

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

IQE Silicon Compounds Limited

**Newport Semiconductor Facility
Imperial Park
Celtic Way
Celtic Lakes
Newport
NP10 8BE**

Permit number

EPR/AB3893FZ

Newport Semiconductor Facility

Permit number EPR/AB3893FZ

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows.

The facility has the capacity to produce up to 334,000 wafers for compound semiconductors annually for use in electronic devices, using a process known as Metal Organic Chemical Vapour Deposition (MOCVD).

The installation comprises of:

- 92 reactors used to manufacture the wafers. These consist of:
 - 10 gallium arsine and indium phosphide reactors, each with their own chemisorption abatement units to minimise process emissions to air (A1)
 - 10 reactors that use gallium arsine, indium phosphide and gallium nitride. Each with their own abatement plant (chemisorption or plasma abatement depending on process being carried out) (A4 and A4a)
 - 72 gallium nitride reactors, each with their own abatement plant (chemisorption or plasma abatement depending on process being carried out) (A5 – A8)
- Stacks that serve the gas storage bunkers, each equipped with chemisorption abatement units to abate any accidental emissions to air (A2 and A16-A19).
- A stack serves the local exhaust ventilation fume extraction (A3).
- Pre-treatment of process water by a water softener and reverse osmosis unit.
- Cooling circuits and other ancillary plant and equipment.
- Storage and distribution of raw materials including pressurised and liquified gases.
- Foul and surface water drainage linking the Installation to existing infrastructure. There are no emissions to soil or groundwater. There is one point source release to surface water for un-contaminated site drainage (W1). All process effluent is discharged to sewer (S1)
- 8 natural gas fired steam boilers (5 operational and 3 backup). 4 of the steam boilers share 1 emission stack (A11) and the other 4 each have their own emission stack (A12-A15). All steam boilers have a thermal input of less than 1 MW.

- 2 standby diesel generators each with a thermal input of 5 MW (A9 and A10). The generators will be used solely for the purpose for generating power for the facility in an emergency. These are classed as new limited hours Medium Combustion Plants (put into operation after 20/12/2018) and Specified Generators that are excluded

Since 2019, due to the increased inventories added through variation V002, the lower COMAH threshold was exceeded and therefore the Installation fell within scope of the COMAH regulations 2015. Since V003 the site's capacity exceeds the upper tier threshold. However following the issue of V003 the site's capacity will increase in a phased approach and the upper tier COMAH threshold would not be reached until the site is at full production.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	Date	Comments
Application PAN-002156 (EPR/AB3893FZ/A001)	Duly made 22/12/2017	Application for an inorganic chemicals facility producing semiconducting wafers
Additional information received	05/03/2018	Revised Noise Assessment provided
Additional information received	28/03/2018	Response to Schedule 5 request for further information
Permit determined EPR/AB3893FZ	22/05/2018	Permit issued to IQE Silicon Compounds Limited
Variation application PAN-003787	11/12/2018	Variation to increase throughput on site
Variation determined EPR/AB3893FZ/V002	28/02/2019	Consolidated Permit issued
Variation application PAN-024249 (EPR/AB3893FZ/V003)	Duly Made 07/08/2024	Variation to increase production capacity at the site (addition of 72 Gallium nitride reactors, auxiliary equipment and 2 diesel generators).
Additional information received	04/10/2024	Response to Schedule 5 request for a revised Noise Impact Assessment and further information relating to air quality impacts
Variation determined EPR/AB3893FZ/V003	11/11/2024	Variation issued to IQE Silicon Compounds Limited

End of introductory note.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number
EPR/AB3893FZ

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/AB3893FZ/V003 authorising

IQE Silicon Compounds Limited (“the operator”),

whose registered office is

**Beech House
Pascal Close
St Mellons
Cardiff
CF3 0LW**

company registration number **03986643**

to operate an installation at

**Newport Semiconductor Facility
Imperial Park
Celtic Way
Celtic Lakes
Newport
NP10 8BE**

to the extent authorised by and subject to the conditions of this permit.

Signed	Date
Holly Noble	11/11/2024

Authorised on behalf of Natural Resources Wales

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
- (b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 The operator shall:

- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
- (b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
- (c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
- (b) maintain records of raw materials and water used in the activities;
- (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
- (d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
- (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
- (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

- 2.3.1 (a) For the following activities referenced in schedule 1, table S1.1 (AR1 to AR9) 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.
- (b) If notified by Natural Resources Wales that the activities are giving rise to pollution, the operator shall submit to Natural Resources Wales for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.
- 2.3.2 For the following activity referenced in schedule 1, table S1.1 (AR10), the activities shall be operated using the techniques and, in the manner, described in schedule 1, table S1.2A
- 2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
- (b) the composition of the waste;
- (c) the handling requirements of the waste;
- (d) the hazardous property associated with the waste, if applicable; and
- (e) the waste code of the waste.
- 2.3.5 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

- 2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by Natural Resources Wales.
- 2.4.2 Except in the case of an improvement which consists only of a submission to Natural Resources Wales, the operator shall notify Natural Resources Wales within 14 days of completion of each improvement.

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2 and S3.3.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.
- 3.1.4 For the following activity referenced in schedule 1, table S1.1 (AR10) limited Operating Hours MCPs shall:
- (a) not exceed 500 hours operation in a 12-month period as a rolling average over a 3-year period for new MCP, and thereafter assessed annually.
 - (b) not exceed 500 hours operation in a 12-month period as a rolling average over a 5-year period for existing MCP, and thereafter assessed annually.
 - (c) not operate for more than 750 hours in any single year.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution, submit to Natural Resources Wales for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
 - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

- 3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

- 3.3.2 The operator shall:

- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to odour, submit to Natural Resources Wales for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
- (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.4 Noise and vibration

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

- 3.4.2 The operator shall:

- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to noise and vibration, submit to Natural Resources Wales for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
- (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by Natural Resources Wales, undertake the monitoring specified in the following tables in schedule 3 to this permit:

- (a) point source emissions specified in tables S3.1, S3.2 and S3.3;

- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by Natural Resources Wales.

- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2 and S3.3 unless otherwise agreed in writing by Natural Resources Wales.
- 3.5.5 For the following activity referenced in schedule 1, table S1.1 (AR10) the first monitoring measurements will be carried out within four months of the issue date of the permit or the date when the MCP is first put into operation, whichever is later.
- 3.5.6 For the following activity referenced in schedule 1, table S1.1 (AR10), monitoring shall not take place during periods of start up or shut down.

4 Information

4.1 Records

- 4.1.1 All records required to be made by this permit shall:
- (a) be legible;
 - (b) be made as soon as reasonably practicable;
 - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
 - (d) be retained, unless otherwise agreed in writing by Natural Resources Wales, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.
- 4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by Natural Resources Wales.
- 4.1.3 For the following activity referenced in schedule 1, table S1.1 (AR10), the operator shall maintain a record of the type and quantity of fuel used and the total annual hours of operation for each MCP and/or Specified Generator.
- 4.1.4 For the following activity referenced in schedule 1, table S1.1 (AR10), the operator shall maintain a record of any events of non-compliance and the measures taken to ensure compliance is restored in the shortest possible time.

4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.
- 4.2.2 For the following activities referenced in schedule 1, table S1.1 (AR1 to AR9), A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31 January (or other date agreed in writing by Natural Resources Wales) each year. The report(s) shall include as a minimum:

- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
 - (b) the annual production / treatment data set out in schedule 4 table S4.2; and
 - (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
- 4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by Natural Resources Wales, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
 - (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and
 - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to Natural Resources Wales, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

- 4.3.1 (a) In the event that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
- (i) inform Natural Resources Wales,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) in the event of a breach of any permit condition the operator must immediately—
- (i) inform Natural Resources Wales, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
- 4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where Natural Resources Wales has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform Natural Resources Wales when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to Natural Resources Wales at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

- (a) any change in the operator's trading name, registered name or registered office address; and
- (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

- (a) any change in the operator's name or address; and
- (b) any steps taken with a view to the dissolution of the operator.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

- (a) Natural Resources Wales shall be notified at least 14 days before making the change; and
- (b) the notification shall contain a description of the proposed change in operation.

4.3.6 Natural Resources Wales shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately" in which case it may be provided by telephone.

Schedule 1 - Operations

Table S1.1 activities

Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR1	S4.2 A1(c) - Manufacturing (other than the application of a glaze or vitreous enamel) involving the use of or recovery of, any compound of any of the following elements elements—(i) antimony; (ii) arsenic; (iii) beryllium; (iv) gallium; (v) indium; (vi) lead; (vii) palladium; (viii) platinum; (ix) selenium; (x) tellurium; (xi) thallium, where the activity may result in the release into the air of any of those elements or compounds or the release into water of any substance listed in paragraph 7 (1) of Part 1 of this Schedule.	Manufacture of advanced electronic and opto-electronic Group III - Group V semiconductor structures using a process known as Metal-Organic Chemical Vapour Deposition (MOCVD)	<p>From receipt of process gases, to the wafer manufacturing process including emission of exhaust gas and discharge of effluent from water pre-treatment plant and disposal of waste.</p> <p>92 Reactors which consist of the following;</p> <ul style="list-style-type: none"> • 10 x Gallium Arsenide and Indium phosphide reactors (reactors 1-10) each fitted with chemisorption abatement (emission point A1) • 72 x Gallium Nitride reactors (reactors 21-92) with each fitted with plasma abatement during normal operation and chemisorption during etch process (emission point A5-A8) • 10 x Reactors for gallium nitride, gallium arsenide and indium phosphide (reactors 11-20) which are also used for research and development (emission point A4 during normal process and A4a during GaN etch cycle only). <p>Includes operation of systems for the treatment of process</p>

			gases via emission points A1, A4, A4a and A5-A8.
			All activities to be carried out within an enclosed building.

Directly Associated Activity

AR2	Water Treatment	Pre-treatment of process water at treatment plant by reverse osmosis	
AR3	Foul sewer discharge	Discharge of process emissions via emission point S1	
AR4	Receipt and handling of raw materials for operations	Operation of systems for the receipt and storage of process gases and other raw materials Operation of systems for the transmission of process gas from storage facilities to the reactors	Liquid raw materials to be stored on concert hardstanding with secondary containment.
AR5	Handling and storage of process waste	Storage of liquid and solid wastes arising from the process	
AR6	Emissions from gas storage bunkers and local exhaust ventilation	Release of air emissions from extraction from 6 x gas storage bunkers (emission point A2 and A16-A19) equipped with chemisorption abatement and local exhaust ventilation (emission point A3)	
AR7	Surface water discharge	Discharge of rain water runoff via emission point W1	Uncontaminated water to be discharged via an interceptor
AR8	Natural gas fired steam boilers	8 steam boilers. 4 steam boilers (operational pre-2018) to discharge through one emission stack (A11) and the other 4 (3 duty 1 standby) to be discharged through individual stacks (A12-A15)	5 boilers to be used for daily operations and 3 to be used for back-up only Natural gas fuel
AR9	Cooling systems	Operation of cooling systems for the provision of cooling water	Liquids used for cooling systems to be stored on concert hardstanding with secondary containment

Medium Combustion Plant

National Grid Reference and or activity reference/ emission point	Activity listed in the EP Regulations	Description of Medium Combustion Plant and/or Specified Generator	Fuel	Operating hours limit per year
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AR10	Schedule 25A – Medium Combustion Plant and Specified Generator that is excluded	2 x 5MWth diesel generator	Gas Oil (Diesel)	50 hours
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Table S1.2 Operating techniques

Description	Parts	Date Received
Application PAN-002156 (EPR/AB3893FZ/A001)	<ul style="list-style-type: none"> All Sections 	05/12/17
Application supporting document – Environmental Permitting Regulations Permit Application November 2017	<ul style="list-style-type: none"> Techniques for Process and Emission Control and BAT Assessment Accident Management Plan 	05/12/17
Application EPR/AB3893FZ/V002	IQE Environmental Permit Variation Application 8th November 2018 – Sections 1 – 5	09/11/18
Application EPR/AB3893FZ/V002	IQE Environmental Permit Variation Application 8th November 2018 – Appendix C – Air Quality Assessment	09/11/18
Application EPR/AB3893FZ/V002	IQE Environmental Permit Variation Application 8th November 2018 – Appendix D – Revised Accident Management Plan	09/11/18
Application EPR/AB3893FZ/V003	IQE ENVIRONMENTAL PERMIT VARIATION APPLICATION REPORT <ul style="list-style-type: none"> Section 2. Process Description Section 2.7.3 Description of Proposed Abatement Technologies Section 3 Techniques for Process and Emissions Control and BAT Assessment Section 4 Impact on the Environment Section 5 Proposed Monitoring and Controls 	26/01/2024
Additional information EPR/AB3893FZ/V003	<ul style="list-style-type: none"> Management techniques related to control of diffuse VOC emissions detailed in email dated 04/10/2024 titled “IQE Newport – PAN-024249 (EPR/AB3893FZ/V003)” 	04/10/2024

Table S1.2A Operating techniques for Medium Combustion Plant as detailed in Schedule 8

Description
Each MCP must be operated in accordance with the manufacturer’s instructions and records must be made and retained to demonstrate this
The operator must keep periods of start-up and shut-down of each MCP as short as possible
There must be no persistent emission of ‘dark smoke’ as defined in section 3(1) of the Clean Air Act 1993
A Limited Operating Hours MCP which is an excluded generator may only be operated for the sole purpose of maintaining power supply to a site during an on-site emergency and it may not participate in any balancing services
A Limited Operating Hours MCP which is an excluded generator may only be operated for the sole purpose of testing no more than 50 hours per year

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
IC1	IC1 The operator shall submit a site closure report to NRW within 6 months of operations commencing	22/11/18
IC2	Within 12 months of operating the Operator shall submit to Natural Resources Wales, details of its management systems certification to ISO:14001:2015	22/05/19
IC3	<p>The operator shall carry out emissions testing of arsine during the commissioning of the plant from emission points A1 and A4, to ensure that the predictions made in the application are accurate and emissions are insignificant. The emissions will be compared to the emission benchmarks as quoted in the 'Additional guidance for Speciality Inorganic Chemicals Sector guidance EPR 4.03'. The monitoring will be in-line with M1 – sampling requirements for stack emission monitoring, Version 7, March 2016 and monitoring will be carried out in accordance with MCERTS.</p> <p>A report shall be submitted to NRW within 3 months for approval, if the results show emissions are not insignificant then additional measures will be proposed.</p>	01/06/19
IC4	Following successful commissioning and establishment of routine steady operation ¹ , the Operator shall undertake a BS 4142:2014+A1:2019 noise impact assessment following guidance set out in Noise and Vibration Management: Environmental Permits and Method implementation document (MID) for BS 4142, to demonstrate that impacts do not exceed those specified in the Noise impact assessment "5223588 IQE noise impact assessment report, revision 4b.docx"	Within 12 months of issue of variation V003 or as otherwise agreed in writing by Natural Resources Wales

¹ Routine steady operation is defined as "normal operation" consists of any operation of the plant not including shut-down and abnormal operation, unless additional definitions are agreed in writing with Natural Resources Wales

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels

Raw materials and fuel description	Specification
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Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on Emission point plan in Schedule 7]	Reactors 1-10 GaA and InP		No Limit set		No Monitoring required	
A2 [Point A2 on Emission point plan in Schedule 7]	Gas Storage Unit and Ammonia store	-	No Limit set	-	No Monitoring required	-
A3 [Point A3 on Emission point plan in Schedule 7]	Local Exhaust Ventilation	-	No Limit set	-	No Monitoring required	-
A4 [Point A4 on site plan in Schedule 7]	Reactors 11-20 (GaN, GaA InP, normal process)	Ammonia	No limit set		Six-monthly then once every three years from emission points	EN 21877
		Oxides of Nitrogen (NO _x)	5 mg/m ³	Periodic	Annual	EN 14792
		Carbon monoxide	No limit set	Periodic	Annual	-
A4a [Point A4a on Emission point plan in Schedule 7]	Reactors 11-20 (during GaN, etch cycle only)	Chlorine	No limit set	Instantaneous	Annual	US EPA method 26A

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A5 [Point A5 on Emission point plan in Schedule 7]	Reactors 21-38 (GaN)	Ammonia	No limit set	Periodic	Six-monthly then once every three years from emission points	EN 21877
		Oxides of Nitrogen (NO _x)	5 mg/m ³	Periodic	Annual	EN 14792
		Carbon monoxide	No limit set	Periodic	Annual	Non specified
		Chlorine	No limit set	Instantaneous	Annual	US EPA method 26A
A6 [Point A6 on Emission point plan in Schedule 7]	Reactors 39-56 (GaN)	Ammonia	No limit set	Periodic	Six-monthly then once every three years from emission points	EN 21877
		Oxides of Nitrogen (NO _x)	5 mg/m ³	Periodic	Annual	EN 14792
		Carbon monoxide	No limit set	Periodic	Annual	Non specified
		Chlorine	No limit set	Instantaneous	Annual	US EPA method 26A
A7 [Point A7 on Emission point plan in Schedule 7]	Reactors 57-74 (GaN)	Ammonia	No limit set	Periodic	Six-monthly then once every three years from emission points	EN 21877
		Oxides of Nitrogen (NO _x)	5 mg/m ³	Periodic	Annual	EN 14792
		Carbon monoxide	No limit set	Periodic	Annual	Non specified
		Chlorine	No limit set	Instantaneous	Annual	US EPA method 26A
A8 [Point A8 on Emission point plan in Schedule 7]	Reactors 75-92 (GaN)	Ammonia	No limit set	Periodic	Six-monthly then once every three years from emission points	EN 21877
		Oxides of Nitrogen (NO _x)	5 mg/m ³	Periodic	Annual	EN 14792

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		Carbon monoxide	No limit set	Periodic	Annual	Non specified
		Chlorine	No limit set	Instantaneous	Annual	US EPA method 26A
A9 [Point A9 on Emission point plan in Schedule 7]	5 MWth Backup generator (diesel fuelled)	Carbon monoxide	No limit set	Periodic	After 3 times the maximum average annual operating hours have elapsed And no less frequent than every 5 years	In line with web guide: Monitoring stack emissions: low risk MCPs
A10 [Point A10 on Emission point plan in Schedule 7]	5 MWth Backup generator (diesel fuelled)	Carbon monoxide	No limit set	Periodic	After 3 times the maximum average annual operating hours have elapsed And no less frequent than every 5 years	In line with web guide: Monitoring stack emissions: low risk MCPs
A11 [Point A11 on Emission point plan in Schedule 7]	4 x Steam boilers <1 MWth commissioned before 2018	NOx Carbon monoxide	No Limit set	-	No Monitoring required No Monitoring required	-
A12 [Point A12 on Emission point plan in Schedule 7]	0.833 MWth Steam Boiler	NOx Carbon monoxide	No Limit set	-	No Monitoring required	-

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A13 [Point A13 on Emission point plan in Schedule 7]	0.833 MWth Steam boiler	NOx Carbon monoxide	No Limit set	-	No Monitoring required No Monitoring required	-
A14 [Point A14 on Emission point plan in Schedule 7]	0.833 MWth Steam boiler	NOx Carbon monoxide	No Limit set	-	No Monitoring required	-
A15 [Point A15 on Emission point plan in Schedule 7]	0.833 MWth Steam boiler	NOx Carbon monoxide	No Limit set	-	No Monitoring required	-
A16 [Point A16 on Emission point plan in Schedule 7]	Gas Storage Unit	-	No Limit set	-	No Monitoring required	-
A17 [Point A17 on Emission point plan in Schedule 7]	Gas Storage Unit	-	No Limit set	-	No Monitoring required	-
A18 [Point A18 on Emission point plan in Schedule 7]	Gas Storage Unit	-	No Limit set	-	No Monitoring required	-
A19 [Point A19 on Emission point plan in Schedule 7]	Gas Storage Unit	-	No Limit set	-	No Monitoring required	-

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 on Emission point plan in schedule 6	Uncontaminated rainwater runoff to site drainage via interceptor	none	No limit set	-	No monitoring required	-

Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (incl. Unit)	Reference period	Monitoring frequency	Monitoring standard or method
S1 on Emission point plan in schedule 7 emission to Dŵr Cymru sewer	Process effluent Reverse osmosis concentrate and softener regeneration	-	No limit set	-	No Monitoring Required	-

Schedule 4 - Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1.	A1-A8, A11-A15 and A4a	Every 12 months	1 January
Emissions to air Parameters as required by condition 3.5.1	A9 and A10	After 3 times the maximum average annual operating hours have elapsed and no less frequent than every 5 years	1 January

Table S4.2: Annual production/treatment

Parameter	Units
Semi conductors wafers produced	kg

Table S4.3 Performance parameters

Parameter	Frequency of assessment	Units
Water usage	Annually	tonnes
Energy usage	Annually	MWh
Amount of Waste produced	Annually	tonnes

Table S4.4 Reporting forms

Media/parameter	Reporting format	Date of form
Air	Form air 1 or other form as agreed in writing by Natural Resources Wales	11/11/2024
Air (from backup diesel generators)	Form air 2 or other form as agreed in writing by Natural Resources Wales	11/11/2024
Water usage	Form water usage 1 or other form as agreed in writing by Natural Resources Wales	11/11/2024
Energy usage	Form energy 1 or other form as agreed in writing by Natural Resources Wales	11/11/2024
Other performance indicators	Form performance 1 or other form as agreed in writing by Natural Resources Wales	11/11/2024

Schedule 5 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any activity that gives rise to an incident or accident which significantly affects or may significantly affect the environment	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a permit condition	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) In the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment:	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B - to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

“accident” means an accident that may result in pollution.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by Natural Resources Wales under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

“existing MCP” means an MCP first put into operation before 20/12/2018.

“first put into operation” means that the plant must have been fired with its design fuel up to its full load. This can be, but does not have to be, during commissioning.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“gas oil” includes diesel and is defined in Article 3(19) of the MCPD.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions

“limited operating hours MCP” means an MCP that meets the requirements of paragraph 7 (existing MCP) or paragraph 8 (new MCP) of Part 2 of Schedule 25A of the EP Regulations

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“medium combustion plant” or *“MCP”* means a combustion plant with a rated thermal input equal to or greater than 1 MW but less than 50 MW

“Medium Combustion Plant Directive” or *“MCPD”* means Directive 2015/2193/EU of the European Parliament and of the Council on the limitation of emissions of certain pollutants into the air from medium combustion plants.

“new MCP” means an MCP first put into operation on or after 20/12/2018.

“operating hours” means the time, expressed in hours, during which a combustion plant is operating and discharging emissions into the air, excluding start-up and shut-down periods.

“Waste Framework Directive” or *“WFD”* means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste

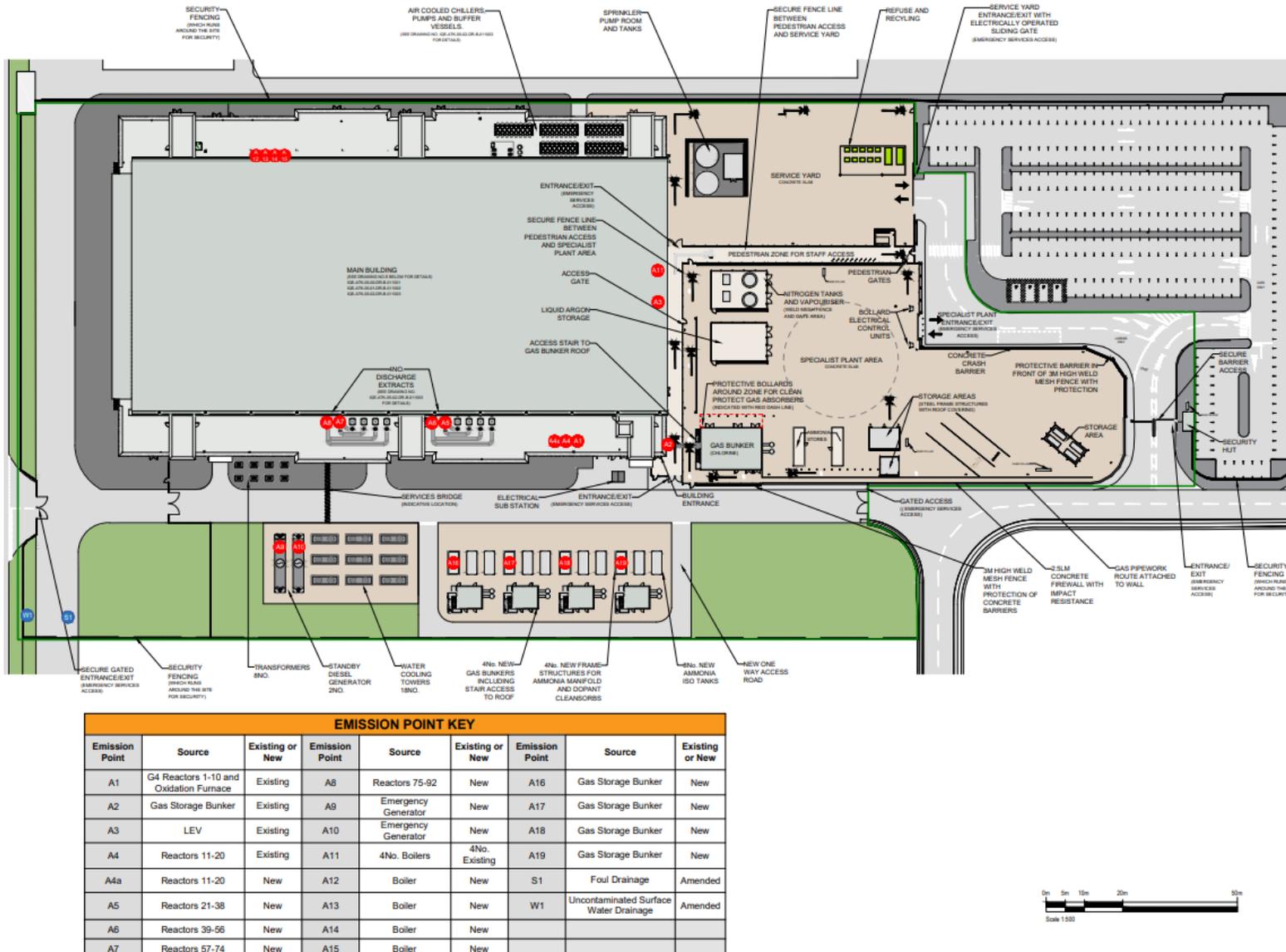
“year” means calendar year ending 31 December.

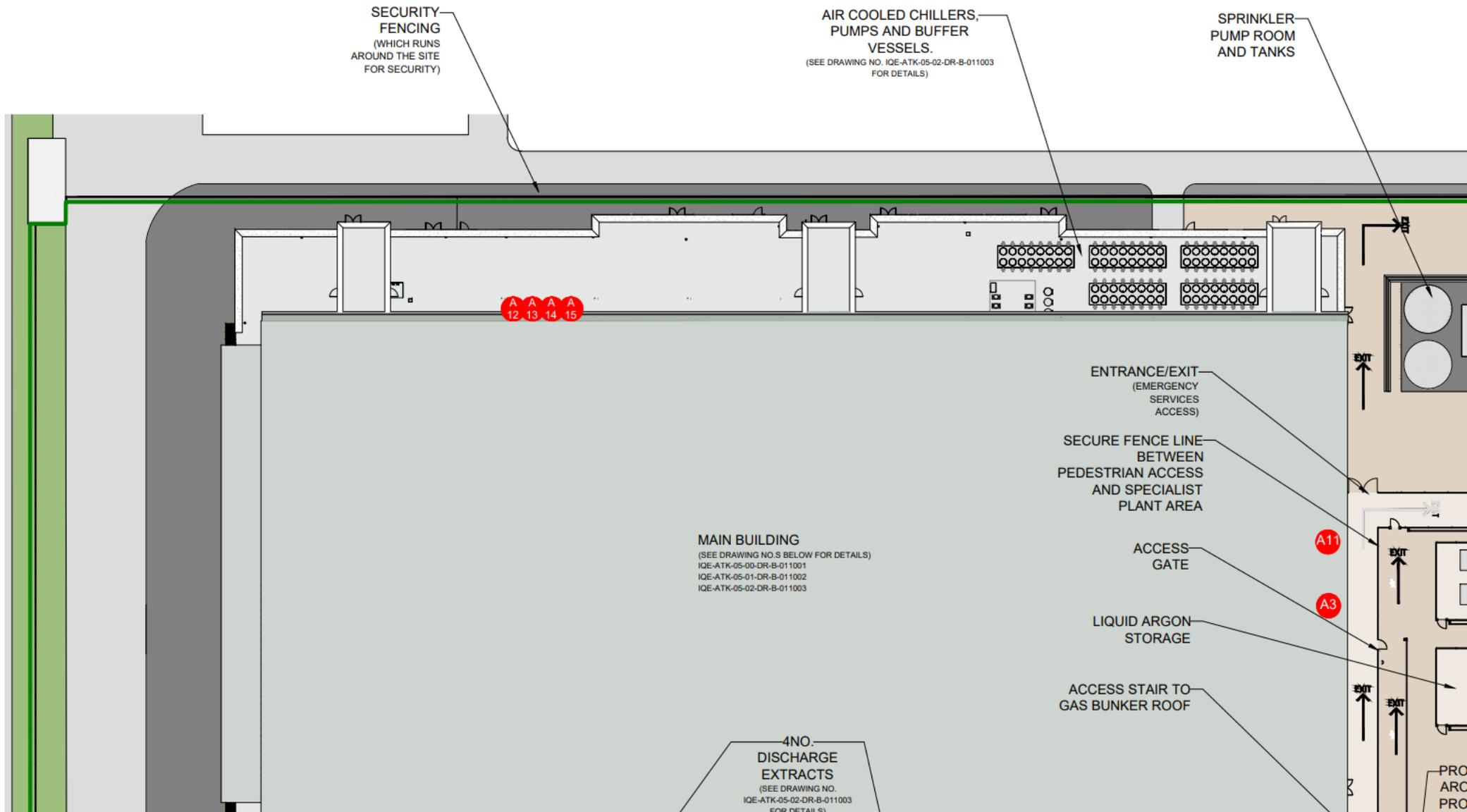
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- (a) in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of [15%],

- (b) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

Emission point plan





Schedule 8 – Annex I of MCPD

1. Rated thermal input (MW) of the medium combustion plant.	5 MWth (both A9 and A10)
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Diesel engine
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Gas Oil (Diesel)
4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.	From issue date of permit variation V003 11/11/2024
5. Sector of activity of the medium combustion plant or the facility in which it is applied (NACE code).	C26.11
6. Expected number of annual operating hours of the medium combustion plant and average load in use.	50 (100%)
7. Where the option of exemption under Article 6(3) or Article 6(8) is used, a declaration signed by the operator that the medium combustion plant will not be operated more than the number of hours referred to in those paragraphs.	Yes
8. Name and registered office of the operator and, in the case of stationary medium combustion plants, the address where the plant is located.	<p>IQE Silicon Compounds Limited Registered Office Beech House Pascal Close St Mellons Cardiff CF3 0LW</p> <p>Site of MCPs Newport Semiconductor Facility Imperial Park Celtic Way Celtic Lakes Newport NP10 8BE</p>

END OF PERMIT