

Compliance Assessment Report CAR_NRW0048645

Permit being assessed: BR9685IX.

For: Barry Silicone Plant, **held by:** Dow Silicones UK Limited

At: Cardiff Road, Barry, Vale of Glamorgan, CF63 2YL.

Type of assessment: Site Inspection,

Reason: Incident Response (Incident number 2409391).

On: 13/05/2025 between 09:00 and 15:00.

Parts of permit assessed: 4.2.2 and 4.2.3 and 3.1.2 and 1.1.1(a).

NRW Lead Officer: Geraint Harris, accompanied by Antony Leakey.

Report sent to: Environmental Manager, Environmental Manager, on 24/06/2025.

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

Part of permitted activity assessed (compliance criteria)	Assessment result	Permit condition
IR3E - Installations - Emissions and monitoring - Monitoring	Action only (X)	
IR3B - Installations - Emissions and monitoring - Emissions of substances not controlled by emission limits	Action only (X)	
IR4B - Installations - Information - Reporting	Action only (X)	
IR3A(1) - Installations - Emissions and monitoring - Emissions to water	Assessed (A)	
IR3A(2) - Installations - Emissions and monitoring - Emissions to air	Assessed (A)	

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

Total non-compliances recorded	Total non-compliance score
0	0

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
IR3E	Action 1: To gain a better understanding of the current	01/09/2025

Criteria	Action needed	Complete by
	monitoring regime, NRW requests an up-to-date site map showing the locations of all active monitoring points. Due: 1st of September 2025.	
IR3B	Action 2: Please share the results of this resampling with NRW at your earliest convenience.	01/09/2025
IR4B	Action 3: Please review and amend your 2024 Annual Report and resubmit it to NRW. Due: 1st September 2025.	01/09/2025

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

Q1 2025 Monitoring returns

The Q1 2025 monitoring returns were received on time and have been reviewed and accepted.

Q1-2025 Landfill Groundwater Sampling Results

Dow's report provides sample results for boreholes and surface water bodies, which have been assessed for copper and Trimethylsilanol (TMS) concentrations. The following boreholes were sampled and analysed:

- BH210, BH312, BH412, A2d, LF10S, LF10M, LF10D, LF11S, LF11M, LF11D, LF12M, LF12D, LF14S, LF14M, LF14D, CP1S, CP1M, CP1D, CP2S, CP2M, CP2D

The following surface water bodies were also analysed:

- Cadoxton Pond (North), Cadoxton Pond (South), Freshwater Pond, Cadoxton River SW2, Cadoxton River SW3, and the Timber Pond

Action 1: To gain a better understanding of the current monitoring regime, NRW requests an up-to-date site map showing the locations of all active monitoring points. Due: 1st of September 2025.

The current round of monitoring shows that LF10M exhibited a rise in copper levels exceeding the normal variance. Further investigation revealed elevated concentrations of other metals as well. This borehole is scheduled for resampling in Q2 2025.

Action 2: Please share the results of this resampling with NRW at your earliest convenience.

Actions From CAR NRW0046354

Actions 1 to 3 have been addressed satisfactorily and are considered complete.

Action 4 is ongoing, with a due date of 30 June 2025.

Action 5: Dow had stated that there were at least three other DPR or slurry pumps onsite that also experienced impellor ware, indicating casing ware was also a potential. Pipework inspections of pumps on similar duties including the pump reducing discharge spools had been ongoing during the last inspection. Action 5: Dow to confirm that this work has been completed and to report their findings along with any improvement plans by the 30th of April 2025.

In response, Dow provided the dates of the latest DPR/erosive pump inspections and outlined the proposed deadlines for proactive inspections. They confirmed that all pump systems were inspected immediately after the June 2024 incident and that ongoing piping inspection programmes are managed under their inspection maintenance strategy. These activities are properly coded as compliance-related. No issues have been reported in any pump, other than P2-1016, which showed significant loss of thickness.

This action is now considered complete. However, as the COMAH investigation is still ongoing, further actions may be issued in due course.

Action 6: NRW has now received Schedule 5 Part B.

During their root cause investigation, Dow identified that operators were reluctant to remotely close all TSV valves due to concerns that doing so could introduce new hazards or risks during plant restart. This hesitation contributed to a delay in isolating the chlorosilane-bearing flush to the DPR pump (P2-1016).

Part B of the Schedule 5 Notice requires operators to report the measures taken or planned to prevent a recurrence of the incident. In response, Dow stated:

“In response to this incident, independent remotely operated isolations have been installed to facilitate troubleshooting and the isolation of individual items of equipment during emergency response.”

Additional detail was provided in an email received on 30th January 2025, in which Dow reported the following:

- A total of 13 ROSOV/TSV valves on W348 were included in the project, including the 1016 still pot ROSOV and the bearing flush supply system valve for P2-1016.
- Each valve can now be independently opened and closed from the W910 control room via the DCS interface.
- The existing master switch in the control room, which allows for the simultaneous closure of all W348 ROSOVs/TSVs, remains functional. However, individual valves can now be reopened from the control room after the master switch has been reset.

In compliance report CAR_NRW0046354, it was concluded that, at the time of the incident, Dow did not have a suitable and sufficient emergency isolation system incorporating remotely operated shut-

off valves that could:

- a. Be operated from at least two safe, alternative locations;
- b. Avoid introducing additional hazards or risks; and
- c. Be readily and confidently used by those responding to an emergency.

A site visit conducted on the 13th May 2025 confirmed that these improvements had been implemented. During discussions, W910 control room operators demonstrated that they were fully empowered and capable of operating the new shut-off valves in the event of a future incident. According to Dow, these upgrades offer enhanced operational flexibility and address previous human factors concerns related to the use of the master switch during emergency situations. Operators now have the ability to selectively reopen valves, if required, to safely remove vessel inventories.

Action 7: NRW has now received Schedule 5 Part B for the incident that occurred at 21:17 on the 5th of September, 2024. Part B of the Schedule 5 Notice requires operators to report the measures taken or planned to prevent a recurrence of the incident. In response, Dow stated:

“A root cause investigation revealed that human factors played a significant role in the incident. To prevent recurrence, we have implemented a rigorous training program for staff at all levels and enhanced auditing programs and procedures to be conducted continuously. Additionally, independent remotely operated isolations have been installed to facilitate troubleshooting and the isolation of individual items of equipment during emergency response.”

NRW are satisfied with the additional measures put in place. No further actions are necessary at this point.

Annual Reporting Forms

In 2024, Dow reported that production was slightly lower than in 2023, which is reflected in lower waste volumes. Due to a Force Majeure at Grillo in Germany, recycling figures were lower, resulting in higher incineration volumes due to the lack of alternative viable options.

There were no Schedule 5 notifications for W1 or W2, indicating an improvement in the reliability of wastewater treatment processes.

However, on page 18 of the report, it states: “*Q1 permit breach reported. Other results in control and within permit limit.*” Upon review of the previous year's report, it appears this sentence was mistakenly carried over and does not apply to the 2024 reporting period.

Action 3: Please review and amend your 2024 Annual Report and resubmit it to NRW. **Due: 1st September 2025.**

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.