

Compliance Assessment Report CAR_NRW0042010

Permit being assessed: BU2349IL.

For: Alyn Works, **held by:** Synthite Limited

At: Denbigh Road, Mold, Flintshire, CH7 1BT.

Type of assessment: Site Inspection,

Reason: Routine.

On: 21/06/2023.

Parts of permit assessed: See Below.

NRW Lead Officer: Philip Harper, accompanied by Victoria Griffin.

Report sent to: Jayme Mountford, Technical Manager, on 12/07/2023.

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

Part of permitted activity assessed (compliance criteria)	Assessment result	Permit condition
IR1A - Management - General management	C2 Significant	1.1.1a
IR4B - Information - Reporting	Assessed (A)	
IR3H - Emissions and monitoring - Monitoring for the purposes of the Industrial Emissions Directive (includes LCP)	C3 Minor	3.5.1
IR3A - Emissions and monitoring - Emissions to water, air or land	C3 Minor	3.1.2.
IR2C - Operations - Operating techniques	C3 Minor	2.3.1.(a)
IR3A - Emissions and monitoring - Emissions to water, air or land	C3 Minor	3.1.2.
IR4C - Information - Notification	C4 No impact	4.3.2.
IR3A - Emissions and monitoring - Emissions to water, air or land	C3 Minor	3.1.2.
IR3A - Emissions and monitoring - Emissions to water, air or land	Action only (X)	
IR3A - Emissions and monitoring - Emissions to water, air or land	C3 Minor	3.1.2.
IR3A - Emissions and monitoring - Emissions to water, air or land	C3 Minor	3.1.2.

Part of permitted activity assessed (compliance criteria)	Assessment result	Permit condition
IR3A - Emissions and monitoring - Emissions to water, air or land	C3 Minor	3.1.2.
IR3A - Emissions and monitoring - Emissions to water, air or land	Action only (X)	

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

Total non-compliances recorded	Total non-compliance score
10	63.1

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
IR1A	See main Text	01/09/2023
IR3H	Complete future testing	01/09/2023
IR3A	See main text	Already completed
IR2C	See Main text	Already completed
IR3A	See main text	11/08/2023
IR4C	Complete outstanding Part B notifications	11/08/2023
IR3A	See main text	11/08/2023
IR3A	See action in main text	11/08/2023
IR3A	See Main text	Already completed
IR3A	See main text	11/08/2023
IR3A	See main text	11/08/2023
IR3A	See main text	11/08/2023

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

Site Inspection 29th June 2023.

At 10:30 on the 29th June 2023 a site inspection was undertaken by NRW officers Phil Harper and Victoria Griffin (Senior Industry & Waste Regulation Officers).

The primary focus of the visit was the operation of scrubber systems as identified by the quarter 1 reporting data for 2023. The review of this data is discussed later in this compliance assessment report. Improved containment structures were also inspected.

Scrubbers

Schedule 5 notifications have indicated that water is being used as the scrubbing liquor in scrubbers on site. Documentation provided by the site regarding the operation of the scrubbers was provided by the operator during the permit application process. The relevant pages of the application documentation have been attached to this compliance assessment for clarity. The documentation provides the following liquor solutions for scrubbers, note that these have been correlated with the new emission point numbers which are shown in bold.

A1 – **A1** – Phosphoric Acid solution.

FA 3 – **A11** – Aqueous Ammonia Salt Solution

AA1 – **A2** – Formic Acid/ Ammonia Formate

FA 12 – **A15** – Ammonia Solution

CA 2 – **A8** – Phosphoric Acid and Water Solution

Note that CA 1 is now **A7** where the abatement is provided by a catalytic oxidiser

A review of the site documentation has been undertaken; no evidence of variation has been noted.

This is a category 3 permit breach contrary to permit condition 2.3.1(a) ((IR2C) Operating Techniques).

Standard operating techniques for scrubbers were requested for scrubbers A8, A11 and A15 and reviewed prior to the investigation. Standard operating procedures were received for scrubbers A8 and A11, scrubber A15 did not have a standard operating procedure prior to the inspection.

Standard operating procedures state that scrubbers should be filled with water, showing that site staff have been instructed by management to deviate from the operating techniques which form part of the permit and that standard operating procedures are not in place for critical equipment.

This represents a failure to operate the site in accordance with a suitable management system which is a breach under permit condition 1.1.1a. Further discussion around breaches of the management system is provided at the end of this compliance assessment report.

During the site visit the following investigation was agreed by the operator and NRW.

All present scrubbers will be charged with the corresponding scrubber liquors with immediate effect apart from scrubbers A11 and A15 where further instruction is shown below.

Scrubber A11

Prior to the next two monitoring campaigns the scrubber will be charge with water and analysed, then charged with an ammonium salt solution to determine if there is a notable difference in scrubbing efficiency.

Scrubber A15

Scrubber A15 will be charged with ammonia solution with immediate effect. An ammonium salt solution may be trialled prior to later monitoring campaign as a scrubbing agent which is easier to handle.

Action 1. Conduct investigation as stated.

Standing Water and Drains

During the inspection, standing water was present. Drains will now be included on the site maintenance schedule.

IBC Storage

Action 4 of a previous compliance assessment report CAR 40147 Action 4 required that the storage of IBCs was reviewed and that where required additional storage measures should be implemented.

Action 2. Ensure that the use and drainage of the bunded area is included on the environmental management system by the **11th August 2023**.

A new IBC storage area has been constructed near the chemicals manufacturing area of the site. Inspection showed that the storage area had been constructed to an acceptable standard with sealed drainage.

The storage of IBCs in the Agri chemicals storage and loading area had been reviewed. The positioning of IBCs stored IBCs was improved compared to previous inspections. The likelihood of a spillage to unmade ground outside the boundary has been reduced by the review.

During the inspection it was clear that an area of unmade ground was close to the vehicle loading area and was unprotected by a kerb or similar. In the event of a spillage occurred in this area, there is a risk that agri chemicals would find their way onto a public footpath and highway.

During the inspection the Sites Technical Manager expressed that a barrier such as sleeping policeman or kerb could be installed to reduce the likelihood of this occurring.

Action 3. Submit proposals, with timelines to install the barrier by the **11th August 2023**.

Quarterly Monitoring of Results- Q1 (January – March), due 30th April 2023.

Quarter 1 monitoring data for Synthite Limited, Mold Chemicals(Alyn Works), Denbigh Road, Mold, Flintshire, CH7 1BF were submitted to Natural Resources Wales in accordance with permit condition 4.2.3.

Emissions to Water

Monitoring for water emissions at W1 has been undertaken in accordance with the environmental permit. No

breaches have been identified.

Emissions to Air

Air emission monitoring data has been undertaken by an MCERTS accredited laboratory.

Heavy snow on the access ladder and testing platform prevented the testing of A8.

Whilst Natural Resources Wales considers that snow on the access ladder and platform is a valid reason as to why the testing was not undertaken on the planned testing day, the operator is advised that testing should be scheduled early enough in the quarter to allow for an alternative testing day if required.

This has attracted a category 3 breach in contravention of permit condition 3.5.1 (IR3H Monitoring for the purposes of the Industrial Emissions Directive (includes LC)).

No result was provided for A10 as the unit was reported to be not operational during Q1.

Emission Point A7

Formaldehyde

Monitoring for formaldehyde at A7 was undertaken on the 26th January 2023 and the 9th March 2023 with results of 3.6 mg/m³ and 17.9 mg/m³ respectively, both results are in breach of the permitted formaldehyde limit at A7 which is 2 mg/m³.

A category 3 score has been applied against permit condition 3.1.2 ((IR3A) Emissions to water, air or land)

Total volatile organic compound (TVOC)

Monitoring for TVOC at A7 was undertaken on the 26th January 2023. A result of 29.9 mg/m³ was provided. This result is an approach to the TVOC limit for A7 which is 30 mg/m³.

Action 4. Investigate the emission value and provide comment to NRW by the **11th August 2023**.

A schedule 5 notification, corresponding to the formaldehyde emission breach on the 26th of January 2023 was received on the 27th February 2023. Part B of the notification had also been completed and stated the following;

"The initial inlet set point increase of 315 °C from 300 °C, following the investigation with Airprotekt, Cogent Automation, and Atesta on 25/01/23, was too low."

"Increase in inlet temperature (≥ 320 °C). Retest scheduled for March."

A schedule 5 notification, corresponding to the formaldehyde emission breach on the 9th of March 2023 was received on the 3rd April 2023. Part B of the notification had also been completed and stated the following;

"The initial inlet set point increase of 315 °C from 300 °C, following the investigation with Airprotekt, Cogent Automation, and Atesta on 25/01/23, was too low. The inlet temperature was increased to 340 °C during this retest."

Permit application documents provide manufacturer's report for the catox at A7. The instructions state that

the required oxidation temperature is 400 °C. It also states that the oxidation will release energy that can raise the gas temperature by 60 °C, therefore the minimum input gas temperature should be set to 350 °C.

The report is referred to as part of the permit, in condition 2.3.1(a) *"The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by Natural Resources Wales."*

This is a category 3 permit breach contrary to permit condition 2.3.1(a) ((IR2C) Operating Techniques). This has been consolidated with a previous score against 2.3.1(a) to give a single score.

Action 5. The inlet gas temperature for the catalytic oxidiser should be set to at least 350 °C with immediate effect. Confirmation must be sent to NRW when this has been completed.

Emission Point A11

Ammonia

Monitoring for ammonia at A11 (grinders wet scrubber) was undertaken on the 26th January 2023 and the 8th March 2023 with results of 1.5 mg/m³ and 172 mg/m³ respectively. A value of 172 mg/m³ is in breach of the permitted ammonia limit at A11 which is 10 mg/m³.

A category 3 score has been applied against permit condition 3.1.2 ((IR3A) Emissions to water, air or land)

A schedule 5 notification was received on the 3rd April 2023 stating that recirculating scrubber liquor had been replaced with ammonia solution and not water. Part B of the notification had also been completed but did not provide details of measures of how a reoccurrence of the incident would be avoided.

Failure to show that measures will be implemented to prevent a reoccurrence have attracted a category 4 breach in contravention of permit condition

This has attracted a category 3 breach in contravention of permit condition 4.3.2 ((IR4C) Notification).

Action 6. Provide training in the form of a toolbox talk to staff who are responsible for the replenishment of scrubber liquors to ensure future compliance. Evidence that the training has been delivered must be submitted to NRW by the **11th August 2023**.

Action 7. Ensure Part B notifications are completed as required by the **11th August 2023**.

Formaldehyde

Monitoring for formaldehyde at A11 was undertaken on the 26th January 2023 and the 8th March 2023 with results of 10.1 mg/m³ and 1.4 mg/m³ respectively. A value of 10 mg/m³ is in breach of the permitted formaldehyde limit at A11 which is 5 mg/m³.

A category 3 score has been applied against permit condition 3.1.2 ((IR3A) Emissions to water, air or land).

A schedule 5 notification was received on the 27th February 2023 stating that recirculating scrubber liquor had not been replenished as scheduled in the standard operating procedure. Part B of the notification had also been completed and stated the following;

“Recirculating scrubber liquor replenished. Retest scheduled for March. The responsible person has been made aware of the importance to follow the instructions in the SOP and to replenish the scrubber liquor.”

Action 8. Provide training in the form of a toolbox talk to staff who are responsible for the replenishment of scrubber liquors to ensure future compliance. Evidence that the training has been delivered must be submitted to NRW by the **11th August 2023**.

Emission Point A12

Formaldehyde

Monitoring for formaldehyde was undertaken at A12 on the 26th January 2023. A result of 4.5 mg/m³ was provided compared to the permitted limit of 5 mg/m³. NRW regards this as an approach to limit.

Action 9. Investigate the emission value and provide comment to NRW by the **11th August 2023**.

Emission Point A15

Formaldehyde

Monitoring for formaldehyde at A15 was undertaken on the 17th February 2023. A result of 40.6 mg/m³ was provided. This is in breach of the permitted limit of 5 mg/m³.

A category 3 score has been applied against permit condition 3.1.2 ((IR3A) Emissions to water, air or land))

A schedule 5 notification was received on the 17th March 2023. Part B of the notification had also been completed and stated the following;

“The stack was planned to be diverted to A16 exit gas boiler for combustion. However, we are exploring the idea of installing a new CatOx for the abatement of this, plus other emission points. A15 stack emission point will become redundant.”

“A15 had been inspected externally and internally previously, and was found to be operating as per its original design specification, and no faults were identified (checks included the operation of the fan motor and liquor pump, the flow of the scrubber liquor, and the spray/cascade of the scrubber liquor).”

“Modifications were planned to be completed by the end of April by Jet Engineering to divert the stack to A16 exit gas boiler for combustion (where the products will be carbon dioxide and water). A15 stack emission point will become redundant, and a notification will be sent to NRW in advance. However, we are now exploring the idea of installing a new Catox to abate these emissions, plus other emission points.

In the meantime the following practices have been adopted to reduce the loadings/emissions from A15: tankers are back vented where possible, so the ullage transfers back into the storage tanks, not through the wet scrubber; one tanker is loaded at a time, not multiple tankers, so as to reduce the loadings on the scrubber; and, the replenishment of the scrubber liquor has been increased from weekly to daily.”

The measures described by the operator are adequate.

Emission Point A16Formaldehyde

Monitoring for formaldehyde at A16 (exit gas boiler) was undertaken on the 17th February 2023 and the 8th March 2023 with results of 99.9 mg/m³ and 14.7 mg/m³ respectively, both results are in breach of the permitted formaldehyde limit at A16 which is 5 mg/m³.

A category 3 score has been applied against permit condition 3.1.2 ((IR3A) Emissions to water, air or land).

Total volatile organic compound (TVOC)

Monitoring for TVOC at A16 was undertaken on the 17th February 2023. A result of 64.5 mg/m³ was provided. This is in breach of the permitted limit of 40 mg/m³.

A category 3 score has been applied against permit condition 3.1.2 ((IR3A) Emissions to water, air or land).

A schedule 5 notification, corresponding to the formaldehyde and TVOC emission breach on the 17th February 2023 on the 17th March 2023. The notification states;

"The combustion unit serves not only the tail gas from the formaldehyde Silver Plant, but also the ullage from the formaldehyde storage tanker farm and Concentrated formaldehyde (CF). A retest was planned for 08/03/23 to test the emissions from the Silver Plant exit gas only. If the emissions are in specification, we will explore the idea of installing a new CatOx for the abatement of the ullage from the formaldehyde storage tanker farm and CF (plus formaldehyde tanker loading A15)."

Part B of the notification has not been completed.

A schedule 5 notification, corresponding to the formaldehyde emission breach on the 8th of March 2023 was received on the 3rd April 2023. Part B of the notification had also been completed and stated the following;

"The LVOC BREF was written based on modern silver catalysed formaldehyde production plants, unlike Synthite's. Synthite's silver plant gas flow is significantly lower than that quoted and the boiler is not rated for temperatures higher than those it currently operates at."

Part B of the notification does not provide details on how a reoccurrence of the incident will be avoided.

Action 10. Submit outstanding part B notifications by the **11th August 2023**.

Emission Point A17Oxides of nitrogen (NO and NO₂ expressed as NO₂).

Monitoring for NO_x at A16 was undertaken on the 27th March 2023. A result of 148 mg/m³ was provided. This result is an approach to the NO_x limit for A16 which is 150 mg/m³.

Action 11. Investigate the emission value and provide comment to NRW by the **11th August 2023**.

Management System

The permit breaches highlighted within this CAR form can be attributed to the failure to operate the site in accordance with a suitable management system for example;

- Failure to ensure staff are trained to an appropriate level and are aware of the processes.
- Failure to follow sites procedures and operating techniques.
- Failure to ensure that the environmental management system is adequate to prevent permit breaches.

The breaches highlighted demonstrate a serious lack of awareness of the requirements of the sites environmental permit. This increases the potential risk of significant environmental harm being caused by the site.

A category 2 score has been applied against permit condition 1.1.1a under C2 Management system and operating procedures.

Action 12. Review the site's environmental management system with regard to emissions control from point sources and submit findings along with any necessary improvements to NRW by the **1st September 2023**.

Kind Regards

Phil Harper

Industry and Waste Regulation Officer NW

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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.