

Natural Resources Wales permitting decisions

Newport Wafer Fab Limited (Newport Semiconductor Plant) Decision Document

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Variation and consolidation of a bespoke permit

The variation number is: EPR/BV7460ID/V005

The operator is: Newport Wafer Fab Limited

The Installation is located at: Newport Semiconductor Plant, Cardiff Road, Duffryn, Newport, NP10 8YJ

We have decided to issue the variation for Newport Semiconductor Plant operated by Newport Wafer Fab Limited.

This variation adds one 5.965 MW thermal input natural gas fuelled Combined Heat and Power (CHP) engine within the existing installation boundary. The CHP engine is classed as a new bespoke Medium Combustion Plant (MCP) and an excluded Specified Generator (SG). This CHP engine had previously been permitted under a standard rules permit (SR2018 No7) which was granted as part of EPR/BV7460ID/V004 variation. Following revision of the SR2018 No7 standard rules permit on 01 April 2020 the CHP engine can no longer meet the conditions set out in the SR2018 No7 standard rules permit and therefore must be permitted as a bespoke MCP and conditions are added to the installation permit as part of this variation.

This variation and consolidation does the following things:

- Updates the permit into modern format with modern conditions, this has included updating the activities in line with changes to EPR since permit issue
- Corrects minor errors in the permit
- Updates the status of improvement conditions
- Updates the operating techniques
- Updates the reporting requirements
- Adds conditions relevant to the MCP
- Adds existing combustion sources to the permit that are present at the site
- Removes redundant emission points to air that are no longer used
- Consolidates the original permit to reflect changes made through earlier variations

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that a high level of protection is provided for the environment and human health.

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Key issues of the decision

Receipt of application

Confidential information

A claim for commercial or industrial confidentiality has not been made.

Consultation

The consultation requirements were identified and implemented. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements. There was no requirement to carry out a consultation as part of this normal variation.

Operator

We are satisfied that the operator is the person who will have control over the operation of the facility after the issue of this variation. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator.

The facility

The regulated facility is an installation which comprises the following activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations (EPR) and the following directly associated activities.

- Section 4.2 A(1)(b) – Unless falling within any other Section, any manufacturing activity which is likely to result in the release into the air of any hydrogen halide
- Section 4.2 A(1)(c) – Unless falling within any other Section, any manufacturing activity (other than the application of a glaze or vitreous enamel) involving the use of, or the use or recover of, any compound of any of the following elements: (i) antimony, (ii) arsenic; (iv) gallium and (viii) platinum
- Section 6.4 A(2)(a) – Unless falling within Part A(1) of this Section, surface treating substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating, in plant with a consumption capacity of more than 150 kg or more per hour or more than 200 tonnes per year
- Section 5.4 A(1)(a)(ii) – Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving one or more of the following activities: (ii) physico-chemical treatment

As part of this variation the listed activities have been updated in line with changes in EPR since initial permit issue.

The installation is also subject to Schedule 25A of EPR – Medium Combustion Plant:

- 1 x 5.965 MW thermal input natural gas fuelled Combined Heat and Power (CHP) engine

The installation is not subject to Schedule 25B of EPR – Specified Generator, as the CHP engine is classed as an excluded generator as it is part of an installation as defined in Chapter II of the Industrial Emissions Directive.

An installation may also comprise ‘directly associated activities’, which at this installation includes:

- Steam and electrical power supply – Combustion of natural gas for water heating, steam production and thermal oxidation.

Legislation

NRW is satisfied that this decision is compatible with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources

All applicable European directives have been considered in the determination of the application.

The site

The operator has provided a updated plan which we consider is satisfactory, showing the extent of the site of the facility including the additional air emission point A15, for the CHP engine. The plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary. The site boundary has not changed as part of this variation. The following air emission points have been removed from the permit as they are no longer used: A2 – A9 and A12, this was requested by the operator to be completed as part of this variation. A total of sixteen air emission points have been added to the permit to account for existing combustion sources.

Site condition report

There was no requirement for a site condition report as part of this variation application as there is no land being added to the installation.

Biodiversity, Heritage, Landscape and Nature Conservation

The installation is within the relevant screening distance criteria for protected conservation sites. A full assessment of the application and its potential to affect any of the sites has been carried out as part of the permit determination process. Natura 2000/Ramsar sites and SSSIs will be discussed in detail separately below.

Natura 2000/Ramsar sites

The following Natura 2000/Ramsar sites are located within 10 km of the installation:

- SAC UK0013030 / SPA UK9015022 / Ramsar UK11081 Severn Estuary
- SAC UK0013007 River Usk

An OGN 200 Form 1 (Habitats Regulation Assessment) was completed to assess the potential to affect the Natura 2000/Ramsar sites, this is available on the public register. The assessment concluded the installation is not likely to have a significant effect on either of the Natura 2000/Ramsar sites.

SSSI Assessment

The following Sites of Special Scientific Interest (SSSI) are located within 2 km of the installation:

- SSSI 33WEP Gwent Levels – St. Brides

An Appendix 4 Form (CRoW Act Assessment) was completed to assess the potential to effect the SSSI site, this is available on the public register. The assessment concluded the installation is not likely to damage any of the features of the SSSI site.

Environmental Risk Assessment

Air

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the stack and its impact on local air quality.

The Applicant has assessed the Installation's potential emissions to air against the relevant air quality standards, and the potential impact upon human health. These

assessments predict the potential effects on local air quality from the Installation's stack emissions. The air impact assessments, and the dispersion modelling has been based on the Installation operating continuously at the relevant long-term or short-term emission limit values, i.e. the maximum permitted emission rate. We are in agreement with this approach.

There are a total of twenty-two emission points to air within the installation, sixteen points are added to the permit from existing combustion sources, one point is from the new CHP engine, the remaining five points are process related. The applicant has assessed the potential emissions to air from the new CHP engine through the use of the H1 tool. Air dispersion modelling was completed for any parameters that did not screen out as insignificant in line with current NRW guidance.

The applicant completed an air emission risk assessment using the H1 tool which included the parameters: carbon monoxide (CO) and oxides of nitrogen (NO_x). Carbon monoxide screened out as insignificant using the H1 tool. The H1 tool was submitted by the applicant and reviewed by us, we are in agreement with the conclusion that carbon monoxide screens out as insignificant and no further assessment is required. Detailed air dispersion modelling was completed for oxides of nitrogen (NO_x) as this parameter did not screen out as insignificant through the use of the H1 tool.

The assumptions underpinning the model have been checked and are reasonably precautionary. The way in which the Applicant used dispersion models, its selection of input data, use of background data and the assumptions it made have been reviewed to establish the robustness of the Applicant's air impact assessment. The output from the model has then been used to inform further assessment of health impacts.

There are several residential receptors located close to the installation boundary the closest are situated approximately 100 m to the south of the installation. There is a total of 11 Air Quality Management Areas (AQMA) located in Newport, the closest is approximately 1.4 km from the installation site in Glasllwch.

The applicant has calculated process contributions (PC) and predicted environmental concentrations (PEC) at locations within the installation boundary and all identified sensitive receptor locations. The modelling results for NO_x will be discussed separately below.

Oxides of nitrogen (NO_x)

A long term critical level of 40 µg/m³ (annual) and short term critical level of 200 µg/m³ (hourly) was assumed for NO_x. At sensitive receptor locations the maximum predicted long-term PC was >1 % and the long-term PEC was <70 % of the long-term critical level. Therefore in accordance with NRW guidance the long-term impacts from NO_x can be considered as insignificant. At sensitive receptor locations the maximum predicted short-term PC was <10 % of the short-term critical level. Therefore in accordance with NRW guidance the short-term impacts from NO_x can be considered insignificant. Using contour plots provided by the applicant, the long-term PC at the AQMA was predicted to be <1 % of the long-term critical level and therefore long-term impacts of NO_x on the AQMA are considered insignificant.

Emission limits

We have decided that emission limits should be set for the parameters listed in the permit. Emission limit values for the new CHP unit are in line with those contained within the Medium Combustion Plant Directive (MCPD). In line with current internal interim NRW guidance, for individual combustion units at installations subject to the Industrial Emissions Directive (IED) with a thermal input of <15 MW the emission limits values contained within the MCPD are considered indicative BAT.

Water

There are no changes to emissions to water as part of this variation.

Odour

Odour is not expected to be an emission of significant concern for the CHP engine as it is not combusting a malodorous substance, in addition there are no provisions within MCPD to control odour emissions. Permit conditions 3.3.1 and 3.3.2 requires that emissions from the activities are free from odour at levels likely to cause pollution outside the site. We are satisfied this condition will be sufficiently protective for the proposed variation to the installation.

Noise

Noise is not expected to be an emission of significant concern for the CHP engine. In addition there are no provisions within MCPD to control noise emissions. Permit conditions 3.4.1 and 3.4.2 requires that emissions from the activities are free from noise at levels likely to cause pollution outside the site. We are satisfied this condition will be sufficiently protective for the proposed variation to the installation.

Monitoring

We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified. These monitoring requirements have been imposed in order to demonstrate compliance with the emissions limit values (ELV) in the permit, as per the ELV and monitoring frequency requirements specified within the MCPD. The monitoring frequency required by MCPD (every 3 years), a site specific BAT assessment did not identify the need for a more stringent monitoring frequency to be applied. The operator completed a monitoring survey of the CHP engine in May 2020 which demonstrated the engine could comfortably meet the ELVs set in the permit.

For this new Medium Combustion Plant, that is an engine fuelled on natural gas, the monitoring requirements are as follows:

Pollutant	Type of Medium Combustion Plant	Fuel Type	Emission Limit Value (mg/Nm ³)	Monitoring Required
NOx	Engine	Natural Gas	95	Periodic – every 3 years (MCERTS)
CO	Engine	Natural gas	No limit set	Periodic – every 3 years (MCERTS)

Emission limit values are defined at a temperature of 273.15 K, a pressure of 101.3 kPa and after correction for the water vapour content of the waste gases and at a standardised O₂ content of 15 % for engines and gas turbines.

For emissions to air, the methods for periodic monitoring are in accordance with the Environment Agency's Technical Guidance Note M5 for monitoring of stack emissions from medium combustion plants and specified generators.

Based on the information in the Application and the requirements set in the conditions of the permit we are satisfied that the monitoring techniques, personnel and equipment employed by the Operator will have either MCERTS certification or MCERTS accreditation as appropriate.

Reporting

We have specified the reporting requirements in Schedule 4 of the Permit to ensure data is reported to enable timely review by Natural Resources Wales to ensure compliance with permit conditions.

As required by permit condition 3.5.5, 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.

Operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes. The relevant guidance notes for the variation to this installation are:

- How to comply with your environmental permit (October 2014)
- How to comply with your environmental permit Additional information for: The Inorganic Chemicals Sector (EPR 4.03)
- Technical Guidance Note M1: Sampling requirements for stack emission monitoring
- Technical Guidance Note M5: Monitoring stack emissions from medium combustion plants and specified generators
- Medium combustion plant and specified generator permits: how to comply (July 2019)

Emission limit values for the new CHP unit are in line with those contained within the Medium Combustion Plant Directive (MCPD). In line with current internal interim NRW guidance, for individual combustion units at installations subject to the Industrial Emissions Directive (IED) with a thermal input of <15 MW the emission limits values and monitoring frequency contained within the MCPD are considered indicative BAT. There is not a more stringent monitoring frequency required by the installation BAT, therefore provisions contained within MCPD will apply.

Monitoring of point source emissions to air will be carried out in line with the monitoring requirements outlined in TGN M5 and will have MCERTs accreditation. No further additional controls for monitoring are required.

Current sampling of point source emissions to air are in line with the sampling requirements outlined in TGN M1. No further additional controls for sampling are required.

As the CHP engine is a Medium Combustion Plant (MCP), the site must adhere to the following operating techniques specific for MCP:

- Each MCP must be operated in accordance with the manufacturer's instruction 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.

The permit conditions

Updating permit conditions during consolidation

We have updated previous permit conditions to those in the new generic permit template as part of this permit consolidation. The new conditions have the same meaning as those in the previous permit(s). We have incorporated a number of new conditions specific to Medium Combustion Plants into the permit. These conditions have been taken from our MCP/SG permit template. The operator has agreed that the new conditions are acceptable.

Raw materials

There are no changes to raw materials as part of this variation.

Waste types

There are no changes to waste types as part of this variation.

Improvement conditions

The status of the improvement conditions has been updated as part of the consolidation of the permit. All previous improvement conditions have been marked as complete. Based on the information on the application, we consider that we need to impose one further improvement condition. Details of the improvement condition used can be found at Annex 1. We have imposed this improvement condition as since the changes made to EPR in 2016 there is a requirement for the operator to carry out groundwater monitoring every five years and soil monitoring every 10 years. This consolidated permit introduces the new 3.1.3 condition which covers this requirement. The previous round of monitoring was carried out in 2006 as part of the permit application, therefore we require the baseline to be established now not in a further 5 or 10 years.

Incorporating the application

We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process. These descriptions are specified in the Operating Techniques table (S1.2) in the permit. As the CHP engine is an MCP, the site must adhere to a number of additional operating techniques these have been specified in the Operating Techniques table (S1.2A) in the permit.

Operator Competence

Environment management system

There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence. The Environment Management System is externally accredited to ISO14001.

Relevant convictions

Our Enforcement Database has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found. The operator satisfies the criteria in RGN 5 on Operator Competence.

Financial provision

There is no known reason to consider that the operator will not be financially able to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.

OPRA

The OPRA score at permit issue is 67.

ANNEX 1: Improvement Conditions

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
IC14	The Operator shall carry out groundwater and soil monitoring as required by EPR 2016 and condition 3.1.3 of this permit. The operator shall submit a report detailing the results of the groundwater and soil monitoring survey by the date specified.	14/09/2021

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