

## Compliance Assessment Report CAR\_NRW0044306

**Permit being assessed:** BJ6968IY.

**For:** IQE Silicon Cardiff, **held by:** IQE Silicon Compounds Ltd

**At:** Beech House Cypress Drive , St Mellons, Cardiff, South Wales, CF3 0LW.

**Type of assessment:** Report/Data Review,

**Reason:** Routine.

**On:** 15/05/2024.

**Parts of permit assessed:** None.

**NRW Lead Officer:** Brigid Armstead.

**Report sent to:** Andrew Mason, HSE Manager, on 15/05/2024.

### 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	C3 Minor	6.1.2
IR3A - Installations - Emissions and monitoring - Emissions to water, air or land	C3 Minor	6.1.2
IR4C - Installations - Information - Notification	C4 No impact	5.1.2

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

Total non-compliances recorded	Total non-compliance score
3	8.1

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
IR3A	Ensure that emissions remain below ELVs	28/05/2024
IR3A	Ensure that emissions remain below ELVs	28/05/2024
IR4C	Ensure that NRW are notified of any further emissions of	28/05/2024

Criteria	Action needed	Complete by
	substances exceeding any ELVs as per permit conditions 5.1.1. and 5.1.2	

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.

#### **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

The purpose of this Compliance Assessment Report (CAR) is to record Natural Resources Wales' (hereafter NRW) assessment against IQE Silicon Compounds Limited (hereafter IQE) monitoring returns and to review the annual reports.

#### **Air Emissions**

##### **Form A1**

Emission points A1 to A5 - Hydrogen Chloride - Results were well within the ELV of 10mg/m<sup>3</sup>

##### **Form A2**

Air emission monitoring results were submitted on 23/2/2024 for release point A1 – A5.

Total Silanes (g/hr) - Results were above permitted limits for release points A1 and A4. Results were within permitted limits for release points A2, A3 and A5.

Arsine (g/hr) - Results were within permitted limits.

Phosphine (g/hr) - Results were within permitted limits.

Diborane (g/hr) - Results were within permitted limits.

Germane (g/hr) - Results were above permitted limits for release points A1 and A4. Results were within permitted limits for release points A2, A3 and A5.

		Release Point Number (A1-A6)					
		A1 North1	A2 North 2	A3 North 3	A4 South 1	A5 South 2	A6
Substance	g/hr		07/11/2023	07/11/2023	07/11/2023	07/11/2023	
Total Silanes	(g/hr)	0.489716	0.001791	0.001107	0.255654	0.001093	X
Arsine	(g/hr)	0.000046	0.000006	0.000003	0.000045	0.000002	X
Phosphine	(g/hr)	0.004666	0.000596	0.000369	0.004650	0.000218	X
Diborane	(g/hr)	0.000694	0.000090	0.000055	0.000694	0.000055	X

Germane (g/hr)	0.088616	0.000006	0.000003	0.134803	0.000002	X
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A root cause analysis was submitted on 25<sup>th</sup> April 2024.

During the testing in November 2023, emissions at A1 and A4 were higher than permitted limits. A follow up investigation found that the flow rate was 10x it's normal value which reduced the efficacy of the scrubber system leading to higher than normal emission values.

A H1 assessment was received by email on 30<sup>th</sup> April 2024 which showed that the levels of Silanes and Germane released were screened out as insignificant.

IQE Silicon breached their ELVs for total Silanes (g/hr) and Germane (g/hr) for release points A1 and A4. This is a breach of permit condition 6.1.2 and has been assigned a non-compliance category of C3 under compliance criteria IR3A- Emissions to water, air or land.

These ELV breaches were not reported to NRW as per schedule 1 of the permit. This is a breach of condition 5.1.2 and has been assigned a non compliance category of C3 under compliance criteria IR4B- Reporting.

### **Sewer Emissions**

#### **Form S1**

Suspended Solids (mg/l) - Results were within permitted limits

pH - Results were within permitted limits.

### **Energy Usage**

An agreement has been reached between NRW and IQE that Energy consumption data be reported via the 2014 version of form E1.

In 2023 there was an increase in the CO2 per unit output as follows:

Year	Primary Energy Usage	CO <sub>2</sub> Produced	CO2 per unit output (in <sup>2</sup> wafer used)(Grammes)
2020	2784.81	1109.47	0.00178
2021	2881.72	1148.08	0.00114
2022	2624.63	1045.65	0.000849
2023	6423.55	1062.30	0.0065

**Action:** Primary energy usage and CO2 per Unit output has risen significantly since 2022. Please provide information on why this has happened and steps being taken to ensure that the trend is reversed and brought down.

**END**

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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](mailto: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](mailto: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.