

Natural Resources Wales permitting decisions

Broughton Aircraft Factory (Airbus)

Decision Document

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Variation

The variation number is: EPR/BM3965IA/V009

The Operator is: Airbus Operations Limited

The Installation is located at: Broughton Aircraft Factory, Chester Road, Broughton, Chester, CH4 0DR

We have decided to issue the variation for Broughton Aircraft Factory operated by Airbus Operations Limited.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

This variation is to authorise the installation of two new paint spray booths, one within the Interim Single Aisle Paintshop in Building 128 and one within the Final Single Aisle Paintshop in Building 160 building on site. The new paint booths will carry out final wing painting and detailed wing painting of wing elements. The two new paint booths will be operated in the same manner as the existing paint booths and will use the same compliant coating and solvent cleaning materials. There will be two new emission points to air associated with the new booth in the Interim Single Aisle Paintshop and one new emission point to air associated with the new booth in the Final Single Aisle Paintshop. Each emission point to air will release air containing particulate matter and volatile organic compounds (VOCs) present as a result of the painting activities.

The exhaust gases will be cleaned prior to release using dry filtration which will remove some of the particulate matter. The filter medium used will offer F9 filtration capability and be high efficiency dust retention units that incorporate a dust fixing resin. Outlets will be fitted with a HEPA H13 filter and ducted to an external discharge point.

Releases of VOCs will be controlled by compliance with the site's existing agreed Solvent Reduction Scheme and adherence to the site's existing agreed Solvent Management Plan.

During the determination we issued a Notice for Further Information to the Operator on 02/08/2023 asking them to provide an assessment of the impact on human health of emissions of VOCs and particulate matter from the two new spray booths and an assessment showing that the method of dry filtration adopted on the exhaust vents of the two new spray booths is able to meet the emission limit value of 50mg/m³ as a 15-minute average for particulate matter as stipulated in [PG6/40\(11\) Statutory guidance for coating and re-coating of aircraft and aircraft components](#). We received a response to the Notice from the Operator, which we deemed satisfactory, on 17/08/2023. We also received additional information, which comprised of a revised site plan and Best Available Techniques and Operating Techniques document, which we also deemed satisfactory, on 04/09/2023.

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 Operator's proposals.

Key issues of the decision

Receipt of application

Confidential information

No claim for commercial or industrial confidentiality has been made.

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential. The decision was taken in accordance with our guidance on commercial confidentiality.

Consultation

There was no requirement to consult on this application. This decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements.

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 and the following directly associated activities.

Listed activities:

Section 1.1 Part A(1)(a): *Burning any fuel in an appliance with a rated thermal input of 50 or more megawatts.*

- Dispersed combustion plant including CHP and associated reserve boilers;

Section 2.3 Part A(1)(a): *Unless falling within Part A(2) of this Section, surface treating metals and plastic materials using an electrolytic or chemical process where the aggregated volume of the treatment vats is more than 30m³.*

- TSA anodising (including etch and pickling) on LCM and SMC facilities until conversion process is complete, then TSA anodising only;

Section 5.4 Part A(a): *Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving one or more of the following activities, and excluding activities covered by Council Directive 91/271/EEC concerning urban waste-water treatment—*

- (i) biological treatment;*
 - (ii) physico-chemical treatment;*
 - (iii) pre-treatment waste for incineration or co-incineration;*
 - (iv) treatment of slags and ashes;*
 - (v) treatment in shredders of metal waste, including waste electrical and electronic*
 - (vi) equipment and end-of-life vehicles and their components.*
- Treatment of effluent from TSA Anodising.

Section 6.4 Part B(a): *Unless falling within Part A(1) or Part A(2) of this Section or Part A(2)(c) of Section 2.1, any process (other than for the re-painting or re-spraying of, or of parts of, aircraft or road or railway vehicles) for applying to a substrate, or drying or curing after such application, printing ink or paint or any other coating material as, or in the course of, a manufacturing activity, where the process may result in the release into the air of particulate matter or of any volatile organic compound and is likely to involve the use in any 12-month period of—*

- (i) 20 or more tonnes of printing ink, paint or other coating material which is applied in solid form,*
 - (ii) 20 or more tonnes of any metal coating which is sprayed on in molten form,*
 - (iii) 25 or more tonnes of organic solvents in respect of any cold set web offset printing activity or any sheet fed offset litho printing activity, or*
 - (iv) 5 or more tonnes of organic solvents in respect of any activity not mentioned in subparagraph (iii).*
- Painting and sealing of wing structures;

Directly Associated Activities

- Manufacture of wing structures;
- Machining;

- Autoclaves;
- Surface Cleaning using organic solvents: and
- Coating wing structures using organic solvents.

Operator

We are satisfied that the Applicant (the Operator) is the person who will have control over the operation of the facility after the variation is issued. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of Operator.

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 plan which we consider is satisfactory, showing the extent of the site of the facility, including the location of the part of the installation to which this variation applies. The three new emission points to air are included on this plan.

This plan is included in the permit, and the Operator is required to carry on the permitted activities within the site boundary.

Site condition report

The variation does not involve the use of any additional land and the preparation and spraying operation in the new paint spray booths will take place within existing buildings inside the existing installation footprint. As such, a site condition report was not required as part of this variation application as the Operator did not ask for any new areas of land to be included within the site boundary.

Biodiversity, Heritage, Landscape and Nature Conservation

The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat, namely:

European Sites within 10km of emission points A35c, A36c and A187:

- Dee Estuary / Aber Dyfrdwy (England) (SAC)
- Dee Estuary / Aber Dyfrdwy (Wales) (SAC)
- Deeside and Buckley Newt Sites (SAC)
- River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (England) (SAC)
- River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales) (SAC)
- The Dee Estuary (England) (SPA)
- The Dee Estuary (Wales) (SPA)
- The Dee Estuary (England) (Ramsar)
- The Dee Estuary (Wales) (Ramsar)

Sites of Special Scientific Interest within 2km of emission points A35c, A36c and A187:

- Afon Dyfrdwy / River Dee

Non-statutory sites within 2km of emission points A35c, A36c and A187:

- Mold Junction Triangle (Local Wildlife Site)
- 2 x restored ancient woodland sites

A full assessment of the application and its potential to affect the habitats sites and species has been carried out as part of the permitting process. We consider that the application will not affect the features of the habitats sites or species.

Emission points A35c, A36c and A187 will release VOC and particulate matter (abated using fabric filters) associated with paint overspray. There are no Critical Levels or Critical Loads set for the protection of vegetation and ecosystems with regard to VOCs or particulate matter. VOC release is controlled via compliance with the site's existing EPR Solvent Reduction Scheme as presented in PG 6/40(11) and PG 6/45(11) "Statutory Guidance for Surface Cleaning", published by DEFRA.

Furthermore, all of the sites identified above are more than 1 kilometre away from emission points A35c, A36c and A187 and therefore not at risk of significant effects from particulate matter emissions. This assessment is based on the fallout rate for nuisance dust which can travel up to 500 metres from the emission points, but will decrease rapidly beyond this, due to dilution and dispersion with increasing distance from the source. In terms of PM₁₀ releases, deposition rates above 500 mg/m²/day (the threshold at which effects have been observed in terms of dust retained on plant surfaces), are extremely unlikely as a result of the abatement techniques to be employed by the Operator and the distance from the release point to any of the designated habitats sites. The fabric filters that will be installed in the new booths have been designed to achieve the 50 mg/Nm³ particulate emission benchmark quoted in PG 6/40(11) "Coating and Re-coating of aircraft and aircraft components".

We are therefore satisfied that for the European sites, Habitats Risk Assessment (HRA) is not required, because there is no plausible pollutant linkage to any Natura 2000 and Ramsar site. The same rationale applies to the SSSI and non-statutory sites listed above. As such we have concluded that releases of VOC and particulate matter from A35c, A36c and A187 will not have a likely significant effect on any of the European Sites identified, are not likely to damage the SSSI, and will not cause significant pollution to the non-statutory sites. We have not formally consulted on the application because no further assessment is required. The decision was taken in accordance with our guidance.

Environmental Risk Assessment

Air

There are three new point source release points associated with the new spray booths: A35c, A36c and A187. Releases from A35c, A36c and A187 will be comprised of VOCs and particulate matter, primarily from paint overspray. The new booths will use the same type and quantity of coating materials and solvents as the existing paint booths within the Interim Single Aisle Paintshop and Final Single Aisle Paintshop. As such, we are satisfied that no new coating materials or solvents will be introduced as a result of this variation. To minimise raw material use, spray gun cleaning is carried

out in a bespoke recirculating gun cleaner system in which the majority of the solvent is recirculated within the closed system.

As noted above, the Operator has chosen the “solvent reduction scheme” approach to achieving permit compliance. This means that instead of using emission limits to control releases, the paints and coating materials used at the site are compliant with the solvent and solids content criteria stipulated in DEFRA guidance note PG6/40(11) “Statutory guidance for coating and re-coating of aircraft and aircraft components”. To demonstrate compliance, permit EPR/BM3965IA requires the operator to submit a mass balance for VOCs from the Paintshops on an annual basis.

The addition of the new spray booths means that VOC releases from the Paintshops are predicted increase by approximately 0.24 tonnes per year. The calculated (based on usage and wastage) 2022 IED Target Value for VOC release for the site was 122.38 tonnes and the actual gross tonnage VOC release from the site for the calendar year 2022 was 73.1 tonnes, which equates to 59.73% of the Target Value. The contribution from the new spray booths as a proportion of the Target Value is 0.2%. We therefore consider that the proposed new paint booths will not alter the permitted installation’s ability to comply with the EPR Solvent Reduction Scheme as presented in PG 6/40(11) and PG 6/45(11) “Statutory Guidance for Surface Cleaning” published by DEFRA.

The Operator has submitted an air dispersion modelling study for the proposed VOC and Particulate Matter releases associated with new emissions points A35c, A36c and A187. With regard to the assessment of VOC release, the Operator has taken a conservative approach by selecting a surrogate VOC which is representative of total solvent emission - benzene.

The Operator has modelled two operation scenarios:

- Scenario 1: using monitored concentrations taken from identical spray booths already operational on site as a proxy for VOCs and particulate matter release from the two new booths; and

- Scenario 2: using the same monitored concentrations taken from identical spray booths already operational on site for VOCs and the ELV stipulated in PG 6/40 (11) of 50 mg/m³ for particulate matter.

With regard to Scenario 1, all process contributions (PCs) at nearby sensitive receptors are less than 1% and 10% respectively of the relevant long- and short-term Air Quality Standards (AQS) for Benzene, PM₁₀ and PM_{2.5}. The PCs therefore screen out as insignificant and we are satisfied that emissions of VOCs and particulate matter under this scenario from the three new emission points are unlikely to cause harm to human health.

With regard to Scenario 2, all PCs at nearby sensitive receptors are less than 1% and 10% respectively of the relevant long- and short-term AQSs for Benzene, PM_{2.5} and PM₁₀, with the exception of the annual mean PC for PM_{2.5} at Receptor R2. The Predicted Environmental Concentration (PEC) at this Receptor, which is the PC plus the background PM_{2.5} concentration, is 8.1 µg/m³. This is 40.5% of the annual mean PM_{2.5} AQS. As this PEC is <70% of the relevant AQS we consider it to be insignificant, in line with our guidance. It should be noted that Scenario 2 assumes an emission rate for particulate matter at the ELV stipulated in PG 6/40 (11) when in reality, emission rates are likely to be much lower, and therefore we consider this to be a conservative assessment. Therefore, under this scenario, all PCs screen out as insignificant and we are satisfied that emissions of VOCs and particulate matter from the three new emission points are unlikely to cause harm to human health.

Emission limits

We have included the three new emission points A35c, A36c and A187 in the permit but we have not included any emission limit values or requirements to monitor emissions for VOCs. This is because, for VOC release, the site demonstrates compliance with the EPR Solvent Reduction Scheme as presented in PG 6/40(11) and PG 6/45(11) "Statutory Guidance for Surface Cleaning" published by DEFRA.

Water

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent pollution of ground and surface water.

Odour

We consider that the activities associated with the new spray booths have the potential to cause odour that might cause pollution outside the site. However, we are satisfied that the measures described in the application for control and mitigation of odour are satisfactory and the operation of the new spray booths will not cause odour pollution outside the site boundary. We consider that the Operator's proposals represent the appropriate measures to prevent/minimise odour from the permitted activities.

Noise

We consider that the activities associated with the new spray booths have the potential to cause noise and/or vibration that might cause pollution outside the site. However, we are satisfied that the measures described in the application for control and mitigation of noise are satisfactory and the operation of the new spray booths will not cause noise pollution outside the site boundary. We consider that the Operator's proposals represent the appropriate measures to prevent/minimise noise from the permitted activities.

Fugitive emissions

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise fugitive emissions and to prevent pollution from fugitive emissions.

Monitoring

There are no changes to the monitoring requirements specified in the permit as a result of this variation.

Reporting

There are no changes to the reporting requirement specified in the permit as a result of this variation.

Operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes. The Operator has assessed the dry filtration techniques that will be employed in the new spray booths to abate emission of particulate matter

against Best Available Techniques (BAT) for this activity and against predicted compliance with the ELV for particulate matter stipulated in PG 6/40 (11) of 50 mg/m³. The booths will be very similar in design to the existing booths on site and will incorporate similar dry filtration systems. They will also use the same VOC-compliant coatings. The existing booths are able to achieve an average particulate matter emission of <0.5 mg/m³, based on manual extractive testing. This is well within the ELV stipulated in PG 6/40 (11) and we have no reason to believe that the new booths will not be able to achieve similar levels of performance.

We therefore consider that the proposed techniques for priorities for control are in line with the benchmark levels contained in the TGN and we consider them to represent appropriate techniques for the facility.

The permit conditions

Raw materials

We have not specified limits and controls on the use of raw materials and fuels as a result of this variation.

Waste types

We have not specified any new permitted waste types, descriptions and quantities, which can be accepted at the regulated facility as a result of this variation.

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 in the permit.

OPRA

The OPRA score at variation issue is 172.

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