

Compliance Assessment Report CAR_NRW0045126

Permit being assessed: BR96851X.

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: Routine.

On: 21/08/2024 between 10:00 and 16:30.

Parts of permit assessed: Permit condition 3 - Emissions and Monitoring, Permit condition 2 Operations.

NRW Lead Officer: Geraint Harris.

Report sent to: Environmental Manager, Environmental Manager, on 05/09/2024.

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

Part of permitted activity assessed (compliance criteria)	Assessment result	Permit condition
IR3A - Installations - Emissions and monitoring - Emissions to water, air or land	Assessed (A)	
IR2C - Installations - Operations - Operating techniques	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?

No action required.

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.

At this time, we do not intend to take any further action.

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**Dow Silicones****EPR/BR9685IX****Q2 2024 Monitoring Returns**

The Q2 monitoring returns were submitted on time. All results were found to be compliant. This report has been accepted.

Site Visit

A compliance visit to the Dow Silicones site in Barry was undertaken on the 21st of August 2024. The purpose of the visit was to discuss ongoing compliance issues and to visit the effluent treatment plant.

Effluent Treatment Plant

The ETP was discharging from the W1 location as specified in the permit. Upon inspection there were no obvious signs of contamination/pollution in the watercourse surrounding this discharge. During my visit one of the FST clarifiers was being refilled with effluent after having maintenance undertaken on the rakes. This maintenance period had no effect on the quality of the discharged effluent. The E-tanks were also viewed, since the carryover of solids from upstream processes has caused ETP upsets in the past. The most recently cleaned E-Tank (E4401) only had minor patches of floating solids on it. The other E-Tank (E4400), which was full and in operation, contained a lot more solids, which, according to a Dow operator, was due to be cleaned in the near future to facilitate an inspection of the rubber lining and tank base. Dow also reported that the upstream solvent separator, which facilitates the separation of siloxanes, oils and solids from the incoming effluent, was recently cleaned out. The solids arriving from the W1205/6 Quench process effluent stream usually settle out within the solvent separator and downstream tankage, which is periodically cleaned. Dow reported that the separator was full of solids at the time of cleaning which suggests that the cleaning frequency should be reviewed and amended to improve the efficiency of the separator and reduce the solids carryover.

Action: Dow to provide an update on the cleaning frequency in the next compliance meeting.

During the walk around, Dow stated that they intend to trial a new less viscous solution to further improve delivery and improve the settlement within the FST's.

Action: Dow to provide an update in the next compliance meeting.

Dow also explained that they have completely overhauled their standby bioreactor and are currently using it as their primary reactor with the intention of overhauling the other reactor soon. As a result Dow have seen a significant reduction in the need to supply supplementary oxygen into the overhauled reactor, since there is now sufficient aeration through the in-situ pumps and mixers. This has resulted in a reduction in the use of raw materials (oxygen) and reduction in noise levels from the associated

equipment.

ERU Update

Dow are continuing their work into understanding and improving the particulate emissions from the ERU (emission point A41). To date the PM emissions for 2024 have been compliant. During the meeting on the 21st of August Dow reported that their plans to undertake a site shutdown in October 2024 will result in their being no monthly monitoring of the ERU for that month.

Action: Dow to provide an update in the next compliance meeting.

Outstanding Actions from CAR NRW0044531

Action 3: Please provide details on your process for reviewing emissions sources to check for unaccounted vents/release points. **Due 19th April.**

Action 4: This new vent was found on this occasion because of preparation for the Bref review, but these come around very infrequently. Does Dow look at this aspect when undertaking periodic PHRs, re-HazOps, delta-HazOps and other process/plant technical reviews? **Due 19th April.**

Dow's application for a variation to their permit provided an answer to the actions above. Previously vents which contained < 25kg/yr were excluded from permit applications as they were considered insignificant. As this vent will be applicable post BREF, Dow propose to assign A124 authorised release point to it. Therefore, this vent was not unaccounted for but just below the previous reporting threshold. Therefore actions 3 and 4 above are considered complete.

Efficient use of Raw Materials

During the latest COMAH Competent Authority Inspection (Report 24/04/2024) it was noticed that the nitrogen purge flow meter (FI 222) into 3601 vent was found to be off the scale with the ball valve fully open and the needle valve badly corroded. The senior operator confirmed that a maintenance note had been raised to rectify this. The relevant P&ID does not show an orifice plate is installed in the nitrogen supply to limit maximum flow. This represents a waste of nitrogen if the flow rate is significantly higher than the design rate. During the onsite meeting on the 21st of August 2024 the above works was discussed and Dow confirmed that the permit to work to rectify the ceased valve was dated for that day. This was demonstrated during the meeting.

Action: Dow to provide an update in the next compliance meeting.

Drainage Inspection

The most recent COMAH competent authority inspection report, undertaken on the 24th of April, states "Drainage inspection by CCTV report has been undertaken across most of the network, with limited gaps at the valve pits and adjoining pipes in W712 loading bay/pump area, and the frequency for some sections is quite low (>10 years). Some erosion of Bondstrand lining is indicated in one section and manhole C812 close to W809 spill pond had a full circumferential pipe fracture defect recorded in 2013. A patch repair was carried out in 2016 and follow up inspection is required to ensure that no ground/groundwater contamination has occurred. This aspect will be followed up as an EPR16

matter.”

An additional ad hoc inspection of the Bondstrand chem sewer drainage pipework is recommended to ensure that deterioration of some lower grade sections is not accelerating.

Action: Please undertake a follow up inspection to ascertain if there has been any ground/groundwater contamination in the immediate area. Dow to provide an update at the next compliance meeting in August.

During the onsite meeting on the 21st of August representatives of Dow said that they had not completed this work but were going to check with the relevant departments for an update. **Action: Dow must provide an update at the next compliance meeting on 5th and 6th of November.**

Trichlorosilane Incident

On the 15th of June 2024 at 14:58 a leak of process material occurred from the Trichlorosilane plant resulting in a visible vapour cloud. The incident is currently under investigation by the COMAH Competent Authority and the EPR investigation is running in parallel. Further updates along with an appropriate enforcement response will be provided when the investigations are complete.

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.