Compliance Assessment Report

Report ID:
CAR_NRW0033577

This form will report compliance with your permit as determined by an NRW officer					
Site	Barry Silicone Plant	Permit Ref	BR9685IX		
Operator/Permit holder	Dow Silicones UK Limited				
Regime	Installations				
Date of assessment	04/07/2018	Time in	09:00	Out	15:00
Assessment type	Audit				
Parts of the permit assessed	Monitoring, maintenance, waste management, noise				
Lead officer's name	Leakey, Antony				
Accompanied by					
Recipient's name/position	Judith Sartor/ Environmental Specialist	Date issued	04/07/2018		

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**
B1 - Infrastructure - Engineering for prevention and control of emissions	A	
B4 - Infrastructure - Containment of stored materials	A	
B5 - Infrastructure - Plant and equipment	A	
C1 - General Management - Staff competency/training	A	
C2 - General Management - Management system and operating procedures	A	
D2 - Incident Management - Accidents, emergency and incident planning	A	
E1 - Emissions - Air	A	
E5 - Emissions - Waste	A	
F2 - Amenity - Noise	A	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	A	

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	**0**	**Total compliance score** (see section 5 for scoring scheme)	0

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

Dow Silicones UK Ltd OMA on 9/5/18 and Site Visit Report - 16/5/18

Operator Monitoring Assessment

The OMA focused on the monitoring of emissions to air (periodic and CEMs) from the main process abatement vents streams for the large-scale continuous methyl chloride and chlorosilane plants.

Dow Silicones have shown that quality control for periodic and continuous monitoring are well managed, providing reliable monitoring data. Competency of document management, records, staff, calibration and maintenance were all high. This has resulted in a good overall score of 77%, which is slightly lower than the 81% achieved on the previous OMA at the Barry site, reflecting the tightening of standards.

Several observations are also noted in the full OMA report, which Dow Silicones should consider when reviewing monitoring processes in the future.

W941 Reboiler Failure

In-situ tube wall thickness checks are carried out every 2 years and the first results for a newly installed refurbished reboiler showed significant steam side wall loss. The units historically have remained serviceable for up to 7 years.

The nature of the pitting corrosion suggests wet chloride attack during re-tubing on overhaul. The full tube bundle is not removed during re-tubing as the tube sheets remain in place. Dow Silicones currently believe that this allows solids to accumulate in the shell which retain moisture and acid species causing the tube corrosion.

This will be addressed by undertaking full tube bundle removal during future overhauls. The current in-service reboiler was overhauled with full tube bundle removal and so is likely to not have suffered the same corrosion rates.

Details of the reboiler investigation have been passed to HSE for further consideration under COMAH and no further action is considered to be necessary under the EPR regime.

Pressure relief impact assessment

A screening tool is being rolled out at Barry with lower level chlorosilane vents being prioritised.

ACTION: Dow Silicones to provide an update at next site meeting.

Siloxane waste TFS

Four trial drums of old stock siloxane were sent to Germany for energy recovery as a "Green List" waste. A data sheet for an identical product that contains a small quantity of hexane was inadvertently sent with the waste drums and this identified the waste as hazardous. The German authority alerted NRW to the incorrect notification process applied for the material. The correct MSDS confirms the material as non-hazardous but the German authority still does not accept the Green List waste code proposed for the material (B3010 – solid plastics wastes, including polysiloxanes; or B4020 – resin, latex or plasticiser wastes) and requires notification.

The drums will now be returned to the UK.

Dow Silicones is advised to confirm Green List coding for wastes with all the necessary regulators before proceeding with shipments in the future.

Noise management update

Full activity lists are being produced to identify potential off-site noise sources and continuous fence line monitors with automatic recording are being installed. There is also potential for complex-wide fence line monitoring.

Some changes have already been made to prevent night-time testing of safety showers which have associated audible alarms and a silencer is to be fitted to a steam venting valve on W410.

W952 chemical sewer testing update

No upward trends in groundwater pollutants have been identified in boreholes in proximity of the failed manhole.

LDAR

Audible, visual and olfactory monitoring is used at other Dow sites and there is a company standard. Implementation costs seem high and further examination of the benefits is to be considered.

ACTION: Dow Silicones to provide a copy of the company standard and an update at next site meeting.

W922 MeH cyclics process scrubber HCl release

Incorrect Drager tubes (chlorine) were used for testing for an unknown period of time and the high HCl emissions were discovered when the correct tubes were used. A new scrubber is to be installed.

A list of scrubbers has been produced and a subset associated with fridge units also identified. Scrubbers with liquid phase interlocks are to be checked.

ACTION: Dow Silicones to provide an update at next site meeting.

W1 waste water methanol excursion

A high final effluent methanol release was reported on 5 March 2018, due to extremely cold weather conditions when the temperature of the final effluent fell to 10^{o}C. The DO monitoring showed a normal operating profile and the methanol feed was increased to compensate for an apparent BOD reduction, however the BOD meter was found to be under reading due to the low ambient temperatures in the instrument room where it is housed.

ACTION: Dow Silicones to provide details of actions taken at next site meeting.

ERU dioxin emissions

Elevated dioxin/furan emissions were reported at 3 times the ELV for the recent annual test. A retest resulted in a lower result but still over the ELV and higher than typical levels.

The unit has been shut down for cleaning and the abatement train scrubber packing will also be replaced as the elevated emissions may be caused by “memory effect” releases from dioxin contaminated deposits and plastic components.

Initial assessment of the worst-case mass releases does not suggest that significant pollution will have occurred.

ACTION: Dow Silicones to provide an update at next site meeting.

Crystal Project

Waste classification assessment of the proposed waste stream has been undertaken and the NRW view is that the classification thresholds are correct, although there may be some errors, although these do not alter the classification outcome.

The following points should be considered:

- For Cu_3Si there is a cut off value to go into the equations at 0.1%, so this is conservative, as Dow Silicones have counted quantities of Cu_3Si below 0.1% in the calculations.
- Sight of the test data would be helpful and confirmation that moisture content has been taken into account in the calculations. Although again this would push the threshold up if dry basis results were used.
- It is not clear if the 90% confidence interval mean is the upper 90% confidence range value. It may be better to provide the data; the data mean and the standard deviation.
- Presentation of some sensitivity analysis of the assessment to key assumptions may be useful, although overall the assessment appears to be conservative.
- Confirmation of other species that may be present in the process and the effect of this on the assessment should be considered if relevant.
- More detail on the process chemistry that underpins the assumptions would be useful.

ACTION: Dow Silicones to provide an updated assessment summary before next site meeting.

LVOC Bref

The BAT AELs covering thermal abatement of vents streams from EDC/VCM plants specifically would not apply directly to other plants such as methyl chloride units. However, the BAT AELs may act as a guide when determining Chapter II BAT for similar abatement techniques if these are not covered specifically in other relevant Brefs such as the WGT Bref.

Improvement programme

IC34 - W949 ERU residence time trials. A revised date for completion needs to be agreed, including discussion on optimisation of methyl chloride venting and DPR recovery rates. This will be done when the current ERU dioxin issues are resolved.

Monitoring returns and notification review

Monitoring data has been reviewed and no breach of permit conditions was identified.

END

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Operator/Permit holder	Dow Silicones UK Limited	Date	04/07/2018

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.

Other than the provision of advice and guidance, at present we do not intend to take further enforcement action in respect of the non-compliance identified above. This does not preclude us from taking enforcement action if further relevant information comes to light or advice isn't followed.

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			

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.