

Permitting Decisions - Variation

We have decided to grant the variation for Samlesbury Aerodrome operated by BAE Systems (Operations) Limited.

The variation number is EPR/BV0414IV/V003.

The permit was issued on 03/10/2024.

The variation is for the following:

Central Treatments Facility

- Replacement of existing Chromic acid anodising process line with new Thin Film Sulphuric Acid Anodise (TFSAA) process line.
- Removal of all decommissioned equipment associated with the Chromic acid anodising process line and the two existing external scrubber units (AE1 and AE2).
- Removal of all references to the 'Clean and Pickle line' and associated emission points AE3 and AE4.
- Revised tanker/chemical delivery area for process improvement as they are BAT.
- Expansion of the existing effluent treatment plant (ETP) for increased storage and treatment capacity. This includes
 - Installation of mezzanine within the building
 - Modification of the existing external concrete bund
 - Replacement of 7 above ground storage tanks (ASTs) with 7 new ASTs.

1-Shed

- To remove reference to organic solvent degreasing using Neu-Tri E (Trichloroethylene) and add the replacement solvent which is Perchloroethylene (Tetrachloroethylene).

Site boundary

- An extension to the permit boundary to incorporate the proposed changes.

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.

Purpose of this document

This decision document provides a record of the decision-making process. It

- highlights [key issues](#) in the determination
- summarises the decision making process in the [decision considerations](#) section to show how the main relevant factors have been taken into account
- shows how we have considered the [consultation responses](#)

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

Read the permitting decisions in conjunction with the environmental permit and the variation notice.

Key issues of the decision

BAE Systems (Operations) Limited operates an installation at Samlesbury Aerodrome, Balderstone, Lancashire, BB2 7LF. The installation produces components and major sub-assemblies for a variety of military aircraft platforms.

The activities fall under the following Schedule 1 listed activities of the Environmental Permitting Regulations:

Section 2.3 Part A(1)(a) – Surface treating metals and plastic materials using an electrolytic or chemical process where the aggregated volume of the treatment vats is more than 30m³.

Section 4.2 Part A(1)(f) – Any activity which is likely to result in the release into the air of any acid-forming oxide of nitrogen.

Section 5.4 Part A(1)(a)(ii) – Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving physico-chemical treatment.

There is a Site of Special Scientific Interest – Darwen River Section SSSI at a distance of approximately 1700m south of the installation.

The changes incorporated in this variation application is discussed.

1. CTF

- Replacement of existing Chromic acid anodising process line: The operator is replacing the existing chromic acid anodising process line with a new BAT and UK REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) compliant metal anodising process based on Thin Film Sulphuric Acid Anodising (TFSAA). The operator has informed that the process line is composed of 28 process stations which are related to loading/unloading, inspection, treatment or rinsing using de-ionised water.

The new process line will introduce a new emission point (A10) but it will use an existing unused scrubber.

Emissions to Air

The operator has submitted an air quality dispersion modelling report titled 'Air Quality Assessment of Emissions to Atmosphere from BAE Systems Samlesbury, Lancashire' undertaken by their consultant. We have audited the consultant's AQA and also conducted our checks. As a result of our observations, we agree with the consultant's numerical values.

The pollutants modelled include NO_x, HF, Cr(III) and Cr(VI). The source of Cr(VI) is the use of Sodium Dichromate in Bath 23.

We have found that the emissions of NO_x, HF and Cr (III) are not significant at human and ecological receptor locations. However Cr (VI) PC has been calculated to be 35% of the EAL. The consultant has justified that although Cr(VI) PC is greater than 1% at all sensitive receptor locations, the PC itself is less than the EAL. Further, the consultant has considered Cr(VI) as 20% of Cr(III) which is a worse case.

In conclusion, we consider the replacement of Chromic acid anodising line by TFSAA to be BAT. Further, the consultant's overall assumptions are conservative and the highest reported PC of 35% of EAL is likely to be the worst-case.

We are therefore happy with the applicant's risk assessment and conclude no significant impact on human health and ecological receptor locations.

- Containment

The applicant informed that they have considered containment when designing the new anodise process line by locating the safetainers adjacent to the chemical bath and ensuring that the pipework is double contained. The bath linings are specific to the process chemicals (as informed by the applicant).

Secondary containment (updated) is as shown in the table below (as provided by the applicant in the email dated 11/09/2024'):

Tank Ref	Bund 1	Bund 2	Bund 3	Bund 4
Total capacity of the tanks (in bund)	114.2 m ³	106.4 m ³	46.8 m ³	120.2 m ³
Rule 1 – 25% of total volume of tanks	28.55 m ³	26.6 m ³	11.7 m ³	30.05 m ³
Rule 2 – 110% the volume of biggest tank	17.6 m ³	19.5 m ³	17.6 m ³	17.6 m ³
Bund Volume (m ³)	41.07 m ³	37.23 m ³	18.02 m ³	43.76 m ³
Conclusion	BAT	BAT	BAT	BAT
Notes:				
Bund volume calculated by supplier from CAD plans.				
Bund 1 contains the following baths – Bath 2 (17.6 m3), Bath 3 (14.6 m3). Bath 5 (14.6 m3)				

The applicant has taken additional measures such as level alarms on bund sumps; the bunds are lined to be chemically resistant and impermeable. The applicant has set up hardstanding areas around the anodise process line as tertiary containment.

We are satisfied with the applicant's containment measures.

- Decommissioning

The operator has informed that the clean and pickle line has been decommissioned. In this variation, all references to clean and pickle line and associated emission points AE3 and AE4 have been removed from the permit.

The operator has stated in their application that once the new anodising process line is fully operational, the existing chromic acid metal anodising process line will be decommissioned along with the associated scrubber units in line with the decommissioning plan provided in the 'Main Application Report (Variation)'.

The applicant has committed to removing all decommissioned materials from site and disposing it in accordance with Duty of Care and Hazardous Waste Regulations; all decommissioning works shall be filed and maintained as record.

We are satisfied with the applicant's decommissioning and waste disposal plan.

2. Best Available Techniques (BAT)

The applicant has provided a summary of the Management Systems: The applicant has implemented ISO 14001:2015 Environmental Management System (EMS). In addition, the site is also certified to ISO 45001:2018 Occupational Health and Safety Management Systems and ISO 50001:2018 Energy Management Systems. The applicant has confirmed that the current EMS will be updated to include all the changes outlined in this application.

The applicant has undertaken a detailed Hazard Identification Analysis (HAZID) for the new anodise process line and associated CTF chemical handling process. Spill kits and absorbents will be available throughout the area and subject to regular inspection.

The applicant has also considered energy efficiency, reduction in maintenance costs, waste and ambient noise emissions by installing blowers and pumps which are variable speed drives. The new anodise process line uses electricity only and there is no direct gas use on the process line.

The applicant has provided a detailed BAT assessment for the anodise process line in the document '*Best Available Techniques (BAT) Assessment, BAE Systems (Operations) Limited, Samlesbury, Balderstone, Lancashire, BB27LF, UK (Permit Ref. BV0414IV)*'. We are satisfied with the applicant's BAT assessment.

3. Site-condition report:

In line with BAT requirements, the external arrangement for the delivery and handling of chemicals via tanker were subject to improvement and re-engineering. The applicant has requested to recognize this change and also to extend the site boundary to include the new tanker/chemical handling bay up to the new security key entry gate located adjacent to the existing chemical store.

The applicant has submitted a site-condition report (SCR) which captures the changes due to extension of the site boundary. We have consulted with the internal Area Groundwater and Contaminated Land (GWCL) team.

GWCL comments: The consultee has confirmed that sufficient information has been supplied to describe the condition of the site and that pollution of land and water is unlikely.

We are satisfied with the information provided by the applicant and agree to extend the permit site boundary.

4. Effluent Treatment Plant (ETP):

There are two ETPs associated with the installation, one in CTF and one in 1-Shed. The final treated effluent combines with the domestic wastewater at TE3 where it discharges into sewer under United Utilities trade effluent discharge consent. The effluent from the WWTP is discharged into Hole Brook which then immediately enters River Darwen.

The change in CTF ETP is associated with the decommissioning of the chromic acid anodising line. The addition of new anodise line (TFSA) will lead to increased consumption of de-ionised (DI) water. The variation allows an increase of DI water production from 15,000litre/hour to 35,000litre/hour with the treated discharge increasing from 126m³/day to 294m³/day. A temporary above ground storage tank (AST) with a capacity of 60m³ will be provided.

The modification of the CTF ETP includes:

- Removal of existing ASTs and associated equipment located within external bund

- Change in the dimensions and shape of the secondary containment to account for new ASTs
- Installation of steel platform (mezzanine) to allow safe access to the new ASTs
- Replacement with new softener and carbon reverse osmosis pre-treatment system
- Replacement with six new chemical storage ASTs and one DI water AST.

Chemical ASTs containment measures

The operator has provided secondary containment for the Chemical ASTs. The volume of the secondary containment is 34m³ which is greater than both – 25% of the volume of all tanks which is 16m³ and 110% of the volume of the largest tank which is 22m³.

The secondary containment has a drain which leads to a blind sump within the containment. Both the containment and sump are lined making them chemically resistant and impermeable structure.

We are satisfied with the applicant's secondary containment measures for the ASTs.

Chrome reduction process removal

The existing CTF ETP utilises a chrome reduction process to treat rinse waters containing Cr(VI) generated from the Chromic acid anodising process. Once the TFSAA (new process line) is fully on-line, the chrome reduction process will be removed from the CTF ETP. The only other source of Cr(VI) will be Bath 23 which carries sodium dichromate. The applicant has confirmed that the new anodise process line does not include a rinse after the seal (containing sodium dichromate) and therefore there is no potential for Cr(VI) to be present in the wastewater. If Bath 23 requires to be emptied the resulting effluent will be treated off-site. We accept the applicant's proposal.

Emissions to sewer

The applicant has provided an H1 risk assessment for discharges to sewer for TE1 and TE2. We have carried out our own checks for emissions to sewer and can confirm that the substances screen out as insignificant at Test2. Please see the report as generated.

Substance	Annual Avg EQS					MAC EQS				
	Annual Avg EQS µg/l	PC µg/l	Modelled PC	% PC of EQS %	PC < 4% of EQS? Test 2	MAC EQS µg/l	PC µg/l	Modelled PC	% PC of MAC %	PC < 4% of MAC? Test 2
Cadmium and its compounds (50 - <100 mg/l CaCO3) (River Darwen)	0.09	0.0006		0.67	Pass	0.6	0.0024		0.403	Pass
Chromium III (95%ile) (dissolved) (River Darwen)	4.7	0.0108		0.23	Pass	32	0.1450		0.454	Pass
Copper (River Darwen)	1	0.0039		0.39	Pass		0.0310		-	Pass
Nickel and its compounds (River Darwen)	4	0.0001		0.00	Pass	34	0.0022		0.00659	Pass
Sulphate (River Darwen)	400000	307.9255		0.08	Pass		#####		-	Pass
Zinc (River Darwen)	10.9	0.0088		0.08	Pass		0.1217		-	Pass

The effluent from the WWTW enters River Darwen (Darwen Section SSSI). We have carried our own assessment and found that the discharge is downstream of the SSSI and will likely have no effect on suspended solids within the designated site. We conclude this proposed permission is not likely to damage any of the designated features associated with the SSSI.

We are satisfied with the applicant's risk assessment.

5. 1-Shed – Solvent degreasing

The solvent vapour degreasing unit used Trichloroethylene (TCE) but with the addition of TCE in Annex XIV of REACH (registration, evaluation, authorisation and restriction of chemicals), this solvent has been discontinued. The replacement solvent for degreasing is Perchloroethylene (PERC). The substance is used within a fully enclosed degreaser fitted with activated carbon filtration system. The use of PERC is limited to less than 1 tonne of solvent per annum.

We are happy with the use of PERC in low quantities and consider this as BAT.

Decision considerations

Confidential information

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

The decision was taken in accordance with our guidance on confidentiality.

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 confidentiality.

Consultation

The consultation requirements were identified in accordance with the Environmental Permitting (England and Wales) Regulations (2016) and our public participation statement.

The comments and our responses are summarised in the [consultation responses](#) section.

The application was publicised on the GOV.UK website.

We consulted the following organisations:

- Local Authority – Environmental Protection Department
- Director of PH/UKHSA
- Health and Safety Executive
- Sewerage Authorities
- Local Fire Service

The comments and our responses are summarised in the [consultation responses](#) section.

The regulated facility

The primary activity AR1 as referred to in S1.1 of the permit has been varied to remove the existing chrome anodising and alocrom line. This will be replaced with thin film sulphuric acid anodising (TFSAA) process line.

We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN2 'Defining the scope of the installation', Appendix 1 of RGN 2 'Interpretation of Schedule 1'.

The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

The site

The operator has provided a plan which we consider to be satisfactory.

The plan is included in the permit.

Site condition report

The operator has provided a description of the condition of the site, which we consider is satisfactory. Please see [key issues of the decision](#) for the details.

The decision was taken in accordance with our guidance on site condition reports.

Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is within our screening distances for these designations.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat designations identified in the nature conservation screening report as part of the permitting process.

We consider that the application will not affect any site of nature conservation, landscape and heritage, and/or protected species or habitats identified.

We have not consulted Natural England.

The decision was taken in accordance with our guidance.

Environmental risk

We have reviewed the operator's assessment of the environmental risk from the facility.

The operator's risk assessment is satisfactory.

The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment or similar methodology supplied by the operator and reviewed by ourselves, all emissions may be screened out as environmentally insignificant.

General operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility.

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

Operating techniques for emissions that do not screen out as insignificant

Emissions to air - Emissions of Oxides of Nitrogen (NO_x), Hydrogen Fluoride (HF), Trivalent Chromium (Cr III) and Hexavalent Chromium (Cr VI) cannot be

screened out as insignificant. We have assessed whether the proposed techniques are Best Available Techniques (BAT).

The proposed techniques/ emission levels for emissions that do not screen out as insignificant are in line with the techniques and benchmark levels contained in the technical guidance and we consider them to represent appropriate techniques for the facility. The permit conditions enable compliance with The Surface Treatment of Metals and Plastics by Electrolytic and Chemical Processes (EPR 2.07).

Operating techniques for emissions that screen out as insignificant

Emissions to water - Emissions of the following substances have been screened out as insignificant, and so we agree that the applicant's proposed techniques are Best Available Techniques (BAT) for the installation.

Nickle
Cadmium
Zinc
Chromium III
Sulphate
Copper
Iron

We consider that the emission limits included in the installation permit reflect the BAT for the sector.

National Air Pollution Control Programme

We have considered the National Air Pollution Control Programme as required by the National Emissions Ceilings Regulations 2018. By setting emission limit values in line with technical guidance we are minimising emissions to air. This will aid the delivery of national air quality targets. We do not consider that we need to include any additional conditions in this permit.

Updating permit conditions during consolidation

We have updated permit conditions to those in the current generic permit template as part of permit consolidation. The conditions will provide the same level of protection as those in the previous permit.

Improvement programme

Based on the information on the application, we consider that we need to include an improvement programme.

We have included the following improvement conditions:

IC4: IC4 has been included in the permit for the Operator to submit a written report to the Environment Agency for technical assessment and approval of noise impact assessment (NIA). This report is to be submitted within 6 months from the commissioning of the new process line TFSAA. The operator must implement the proposals in the report in line with the timescales agreed with the Environment Agency.

IC5: IC5 has been included in the permit for the Operator to submit a written report to the Environment Agency for assessment and written approval of the emissions monitoring data during the first year of operation. This improvement condition is to ensure that the impact of air emissions from the proposed change reflects the results of the air quality assessment (AQA) provided within the application. The written report should be submitted within 15 months from the commissioning of the TFSAA process line. The operator must implement the proposals in the report in line with the timescales agreed with the Environment Agency.

Emission limits

Emission Limit Value (ELV) has been deleted for emission point A8 for the substance Trichloroethylene.

This organic solvent has been replaced by Perchloroethylene and its consumption will be less than 1 tonne/year. Hence the ELV is not applicable.

Monitoring

We have removed the following emission points from table S3.1 of the permit:

Emission point A2 – associated with the Chrome anodise and alocrom line as this will be decommissioned.

Emission points A3 and A4 – associated with Clean and pickle line which was decommissioned in 2022.

There were no associated monitoring requirements in the permit for the above three emission points.

We have decided that monitoring should be deleted for the following emission point:

Emission point A8 - Perchloroethylene

We made these decisions in accordance with the Industrial Emissions Directive.

Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.

Reporting

We have deleted reporting in the permit for the following parameters:

Emission point A8 – Perchloroethylene.

We made these decisions in accordance with the Industrial Emissions Directive.

Management system

We are not aware of any reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.

The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.

Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit variation.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Consultation Responses

The following summarises the responses to consultation with other organisations, and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from UK Health Security Agency.

Brief summary of issues raised: The UKHSA has highlighted the main emissions of potential concern are oxides of nitrogen (as NO₂), chromium (III), chromium (VI) and hydrogen fluoride (HF) from the new emission point to air arising from the installation of the new anodise process line. Recommendation is to ensure the applicant's assessment of emissions follows the guidance to protect human health. The UKSHA does not have any other significant concerns regarding risk to the health of the local population from the installation.

Summary of actions taken: The operator has carried out an Air Quality Assessment (AQA) which has been audited by the Environment Agency. We will include an improvement condition in the permit to assess the impacts of emissions to air and to provide a written report to the Environment Agency for assessment and approval.

Local Authority – Environmental Protection Department – No response received

Health and Safety Executive – No response received

Sewerage Authorities - No response received

Local Fire Service - No response received