Environmental Permit Application: Best Available Techniques Assessment

StandardAero, Gosport

Client: Vector Aerospace International Ltd

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1.0 INTRODUCTION

1.1 Background

1.1.1 Redmore Environmental Ltd was commissioned by Vector Aerospace International Ltd to undertake a Best Available Techniques (BAT) Assessment in support of an Environmental Permit Variation Application for StandardAero, Gosport.

1.2 Site Location and Context

1.2.1 The StandardAero facility is located off Fareham Road, Gosport, at approximate National Grid Reference (NGR): 458885, 104040. Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The facility specialises in the repair and refurbishment of aircraft engine components. The site includes a cleaning plant comprising a number of acid, alkali and solvent degreasing and cleaning operations. Components are mounted on cradles and manually dipped into the appropriate cleaning vat. Where components need to be dipped into multiple vats, the cradles are rinsed in intermediate water baths in order to minimise cross-contamination of cleaning solutions.

1.2.3 Contaminated rinse water from the cleaning processes is treated in a dedicated Effluent Treatment Plant (ETP). This is designed to treat the maximum quantity of water that is recycled back to the process, with the concentrate being either discharged to the municipal sewer or, in the case of cadmium bearing solutions, off-hauled for off-site treatment and disposal.

1.2.4 The site currently holds an Environmental Permit (reference: EPR/NP3930KB) issued by the Environment Agency (EA). This authorises the surface treatment of metals and plastics via electrolytic and chemical techniques.

1.2.5 It is proposed to vary the Environmental Permit to integrate and authorise the following activities:

- Section 2.3 - Surface Treatment of Metals and Plastics - Cleaning Plant;
- Section 5.4 - Mix of Disposal and Recovery of Non-Hazardous Waste - ETP; and,

- The operation of Medium Combustion Plant (MCP).

1.2.6 An Environmental Permit Variation Application (EPR/YP3126SE/A001) was submitted to the regulator on 5th March 2024 in order to authorise the stated activities. A schedule 5 Notice[1] was subsequently issued by the EA which indicated the requirement for a BAT Assessment in order to demonstrate that proposed operations at the facility comply with the relevant requirements.

1.2.7 The following report provides a summary of the BAT that are applicable to activities at the facility and clarification on whether the operating techniques meet the relevant requirements.

[1] VAIL - Not Duly Made - Request for Further Information Letter, EA, 2024.

2.0 BACKGROUND ON BEST AVAILABLE TECHNIQUES

2.1.1 The EU Withdrawal Act 2018 maintains established environmental principles and ensures that existing EU environmental law will continue to have effect in the UK. Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control), referred to as the Industrial Emissions Directive (IED), requires operators of facilities regulated under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments to employ appropriate measures to prevent or, where this is not practical, minimise emissions to the environment through the application of BAT. This should include consideration of the likely costs and environmental benefits of measures and techniques set in the context of what can be afforded in the relevant industry sector.

2.2 Environmental Agency Guidance

2.2.1 EA guidance 'The Surface Treatment of Metals and Plastics by Electrolytic and Chemical Processes (EPR 2.07)'[2] details the applied processes and techniques used within the sector, as well as the factors that are considered to be most relevant for determining BAT and associated permit conditions.

2.2.2 It should be noted that the techniques specified in the guidance[3] are neither prescriptive or exhaustive and the document clearly states that alternative approaches can be utilised that ensure at least an equivalent level of environmental protection. Any deviations from the relevant indicative BAT criteria are identified as appropriate throughout the assessment.

2.3 Department for Environment, Food and Rural Affairs Guidance

2.3.1 The Department for Environment, Food and Rural Affairs (DEFRA) 'Process Guidance Note 4/01(13)' provides guidance on the conditions and BAT appropriate for the control of emissions into air from processes and installations for the surface treatment of metals.

2 The Surface Treatment of Metals and Plastics by Electrolytic and Chemical Processes (EPR2.07), EA, 2009.

3 The Surface Treatment of Metals and Plastics by Electrolytic and Chemical Processes (EPR2.07), EA, 2009.

2.3.2 The guidance is applicable to facilities that operate under Part B Environmental Permits. However, consultation with John McClean, Senior Permitting Officer at the EA, indicated the requirement for the guidance to be considered as part of the assessment.

2.4 Assessment Approach

2.4.1 A review of the stated guidance documents and operating techniques at the facility was undertaken in order to determine alignment with the relevant BAT criteria. This approach, along with the guidance documents utilised, was agreed with John McClean, Senior Permitting Officer at the EA, on the 26th November 2024.

2.4.2 The findings of the BAT assessment are provided in the following Section.

3.0 BEST AVAILABLE TECHNIQUES ASSESSMENT

3.1.1 A summary of the BAT that are applicable to the facility and clarification on whether the operating techniques meet the relevant guidance requirements is provided in the following Section.

3.1.2 The assessment is presented in the following format:

- Table 1 - Assessment of operations against the indicative BAT specified in Section 1 of the EA EPR 2.07 guidance - Managing your activities;
- Table 2 - Assessment of operations against the indicative BAT specified in Section 2 of the EA EPR 2.07 guidance - Operations;
- Table 3 - Assessment of operations against the indicative BAT specified in Section 3 of the EA EPR 2.07 guidance - Emissions and Monitoring;
- Table 4 - Assessment of operations against the specified control techniques in PGN 4/01(13); and,
- Table 5 - Assessment of the MCP against relevant BAT Conclusions (BATc).

3.1.3 It should be noted that sector specific BAT has not been published for the operation of MCP. As such, the assessment focusses on the general BATc set out in a number of the sector specific European Commission (EC) BAT reference documents[4][5] that are applicable to the operation of the MCP.

[4] Large Combustion Plants - BATc, European Union, 2021.

[5] Waste Treatment - BATc, European Union, 2018.

Table 1 BAT Assessment (EPR 2.07) - Managing your activities

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
1.1 Energy efficiency	1. High efficiency dewatering techniques to minimise drying energy	Efficient dewatering is achieved through the addition of coagulation and flocculants and a water strainer press assembly to produce filter cake from solids	Yes - The stated operating techniques meet the indicative BAT criteria, where applicable
	2. Minimisation of water use and closed circulating water systems	A closed circulating system is utilised to help minimise water use	
	3. Using spent cooling water (which is raised in temperature) for rinsing purposes	The ETP is designed to clean spent cooling water so that it can be reused for rinsing purposes	
	4. Automate d control for DC rectifiers	Direct Current (DC) rectifiers are not used by the facility. As such, the indicative BAT do not apply	
	5. Electrolytic processes that operate under thermally stable conditions without the need for heating or cooling	Electrolytic processes are not undertaken at the facility. As such, the indicative BAT do not apply	
	6. Minimum use of fume extraction consistent with COSHH Regulations	Where required, vapour, mist and gases are extracted from above the cleaning bays in accordance with COSHH Regulations. Periodic examination and testing of the fume extraction systems is undertaken by a competent person in order to ensure correct and effective performance	
	7. Inverter speed control or flow damper for fume extraction centrifugal fans	Inverter speed controls are in place for all fume extraction centrifugal fans installed at the facility. These are time controlled to minimise energy use outside of operational hours	
1.2 Efficient use of raw materials and water	1. Ion exchange or other treatment unit to re-circulate rinse waters	Rinse waters treated in the ETP are recirculated back to the baths within the cleaning plant. Cadmium containing solutions are treating using selective ion exchange with the concentrate removed for off-site disposal	Yes - The stated operating techniques meet the indicative BAT

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	2. Closed loop operation with three to four stage cascade rinsing, so that drag-out can be returned upstream to balance the evaporative loss and minimise waste	The cleaning plant operates a recirculating closed loop system with one rinse between stages of different chemicals and a final two-stage rinse in hot and cold water	criteria, where applicable, or an equivalent level of performance is achieved
	3. Spent pickle acid for pH control in the effluent treatment facility	Pickle acid is not used in processes at the facility. Nitric acid is used. However, this cannot be used for pH control in the ETP due to the potential for nitrate production. As such, the requirements of the indicative BAT are not considered to apply	
	4. Proprietary plating electrolytes that have a low concentration of dissolved solids and operate with minimum energy requirements for heating or cooling. These should avoid cadmium where possible and should require relatively simple effluent treatment	Plating electrolytes are not used by the facility. As such, the indicative BAT do not apply	
	5. Minimise drag-out by maximising the drainage time of the work over the tank or in a separate drainage tank	Drag-out contamination is minimised by maximising the drainage time of the components over the tanks between cleaning stages	
	6. ECO-rinse tank(s) to reduce mass drag-out and subsequent rinse-water consumption	ECO rinse tanks are not used on site. However, between each chemical treatment stage, components are immersed in a rinse tank which washes off any remaining chemical, thus reducing mass drag-out	
	7. Electrochemical metals recovery technology for unreturned drag-out	Electrochemical metals recovery technology is not used at the facility. However, metal recovery is achieved for unreturned drag-out through the passing of rinse water through ionic resins and precipitation in the ETP	

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	8. Evaporation technology in conjunction with 3-5 stage cascade rinsing to allow closed loop operation	There are minimal evaporation losses on site. Any liberated vapour is captured by the Local Exhaust Ventilation (LEV) system associated with the cleaning plant and is condensed out in a scrubber. This is collected in a sump and periodically transferred off-site	
	9. Hydrogen peroxide in the pickling tanks to reduce oxides of nitrogen (NOx) emission and acid consumption	There are no pickling tanks or pickling processes used on site. As such, the indicative BAT do not apply	
	10. Low temperature processes consistent with good metal deposition rate. The use of lids on process tanks operating at 60°C and above, and hexagons or croffles should be considered for all manually operated tanks	Use of lids on process tanks operating at or above 60°C is employed. Hexagons are used for all manually operated tanks	
	11. Recycle trade effluent to less critical rinsing stages	Trade effluent treated in the ETP is recycled back to less critical rinsing stages	
	12. Proprietary cleaners that allow a lower operating temperature	Proprietary cleaners are used that allow a lower operating temperature in accordance with customer authorisation and process specifications	
	13. A low temperature biological cleaner system in place of the traditional alkaline soak cleaner for a long production life, low waste and low energy consumption	The facility is constrained by customer authorisation and process specification as to the cleaning systems that can be utilised. Cleaning using enzymes in a biological system is not an appropriate method for the components processed at the site. As such, the indicative BAT are not considered to apply	
1.3 Avoidance, recovery and	1. Effluent treatment facilities should be designed to process spent process fluids and recover anode metals for reuse, e.g. cadmium, copper and nickel	Spent fluids are processed in the ETP. Anode metals are recovered for reuse except cadmium, which is stored in a separate container prior to transfer off-site	Full compliance with the BAT is anticipated

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
disposal of wastes	2. Spent alkaline cleaners and acid pickles should be used for pH control in the effluent treatment facility	Acid pickles are not used on site. Spent alkaline cleaners are not suitable for processing in the ETP due to their high chemical oxygen demand (COD). As such, the indicative BAT are not considered to apply	
	3. You should evaluate the use of phosphating sludge as a filler for agricultural and horticultural use	No phosphate sludge is produced on site. As such, the indicative BAT do not apply	
	4. Filter cake may have uses, and these should be investigated in preference to landfill disposal	Filter cake may contain cadmium and is thus not appropriate for reuse. As such, the indicative BAT are not considered to apply	
	5. Filter cake presses should be operated at not less than 7 bar and preferably 10-15 bar to reduce its mass, volume and water content	Filter cake presses are operated at 10-15 bar in order to reduce its mass, volume and water content	
	6. Consider use of a low temperature biological cleaner system in place of the traditional alkaline soak cleaner for a long production life, low waste and low energy consumption	As explained previously, the facility is constrained by customer authorisation and process specification as to the cleaning systems that can be utilised. Cleaning using enzymes in a biological system is not an appropriate method for the components processed at the site. As such, the indicative BAT are not considered to apply	
	7. Consider use of ion exchange or other treatment unit to re-circulate rinse waters	There is an ion exchange plant on site which is used to treat spent water (except for cadmium containing effluent) prior to recirculation within the cleaning plant	
	8. Consider use of closed loop operation with three to four stage cascade rinsing, so that drag-out can be returned upstream to balance the evaporative loss and minimise waste	The cleaning plant operates a recirculating closed loop system with one rinse between stages of different chemicals followed by a final two-stage rinse in cold and hot water. This allows drag-out to be returned upstream to balance the evaporative loss and minimise waste	

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	9. Minimise drag-out by maximising the drainage time of the work over the tank or in a separate drainage tank	As detailed previously, drag-out is minimised by allowing a drainage time over the process tanks of at least 20 seconds	
	10. Use electrochemical metals recovery technology for unreturned drag-out	As detailed previously, electrochemical metals recovery technology is not used on site. However, metal recovery is achieved for unreturned drag-out through the passing of rinse water through ionic resins and precipitation in the ETP. This also minimises water usage	
	11. Use electrodialysis technology for the re-oxidation of hexavalent chromium [chromate, or Cr(VI)] degraded to trivalent chromium [Cr(III)] in chromic acid anodising electrolytes	Information provided by the Operator has indicated that use of electrodialysis tech is not integral to operations at the facility. However, the Operator is willing to explore inclusion of the technology, if it is a requirement of the permit	

Table 2 BAT Assessment (EPR 2.07) - Operations

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
2.2 Surface preparation	Mechanical		
	1. You should ensure that emissions from the LEV do not have an adverse environmental impact	An Air Quality Assessment[6] was completed by Redmore Environmental which included consideration of emissions from the LEV. The results of the assessment indicated that the operation of the facility is not predicted to result in exceedances of the relevant EQSs at any sensitive human or ecological receptor within	Yes - The stated operating techniques meet the indicative BAT criteria

[6] Air Quality Assessment, StandardAero, Gosport, Redmore Environmental, 2024.

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
		the vicinity of the site, in accordance with the relevant EA guidance[7]	
	Degreasing using organic solvents		
	1. You must comply with the requirements of the Solvent Emissions Directive (SED), as implemented by the Solvent Emissions (England and Wales) Regulations 2004. Compliance with the SED goes beyond the technical measures described in this guidance	The site does not exceed solvent consumption thresholds as set in the relevant Environmental Permitting Guidance[8]. As such, the indicative BAT does not apply	Yes - the stated operating techniques meet the indicative BAT criteria, where applicable
	2. The main control measures are: • control of point source emissions to air (from the degreaser vents system) • control of fugitive emissions to air • recovery of solvent in spent solvent waste • disciplined use of properly positioned and closed lids, except when loading and unloading conventional degreasers • the use of top-loading multiple door facilities • the use of totally sealed end-loading degreasers with solvent vapour condensation and condensate recycle	The degreasing system is closed in order to minimise emissions to air. The system includes a vapour recovery interlock to prevent fugitive emissions when opening the access door. Spent solvents are recovered and return to the supplier as waste. Tanks containing volatile substances at elevated temperatures are lidded except when loading and unloading	

7 Air emissions risk assessment for your environmental permit, EA, 2016.

8 Environmental Permitting Guidance - The Solvent Emissions Directive, DEFRA, 2010

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	Chemical cleaning using aqueous cleaners		
	1. The key areas of control are: • energy consumption • fugitive emissions to air • rinse water efficiency • cleaning fluid lifetime • disposal of spent cleaners	Processes are optimised for energy consumption. Process tanks operate at 50°C to 90°C and include LEV systems to remove vapour and mists. A closed circulating system helps to ensure rinse water efficiency. Regular maintenance and replacement of components, as well as cleaning to remove any accumulated dirt, oil and grease is undertaken to increase the solution life. Buffer storage tanks are used to contain process fluid dumps, which are either treated in the ETP or are removed by a licensed waste disposal contractor	Full compliance with the Indicative BAT is anticipated
	2. Consider use of ion exchange or other treatment unit to re-circulate rinse waters	The general line serving the alkaline rinses uses an ion resin system to allow recirculation of waters. The line serving the chrome rinses directs waters to a waste tank for storage prior to further processing off site. However, there is a redundant ion resin system on site which will be restored in order to allow re-circulation of rinse waters associated with the chrome line	
	3. Closed loop operation with three to four stage cascade rinsing, so that drag-out can be returned upstream, is a particularly effective way to balance the loss of water by evaporation and minimise waste of costly process chemicals	The cleaning plant operates a recirculating closed loop system with one rinse between stages of different chemicals and a final two-stage rinse in hot and cold water	
	4. Where appropriate, generate turbulence by means of an eductor to provide improved cleaning, and maintain particulates in suspension so that they can be removed continuously by external filtration	Eductors are not used on site. However, alternative pumps are used for a number of the tanks in the cleaning plant to maintain particulates in suspension prior to filtration	

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	5. Where appropriate, use membrane filtration to remove oil and grease, emulsions and dispersants	Membrane filtration is currently not used on site. The Operator is willing to explore inclusion into processes if required by the permit. However, it should be noted, use of the process will be subject to alignment with client specifications and may not be possible to incorporate without resulting in compromised products. This could have serious repercussions if used in the aviation industry	
	6. Where possible, maintain adequate freeboard above the cleaner level (minimum of 150 mm) to minimise entrainment of liquid and subsequent emissions to air. Extraction lip ducts should be mounted at least 50mm above the top of the tank lip angle, and you should use the minimum air flow consistent with satisfactory extraction	A freeboard of approximately 300mm is maintained above the cleaner level in order to minimise entrainment of liquid and subsequent emissions to air. Extraction lip ducts are positioned over 50mm above the tanks lip angle. The minimum air flow that achieves satisfactory extraction is utilised	
	7. Where appropriate, use "hexagons" or "croffles" to reduce evaporative loss and reduce energy consumption. Use automated lids on large cleaner tanks to reduce fume extraction energy costs as well as to reduce consumption for process heating	Heated tanks are lidded or hexagons are used in order to reduce evaporative losses and energy consumption. Larger tanks containing Ardox 2302 have automatic lids fitted	
	8. Consider the use of proprietary cleaners that allow a lower operating temperature	Proprietary cleaners are used that allow a lower operating temperature in accordance with customer authorisation and process specifications	
	9. Consider use of a low temperature biological cleaner system in place of the traditional alkaline soak cleaner for a long production life, low waste and low energy consumption	The facility is constrained by customer authorisation and process specifications as to the cleaning systems that can be utilised. Cleaning using enzymes in a biological system is not an appropriate method for the components processed at the site. As such, the indicative BAT are not considered to apply	

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	Pickling		
	'1.' The key areas of control are: • rinse water economy • prevention and control of point source and fugitive emissions to air • pickle efficiency • acid regeneration • acid recycling • use of inhibitors which are readily biodegradable	Surface preparation by pickling is not undertaken at the facility. As such, the stated requirements and the remaining indicative BAT do not apply	N/A
	2. There should be two or three stage cascade pickling with continuous pickle acid feed and continuous discharge to the effluent treatment facility	N/A	
	3. There should be a minimum of two stages of cascade rinsing with agitation	N/A	
	4. Consider ion exchange or other treatment unit to re-circulate rinse waters	N/A	
	5. Consider use of spent pickle acid for pH control in the effluent treatment facility	N/A	
2.3 Surface Treatment	Electroplating		

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
Electroplating	1. The main areas of control are: • rinse water economy – see Section 1 • mass drag-out reduction • return of drag-out • recovery of higher value metals from drag-out which cannot be returned • energy consumption – see section 1 • prevention of fugitive emissions to air – see section 3	Surface treatment by electroplating is not undertaken at the facility. As such, the stated requirements and the remaining indicative BAT do not apply	N/A
	2. You should give full consideration to using substances other than cadmium, chromium(VI) and other hazardous materials. Where alternatives are not available, you must provide proper controls	N/A	
	3. Maximise stages of cascade rinsing, with agitation where appropriate	N/A	
	4. Use ion exchange or other treatment units to re-circulate rinse waters	N/A	
	5. Use proprietary plating electrolytes that have a low concentration of dissolved solids and operate with minimum energy requirements for heating or cooling. These should avoid cadmium where possible and should require relatively simple effluent treatment	N/A	
	6. Replace EDTA by QUADROL in autocatalytic copper systems	N/A	

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	7. Minimise drag-out by maximising the drainage time of the work over the tank or in a separate drainage tank	N/A	
	8. Use ECO-rinse tank(s) to reduce mass drag-out and subsequent rinse-water consumption	N/A	
	9. Use electrochemical metals recovery technology for unreturned drag-out	N/A	
	10. Use evaporation technology in conjunction with 3-5 stage cascade rinsing to allow closed loop operation	N/A	
	11. Generate turbulence by hydraulic power and eductors	N/A	
	12. Use electrodialysis technology for the re-oxidation of chromium (VI) reduced to chromium (III) in chromic acid anodising electrolytes	N/A	
	13. Use hydrogen peroxide in the pickling tanks to reduce NOx emission and acid consumption	N/A	
	14. Employ low temperature processes consistent with good metal deposition rate. You should use lids on process tanks operating at 60°C and above, and you should consider hexagons or croffles for all manually operated tanks	N/A	
	15. A minimum of 4 and preferably 5 stages of cascade rinsing after chromic/sulphuric acid etch,	N/A	

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	with techniques for minimising drag-out. Consider alternatives to chromic/sulphuric acid as an etchant		
	16. Provide jig or barrel supports whilst draining for manually operated process tanks	N/A	
	17. Use continuous filtration and removal of sludge from phosphating process tanks	N/A	
	Anodising		
	1. The main areas of control are: • rinse water economy – see Section 1 • mass drag-out reduction – see electroplating • energy consumption – see Section 1 • prevention of fugitive emissions to air – see Section 3 • removal of dissolved aluminium for the anodising electrolyte • chromium (VI) plating	Surface treatment by anodising is not undertaken at the facility. As such, the indicative BAT do not apply	N/A
	Electropolishing		
	'1.' The main areas of control are: • rinse water economy – see Section 1 • mass drag-out reduction – see electroplating • energy consumption – see Section 1 • prevention of fugitive emissions – see Section 3	Surface treatment by electropolishing is not undertaken at the facility. As such, the indicative BAT do not apply	N/A

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	• prolongation of the descaling and electropolishing process fluids by basis metal removal • NOx control		
	Plating on plastics		
	'1.' The main areas of control are: • rinse water economy – see Section 1 • mass drag-out reduction and return of drag-out – see electroplating • energy consumption – see Section 1 • prevention of fugitive emissions – see Section 3 • prolongation of the life of process fluids in the pre-treatment stage	Surface treatment in the form of plating on plastics is not undertaken at the facility. As such, the indicative BAT do not apply	N/A
	Autocatalytic plating		
	'1.' The main areas of control are: • rinse water economy – see Section 1 • mass drag-out reduction – see electroplating • energy consumption – see Section 1 • prevention of fugitive emissions – see Section 3 • prolongation of process fluid life • avoidance of the use of cadmium salt as a brightener in autocatalytic nickel systems • disposal of spent process fluid	Surface treatment by autocatalytic plating is not undertaken at the facility. As such, the indicative BAT do not apply	N/A

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	• avoidance of the use of EDTA in autocatalytic copper systems		
	Dip treatments		
	1. The main areas of control are: • rinse water economy – see Section 1 • mass drag-out reduction • energy consumption – see Section 1 • prevention of fugitive emissions – see Section 3 • prolongation of process fluid life	The company utilises dip treatments within the cleaning plant. A closed-loop system is used to enhance rinse water economy. Mass drag-out reduction is achieved by allowing sufficient time for parts to drain after being removed from the vats. Prevention of fugitive emissions is achieved through LEV and wet scrubbers assigned to each cleaning bay. LEVs operate on a timer to help reduce energy consumption. Filtration and recirculation of fluids is undertaken to prolong process fluid life	Yes - The stated operating techniques meet the indicative BAT criteria
2.4 Rinsing	1. The main areas of control are: • water economy – see Section 1 • mass drag-out reduction	Water economy is achieved through a closed-loop system. Mass drag-out reduction is achieved by allowing sufficient time for parts to drain after being removed from the vats, as well as the use of eco-spray rinsing	Yes - The stated operating techniques meet the indicative BAT criteria, where applicable or an equivalent level of performance is achieved
	The following techniques should be used where appropriate:		
	2. Multistage cascade rinsing	Multistage cascade rinsing is used within the cleaning plant, with one rinse between stages of different chemicals followed by a final two-stage rinse in cold and hot water	
	3. Closed-loop or recirculation systems with rinse water treatment (ion exchange, reverse osmosis, electrodialysis, air swept evaporation or vacuum evaporation)	The facility operates a closed-loop system with rinse water treated via ion exchange	

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	4. Conductivity probes	Tanks are fitted with temperature and conductivity probes as required	
	5. Water meters on each line	The process lines have a water meter fitted and records of consumption are recorded	
	6. Flow restrictors	Flow restrictors are currently not used on site. Restriction of flow is performed manually. Discussions with the Operator indicated the inclusion of flow restrictors is unlikely to result in any increase in efficiency	
	7. Minimised drag-out by employing a drainage time over the process tanks of at least 20 seconds for rack work and 30 seconds for barrelled work	Drag-out is reduced by employing a drainage time over the process tanks of at least 20 seconds for rack work	
	8. Drag-in - drag-out tanks (ECO rinse system) to reduce mass drag-out and subsequent rinse water consumption	Between each chemical treatment stage, components are immersed in a rinse tank, washing-off any remaining chemical	
	9. Continuous filtration and removal of sludge from phosphating process tanks	There are no phosphating processes on site. As such, the indicative BAT do not apply	
	10. Recycling of trade effluent to less critical rinsing stages	Recycling of trade effluent is undertaken to reuse the water to less critical rinsing stages	
2.5 Drying	The following techniques should be considered in order to save energy:		
	1. Centrifugal drying for small work	The site does not have any centrifugal drying equipment. The majority of parts processed on site are large, making this process not applicable. As such, the indicative BAT do not apply	N/A

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	2. Providing lids for hot water tank driers	Hot water tank driers are not used on site. As such, the indicative BAT do not apply	
	3. Providing a continuous bleed-off from hot-water driers as supply for the preceding cascade rinsing system, with equivalent water feed to hot water tank driers to make-up for evaporative loss and the bleed to the rinsing tanks	Hot-water driers are not used on site. As such, the indicative BAT do not apply	

Table 3 BAT Assessment (EPR 2.07) - Emissions and monitoring

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
3.1 Point source emissions to water	The following should be used where appropriate:		
	1. You should normally use buffer storage tanks to contain process fluid dumps (e.g. spent alkaline cleaners, pickles, passivates), which are preferably treated in the effluent treatment facility rather than removed by a licensed waste disposal contractor. You will usually have a dedicated storage tank for alkaline, acidic, and Cr (VI) dumps. In such cases you should be able to release the spent materials to the effluent treatment facility at a slow, controlled rate	Buffer storage tanks are used to contain process fluid dumps (e.g. spent alkaline cleaners) and where practicable these are treated in the ETP. There are dedicated storage tanks for alkaline, acidic, and Cr (VI) dumps. The contents of the buffer storage tanks are fed into the ETP at a controlled rate to ensure that the treatment capacity is not exceeded	Yes - The stated operating techniques meet the indicative BAT criteria, where applicable
	2. For larger surface treatment operations where there are several process lines, the effluent flow will vary in accord with the number of lines in operation. You should ensure that peak loads do not exceed the capacity of the effluent treatment facility	Effluent flow is controlled to ensure the capacity of the ETP is not exceeded at peak loads	

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	3. Small effluent treatment facilities are preferably operated on a batch basis, only releasing trade effluent to the sewer after confirmation that it is within the Sewerage Undertaker's consent limits. Larger facilities may be operated on a continuous basis provided that adequate monitoring is in place	The ETP releases effluent on a continuous basis. Monthly effluent monitoring and subsequent chemical analysis is undertaken to ensure that discharges are within the consent limits	
	4. The effluent system should be designed so as to prevent process effluent by-passing the effluent treatment plant	The effluent system is designed to ensure no process effluent by-passes the ETP, with process fluids cascading from one treatment tank to the next, preventing any short circuits	
	5. You should justify the choice and performance of the effluent treatment facility against the following objectives: • the removal of dissolved metals including basis metals, e.g. iron, aluminium, copper, and zinc, and plating metals e.g. chromium, copper, nickel, lead, tin, silver, and zinc • the control of the trade effluent pH within the Sewerage Undertaker's consent limits • formal consent limits may also be set for suspended solids, oil and grease, sulphate, detergents, COD, and cyanide • your permit may also set limits on the discharge	The ETP adequately removes dissolved metals, as demonstrated by the monitored concentrations in effluent released to foul sewer The treated effluent discharge pH is maintained between 5 - 11 in accordance with the Southern Water Services Ltd discharge consent Consent limits are also set for suspended solids, detergents and COD	
	Primary treatment		

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	6. Whether multistage cascade or rinse water re-circulation with ion-exchange (or other treatment unit) is used for water conservation, the primary stage of effluent treatment is the precipitation of the dissolved metals from the effluent. Any Cr (VI) present, must first be reduced to the trivalent state in a turbulent tank reactor. Any effluent stream containing cyanide requires a cyanide oxidation step, again in a turbulent tank reactor. The dissolved metals in the combined effluent stream are then precipitated in a turbulent tank reactor by adjusting the pH within the range 6-10 depending on the metals present. Mixing in circular tank reactors is preferably promoted by slow speed propellor or turbine agitation and wall baffles. PID control rather than on-off control systems for dosing chemicals may improve pH stability	Precipitation of dissolved metals is achieved using a reagent. Any Cr (VI) is reduced to its trivalent state before precipitation in the ETP. Other dissolved metals are precipitated by adjusting the pH required for optimum removal	
	7. The next step is the separation of the precipitate in a void tank settler or a lamellar clarifier, often with chemical pre-treatment (e.g. polyelectrolytes, inorganic coagulants and bentonite) to enhance the removal of colloidal solids, and/or to reduce the settlement time. Settling equipment works best with a steady continuous flow. Pumping tanks should preferably be fitted with a level sensing device with a proportional output that is used to control the flow. The settled sludge containing 2-3% solids is periodically discharged to a secondary settlement tank where the solids level is allowed to attain a level of around 8%	Precipitated effluent is routed to a settlement tank where cationic and anionic polymers are added to aid in the settlement of sludge. The settled sludge is removed and then pressed to form a filter cake	

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	8. The sludge is then filtered in a high pressure batch filter press for further water removal. The discharged filter cake containing 20-30% solids is removed by a licensed waste disposal contractor to landfill. The filtrate is recycled to the precipitation reactor. Filter press pumps providing an operational pressure of 10-15 bar will increase the solids content of the filter cake to 35-40%	Sludge is pumped into a plate and frame press and filtered against a fine weave cloth. The pressure in the system rises to 10-15 bar at which point the pump stops and the process is opened to drop the cake	
	9. The clean water flow from the settler/clarifier is usually discharged directly to the foul sewer as trade effluent	Water from the settler/clarifier passes through a polishing line which includes a sand filter for particulate removal and cation resin beds. However, the cation resin bed are currently not in use as they are not required to achieve the relevant discharge consent limits	
	Secondary/tertiary treatment		
	10. Filtration to remove fine suspended solids to achieve trade effluent consent limits for metals of 1-3mg/l is common	Coagulants and flocculants are used to aid the settlement of suspended solids. The clarified liquor is discharged to the municipal sewer, whilst the thickened sludge is pumped through a filter press for de-watering. Trade effluent consent limits are set by Southern Water Services Limited for metals and are adhered to, with regular monitoring confirming this is the case	
	11. Trade effluent, whether filtered or not, may be recycled to the less critical rinsing steps and thus reduce input water usage by up to 30%	Filtered effluent is recycled to the less critical rinsing stages, thus reducing input water usage	

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
	12. Where multistage cascade rinsing is in place, the effluent flow may be very low. "End of pipe" treatment with such techniques as activated carbon, bone charcoal, selective cationic ion-exchange, membrane filtration technology, and reverse osmosis may be considered, thus enabling a further reduction in water usage	'End of pipe' treatment to further reduce water usage was not deemed appropriate by the Operator. This is because water top-ups added back into the system are provided by reverse osmosis, which is extremely sensitive to contaminants. Thus, effluent flow even with end of pipe treatment would not be appropriate. As such, the indicative BAT do not apply	
3.2 Point source emissions to air	1. If you use LEV to control harmful substances, you should use the minimum extraction rates that enable COSHH requirements to be met; and where possible extraction should not be used at all, as described above	Thorough examination and testing of the LEV systems serving the cleaning bays is carried out at least every 14-months by a competent person in accordance with COSHH requirements. A minimum face velocity of 5m/s is achieved by all LEV systems in accordance with the COSHH requirements	Yes - The stated operating techniques meet the indicative BAT criteria, where applicable
	2. Process tank lip ducts should be located with at least a 50mm gap between the top of the tank and the bottom of the lip duct	As discussed in section 2.2, there is over 50mm between the top of the tank and the bottom of the process tank lip duct	
	3. Fume extraction through the upper sides of process tanks is not recommended	The cleaning plant includes LEV systems above and behind the tanks	
	4. A mist eliminator should be installed in the suction side of the extraction fan, with mist- eliminator drainage and washings being discharged to the effluent treatment facility	Mist eliminators and drain points are included within the scrubber/stack arrangements	

Section	Indicative BAT	Site Specific Operating Techniques	Indicative BAT Compliant
3.3 Fugitive emissions to air	1. Where there are opportunities for reductions, your permit may require you to submit a regularly updated inventory of fugitive emissions	Control measures are in place to limit fugitive emissions from all aspects of the process. Any fugitive emissions associated with the cleaning plant are captured by the LEVs serving the bays. Therefore, it is not considered a requirement to produce or maintain an inventory of fugitive emissions	Yes - The stated operating techniques meet the indicative BAT criteria, where applicable
	2. A simple water scrubber should be fitted to the vent outlet of hydrochloric acid tonnage storage vessels (for use during filling operations)	Headspace air associated with hydrochloric acid tonnage storage vessels is extracted and treated by a water scrubber prior to discharge to atmosphere at a high level	
	3. You should regularly clean fume extraction ducting and mist eliminators	Fume extraction ducting and mist eliminators are regularly cleaned	

Table 4 BAT Assessment (PGN 4/01(13))

Section	Control Technique	Site Specific Operating Techniques	Control Technique Compliant
Techniques to control emissions from contained sources	Acid mixture, temperature of the process, surface area being treated and the level of agitation applied to the work should be optimised to reduce emissions to a minimum, consistent with efficient manufacturing operation	Acid mixture, temperature of the process, surface area being treated and the level of agitation applied to the work are largely determined by customer and part specifications. These are optimised as far as practicable within the specifications to reduce emissions to a minimum	Yes - The stated site specific operating techniques align with the relevant guidance control techniques
	Dipping or brightening solutions containing fume suppressants should be used where these are available and their use is technically feasible	Dipping solutions containing fume suppressants are used where appropriate and in accordance with customer and parts specifications	

Section	Control Technique	Site Specific Operating Techniques	Control Technique Compliant
	Emissions of the oxides of nitrogen or hydrogen fluoride from process vessels should be adequately contained and vented	Processes at the facility do not result in emissions of hydrogen fluoride. Treatment tanks using oxides of nitrogen include extraction and abatement using an alkaline scrubbing medium	
Techniques to control fugitive emissions	Fugitive emissions should be prevented whenever practicable. When this is not practicable arrestment should be used, or emissions should be controlled at source by measures agreed between the regulator and the operator	The facility includes containment measures and engineered air extraction/ abatement measures in order to control the potential for fugitive emissions from processes	Yes - The stated site specific operating techniques align with the relevant guidance control techniques
	Adequate provision should be made for the containment of liquid and solid spillages. All spillages should be cleared as soon as possible and in the case of solid materials this should be achieved by the use of vacuum cleaning, wet methods or other appropriate techniques. Dry sweeping of dusty spillages should not be permitted	The site includes secondary containment for areas where there could be potential solid and liquid spillages (e.g. bulk chemical storage areas, treatment tanks, ETP, scrubbers, hazardous waste storage areas etc.). Vacuum and/or wet wiping methods are used for dry spillages. Dry sweeping is not permitted	
	Bunding should: • be impervious and resistant to the substances in storage; and, • be capable of holding 110% of the capacity of the largest storage tank	The walls and floors of all bunds are impervious. All bunds are capable of containing 110% of the largest capacity of liquid stored	
Air quality	Pollutants that are emitted via a stack require sufficient dispersion and dilution in the atmosphere to ensure that they ground at concentrations that are deemed harmless	Cleaning bay stacks rise 3m above the roof line to facilitate effective dilution and dispersion of emissions. As discussed in Section 2.2 above, Redmore Environmental completed an Air Quality Assessment[9], which included consideration of emissions from the stacks on site. The results of the assessment indicated that the operation of	Yes - The stated operating techniques are control technique compliant

[9] Air Quality Assessment, StandardAero, Gosport, Redmore Environmental, 2024.

Section	Control Technique	Site Specific Operating Techniques	Control Technique Compliant
		the facility is not predicted to result in exceedances of the relevant EQSs at any sensitive human or ecological receptor within the vicinity of the site, in accordance with the relevant EA guidance[10]	
	In areas where air quality standards or objectives are being breached or are in serious risk of breach and it is clear from the detailed review and assessment work under Local Air Quality Management that the permitted process itself is a significant contributor to the problem, it may be necessary to impose tighter emission limits	Air quality standards are not currently being breached within the area with considerable headroom for exceedance, as shown in Section 3 of the Air Quality Assessment[11] completed by Redmore Environmental. As such, tighter emission limits are not considered to be required	
	Flues and ductwork should be cleaned to prevent accumulation of materials, as part of the routine maintenance programme	There is an established programme of maintenance for the LEV systems, scrubber and stack assemblies. This includes monthly cleaning of the flues and ductwork	
	When dispersion of pollutants discharged from the stack (or vent) is necessary, the target exit velocity should be 15m/s under normal operating conditions. In order to ensure dispersion is not impaired by either low exit velocity at the point of discharge, or deflection of the discharge, a cap, or other restriction, should not be used at the stack exit. However, a cone may sometimes be useful to increase the exit velocity to achieve greater dispersion	The dispersion modelling completed as part of the Air Quality Assessment[12] completed by Redmore Environmental included consideration of the efflux velocity for all relevant sources. The results of the assessment indicated that the operation of the facility is not predicted to result in exceedances of the relevant EQSs at any sensitive human or ecological receptor within the vicinity of the site, in accordance with the relevant EA guidance[13]. As such, the existing efflux velocities and dispersion arrangements are considered to be sufficient	

10 Air emissions risk assessment for your environmental permit, EA, 2016.

11 Air Quality Assessment, StandardAero, Gosport, Redmore Environmental, 2024.

12 Air Quality Assessment, StandardAero, Gosport, Redmore Environmental, 2024.

13 Air emissions risk assessment for your environmental permit, EA, 2016.

Section	Control Technique	Site Specific Operating Techniques	Control Technique Compliant
	An exception to the above is where wet arrestment is used as the abatement. Inacceptable emissions of droplets could occur from such plant where the linear velocity in the stack exceeds 9m/s	Where wet arrestment is used as abatement - namely, for the three stacks serving the cleaning plant, linear velocity is either at or below 9m/s	
	To reduce the potential of droplet emissions a mist eliminator should be used. Where a linear velocity of 9m/s is exceeded in existing plant consideration should be given to reducing this velocity as far as practicable to ensure such droplet entrainment and fall out does not happen	Mist eliminators and drain points are included within the scrubber/stack arrangements	
Management	Important elements for effective control of emissions include: • proper management, supervision and training for process operations; • proper use of equipment; • effective preventative maintenance on all plant and equipment concerned with the control of emissions to the air; and, • ensuring that spares and consumables - in particular, those subject to continual wear - are held on site, or available at short notice from guaranteed local suppliers, so that plant breakdowns can be rectified rapidly. This is important with respect to arrestment plant and other necessary environmental controls. It is useful to have an audited list of essential items	Supervision arrangements include direct supervision and workplace inspections and audits. Cleaning plant operators are trained in-house. A third-party company, Clear Water, train the ETP operators A combination of inhouse and Original Equipment Manufacturer (OEM) standard operating procedures are followed. Relevant procedures include: • VAIL-OPS-056 Engine manuals; • VAIL-OPS-039 Make up and analysis of solutions is detailed within procedure; • VAIL-OPS-021 Engine Cleaning & Routing Components for Cleaning; • VAIL-OPS-023 Engine Services General Standard and Practices; • VAIL-OPS-133 Engines Waste Water Treatment Plan Maintenance and Control; • VAIL-OPS-122 Maintenance of Site Equipment and GSE;	Yes - The stated operating techniques are control technique compliant

Section	Control Technique	Site Specific Operating Techniques	Control Technique Compliant
		• VAIL-OPS-123 Cleaning Bay Maintenance Checks and Schedule; • VAIL-OPS-144 Bay Surveillance; and, • VAIL-EHS-007 EHS Inspection Contractors are appointed to maintain plant and equipment. A number of operator preventative maintenance checks are carried out Maintenance contractors are responsible for identifying what parts require replacement when system elements break down	
	It is desirable that installations put in place some form of structured environmental management approach, whether by adopting published standards (ISO 14001 or the EU Eco Management and Audit Scheme [EMAS]) or be setting up an environmental management system (EMS) tailored to the nature and size of the particular process	The facility has a site wide environmental policy maintained under its ISO14001 management system	Yes - The stated operating techniques are control technique compliant
	All staff whose functions could impact on air emissions from the activity should receive appropriate training on those functions. This should include: • awareness of their responsibilities under the permit; • steps that are necessary to minimise emissions during start-up and shutdown; • actions to take when there are abnormal conditions, or accidents or spillages that could, if not controlled, result in emissions	Review of procedures, covering key process requirements, including roles and responsibilities, is provided to all staff whose functions could impact on air emissions. In addition, detailed training evaluation for chemical cleaning operations is provided, along with training covering actions to take when there are abnormal conditions	Yes - The stated operating techniques are control technique compliant

Section	Control Technique	Site Specific Operating Techniques	Control Technique Compliant
	The operator should maintain a statement of training requirements for each post with the above mentioned functions and keep a record of the training received by each person. These documents should be made available to the regulator on request	Training provided by the Operator includes review of procedures covering key process requirements, i.e. roles and responsibilities The Operator has a detailed training evaluation for chemical cleaning operations The site has an established matrix to track training needs	Yes - The stated operating techniques are control technique compliant
	The operator should have the following available for inspection by the regulator: • a written maintenance programme for all pollution control equipment; and, • a record of maintenance that has been undertaken	Inspection and test requirements for pollution control equipment are tracked and records retained Records of maintenance of pollution control equipment are retained in line with record retention requirements	Yes - The stated operating techniques are control technique compliant

3.1.4 Sector specific BAT has not been published for the operation of MCP. As such, the MCP BAT assessment, as shown in Table 5, focusses on the general BATc set out in a number of the sector specific EC BAT reference documents[14][15] that are applicable to the operation of the MCP.

Table 5 MCP BAT Assessment

BATc	Details	Site Specific Operating Techniques	BATc Compliant
Environmental Management Systems	In order to improve the overall environmental performance, BAT is to elaborate and implement an Environmental Management System (EMS)	The operator has implemented a full EMS which holds ISO 14001 certification and incorporates all features specified under the BATc	Yes - The stated operating

14 Large Combustion Plants - BATc, European Union, 2021.

15 Waste Treatment - BATc, European Union, 2018.

BATc	Details	Site Specific Operating Techniques	BATc Compliant
	In order to increase resource efficiency and to reduce emissions, BAT is to establish, maintain and regularly review (including when a significant change occurs) an inventory of water, energy and raw materials consumption, as well as wastewater and waste gas streams, as part of the EMS	The operator maintains an inventory of energy and natural gas consumption in accordance with established management systems. The inventories: • Information about the characteristics of the waste gas streams • Information about the gas consumption Calculations of energy and gas consumption are undertaken regularly, and if required, actions to improve resource efficiency are identified and implemented No wastewater streams are produced as a result of the process. As such, there is no requirement to record the relevant information specified under the BATc	techniques are BATc compliant
Monitoring	For relevant emissions to water as identified by the inventory of wastewater streams, BAT is to monitor key process parameters (e.g. continuous monitoring of wastewater flow, pH and temperature) at key locations (e.g. at the inlet and/or outlet of the pre-treatment, at the inlet to the final treatment, at the point where the emission leaves the installation)	No wastewater streams are produced as a result of the MCP process. As such, there is no requirement to record the relevant information specified under the BATc	Yes - The stated operating techniques are BATc compliant
	BAT is to monitor emissions to water in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality	No wastewater streams are produced as a result of the MCP process. As such, there is not requirement to record the relevant information specified under the BATc	
	BAT is to monitor relevant channelled emissions to air in accordance with EN standards	Monitoring of channelled emissions to air will be undertaken in full accordance with the requirements of the Environmental Permit, BATc and the Medium Combustion Plant Directive	

BATc	Details	Site Specific Operating Techniques	BATc Compliant
Energy efficiency	BAT is to use an Energy Efficiency Plan (EEP) and an appropriate combination of the common techniques specified under BATc	The Operator does not currently have an EEP. However, the facility is registered to a global initiative called GreenERmro. Under this, the Operator has a goal to reduce energy consumption by 5% in 2024 from previous year. Measures undertaken to achieve this include replacing all lights with light-emitting diodes (LEDs). A 2024 Energy Saving Opportunity Scheme (ESOS) report has also identified a number of opportunities for further efficiencies which are currently under review. Finally, all employees are required to complete Environmental Awareness Training and receive regular reminders to switch off lights and monitors at the end of each day	No - The stated operating techniques are not BATc compliant
Water Consumption and Wastewater Discharge	In order to reduce water consumption and the volume of wastewater discharged, BAT is to use recycling and/or reuse and a combination of the additional techniques specified under BATc	No wastewater is generated by the MCP. As such, the requirements of the BATc do not apply	N/A
Harmful Substances	In order to prevent or reduce the use of harmful substances e.g. in cleaning and disinfection, BAT is to use one or a combination of the techniques specified under BATc	The following techniques specified under the BATc are utilised by the operator to prevent or reduce the use of harmful substances: • Proper selection of cleaning chemicals and/or disinfectants • Optimised design and construction of equipment and process areas	Yes - The stated operating techniques are BATc compliant
Resource Efficiency	In order to increase resource efficiency, BAT is to use one or a combination of the techniques specified under BATc such as heat recovery, combustion optimisation and minimisation of energy consumption	The MCP on site achieves Resouce Efficiency through minimisation of energy consumption. Boilers are on a timed/day schedule and have semi-modulating burners, so the boilers are not straight to high fire, further aiding efficiency	Yes - The stated operating techniques are BATc compliant

BATc	Details	Site Specific Operating Techniques	BATc Compliant
Emissions to Water	In order to prevent uncontrolled emissions to water, BAT is to provide an appropriate buffer storage capacity for wastewater	No wastewater is generated by the MCP. As such, the requirements of the BATc do not apply	N/A
	In order to reduce emissions to water, BAT is to use an appropriate combination of the techniques specified under BATc	No wastewater is generated by the MCP process. As such, the requirements of the BATc do not apply	
Noise	In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to set up, implement and regularly review a Noise Management Plan (NMP)	The site does not have a NMP that incorporates the MCP units. However, it is not anticipated that significant noise emissions will occur as a result of the operation of the MCP plant. In the event that noise emissions do occur, investigative work will be undertaken in order to determine causality and the requirement for any remedial measures to restore control	Full compliance with the BATc is anticipated
	In order to prevent or, where that is not practicable, reduce noise emissions, BAT is to use one or a combination of the techniques specified under BATc	A number of operational measures are utilised to prevent and/or reduce noise emissions. These are detailed as follows: • Regular inspection and maintenance of equipment is undertaken • All doors to operational areas remain closed at all times other than when access is required • All equipment is operated by experienced staff • Avoidance of noisy activities at night, where possible Consideration is given to the requirement for additional noise control during maintenance activities	

BATc	Details	Site Specific Operating Techniques	BATc Compliant
Odour	In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an Odour Management Plan (OMP), as part of the EMS that incorporates the specified techniques	The site does not have a OMP that incorporates the MCP. However, it is not anticipated that significant odour emissions will occur as a result of the operation of the MCP plant. In the event that emissions do occur, investigative work will be undertaken in order to determine causality and the requirement for any remedial measures to restore control	Full compliance with the BATc is anticipated

4.0 CONCLUSION

4.1.1 Redmore Environmental Ltd was commissioned by Vector Aerospace International Ltd to undertake a BAT Assessment in support of an Environmental Permit Variation Application for StandardAero, Gosport.

4.1.2 The site currently holds an Environmental Permit (reference: EPR/NP3930KB) issued by the EA. It is proposed to vary the Environmental Permit to integrate and authorise the following activities:

- Section 2.3 - Surface Treatment of Metals and Plastics - Cleaning Plant;
- Section 5.4 - Mix of Disposal and Recovery of Non-Hazardous Waste - ETP; and,
- The operation of MCP.

4.1.3 An Environmental Permit Application (EPR/YP3126SE/A001) was submitted to the regulator on 5th March 2024 in order to authorise the stated activities. A Schedule 5 Notice was subsequently issued which indicated the requirement for a BAT Assessment in order to demonstrate that operations at the facility comply with the relevant requirements.

4.1.4 In accordance with the Schedule 5 Notice, a BAT Assessment was undertaken. This included consideration of the BAT that are applicable to the facility and the existing operating techniques.

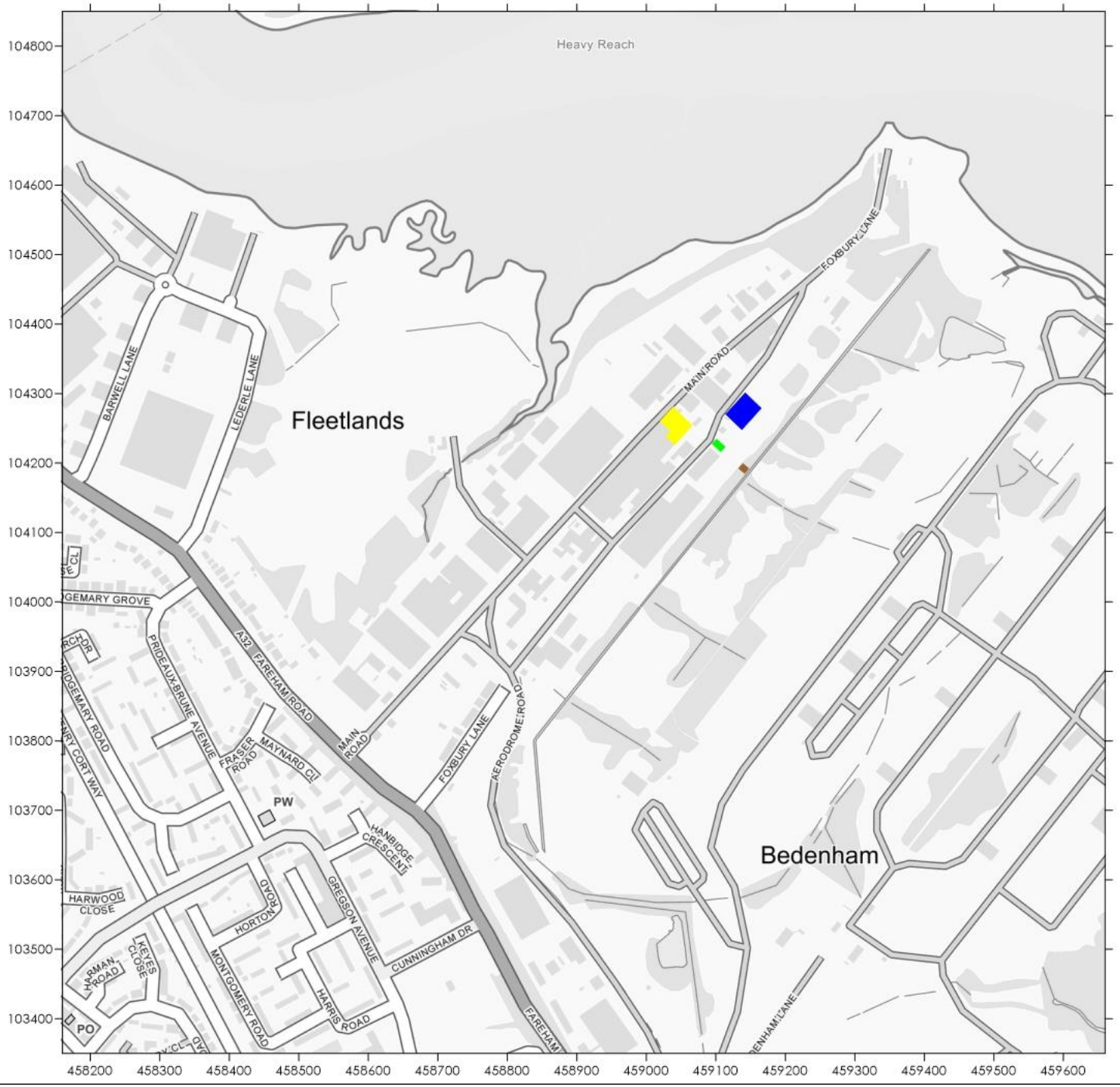
4.1.5 The findings of the assessment indicated the majority of operating techniques are compliant with the relevant BAT and control operating techniques, or where specified, measures are in place which are considered to achieve an equivalent level of performance and control.

4.1.6 The facility does not currently have an EEP. It is anticipated that this will be in place in 2025, at which point full compliance with the relevant BATc will be demonstrated. The operator has confirmed that if required, commitment to completion of the stated elements as part of an Improvement Condition in the Environmental Permit Variation is agreeable.

5.0 ABBREVIATIONS

BAT	Best Available Technique
BATc	Best Available Technique Conclusions
COD	Chemical Oxygen Demand
DC	Direct Current
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EC	European Commission
EEP	Energy Efficiency Plan
EMS	Environmental Management System
ETP	Effluent Treatment Plant
ESOS	Energy Saving Opportunity Scheme
IED	Industrial Emissions Directive
LED	Light-emitting Diode
LEV	Local Exhaust Ventilation
MCP	Medium Combustion Plant
NGR	National Grid Reference
NMP	Noise Management Plan
NO_x	Oxides of Nitrogen
OEM	Original Equipment Manufacturer
OMP	Odour Management Plan
PGN	Process Guidance Note
SED	Solvents Emissions Directive

Figures



Legend

- Cleaning Bay
- Bulk Chemical Storage Area
- Effluent Treatment Plant
- Off Haul Tanks

Title
Figure 1 - Site Location Plan

Project
Environmental Permit Application: Best Available Techniques Assessment - StandardAero, Gosport

Project Reference
8101-1B

Client
Vector Aerosopace International Ltd

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