach to air from Emission Point C	31/12/2016
E1	C3	Increase the frequency of monitoring of particulate matter and ammonia from emission point C to quarterly until Knauf are able to demonstrate compliance, after which Knauf may revert back to the monitoring frequency in the permit. To start after the November 2016 shutdown.	31/12/2016
B5	C3	Ensure preventative maintenance programme is sufficient to meet emission limit values.	31/12/2016
G4	C4	Submit all outstanding Part B notifications. Review the Part B submission procedure to ensure it is sufficient that it allows the operator to meet the submission time criteria.	31/12/2016
G2	C4	See G1 C3 Section 3.3.1	31/12/2016
E1	C3	Submit proposals for BAT as part of the permit variation.	15/11/2016

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
- Require you to take specific actions verbally or in writing
- Issue a notice
- Require you to review your procedures or management system
- Change some of the conditions of your permit
- Decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and/or suspension or revocation of the permit.

See our Enforcement and Civil Sanctions guidance for further information

This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

Data protection notice

The information on this form will be processed by the Natural Resources Wales (NRW) to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s). The NRW may also use and/or disclose it in connection with:

- Offering/providing you with its literature/services relating to environmental matters
- Consulting with the public, public bodies and other organisations (eg. 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 its service
- Freedom of Information Act/Environmental Regulations request

The NRW may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

The NRW will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within fifteen working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with officer's line managers using the informal appeals procedure. If you wish to raise your dispute further through our official Complaints and Commendations procedure, phone our general enquiry number 0300 065 3000 (Mon to Fri 08.00 – 18.00) and ask for the Customer Contact team or send an email to enquiries@naturalresourceswales.gov.uk. If you are still dissatisfied you can make a complaint to the Public Services Ombudsman for Wales. For advice on how to complain to the Ombudsman phone their helpline on 0845 607 0987.

Welsh Language
If you would like this form in Welsh please contact your Regulatory Officer.