

Application for an environmental permit:

Part A – About you

<p>Fill in this part A if you are applying for a new permit, applying to change or surrender an existing permit, or want to transfer an existing permit to yourself.</p> <p>Please check that this is the latest version of the form available from our website.</p> <p>Please read through this form and the guidance notes that come with it. All relevant guidance documents can be found on our website.</p> <p>Where you see the term 'document reference' on the form,</p>	<p>give the document references and send the documents with the application form when you've completed it.</p> <p>Contents</p> <p>1 About you</p> <p>2 Applications from individuals</p> <p>3 Applications from organisations of individuals</p> <p>4 Applications from public bodies</p> <p>5 Applications from a registered company or other corporate body</p> <p>6 Your address</p> <p>7 Contact details</p>
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1 About you

Are you applying as an individual, an organisation of individuals (for example, a partnership), a company (this includes Limited Liability Partnerships) or a public body?

- | | | |
|---|-------------------------------------|------------------------|
| An individual | <input type="checkbox"/> | <i>Go to section 2</i> |
| An organisation of individuals (for example, a partnership) | <input type="checkbox"/> | <i>Go to section 3</i> |
| A public body (such as a local council) | <input type="checkbox"/> | <i>Go to section 4</i> |
| A registered company or other corporate body | <input checked="" type="checkbox"/> | <i>Go to section 5</i> |

2 Applications from individuals

2a Please give us the following details

Title	<input type="text"/>	
First name	<input type="text"/>	
Last name	<input type="text"/>	<i>Go to section 6</i>

3 Applications from organisations of individuals

3a Organisation details

Organisation name	<input type="text"/>
Type of organisation	<input type="text"/>
If 'Other', please specify	<input type="text"/>

3b Main representative's details

Title	<input type="text"/>
First name	<input type="text"/>

Last name

3c Second representative's details:

Title

First name

Last name

3d Other representative's details

If relevant, please provide details of all other representatives on a separate sheet and tick here to show that you have done so. *Go to section 6*

4 Applications from public bodies

4a Public body details

Public body name

Type of public body

If 'Other', please specify

4b Executive officer's details

The executive is an officer of the public body authorised to sign on your behalf.

Title

First name

Last name

Position *Go to section 6*

5 Applications from a registered company or other corporate body

5a Company details

Company name

Company registration number

Date of registration

If you are applying as a corporate organisation that is now a limited company, please provide evidence of your status and tell us the reference number you have given this document with this evidence.

Document reference *Go to section 6*

6 Your address

6a Your main (registered office) address

For companies this *must* be the address on record at Companies House.

Address

	<input type="text" value="Gloucester"/>
	<input type="text"/>
Postcode	<input type="text" value="GL4 3DN"/>
Telephone - mobile	<input type="text"/>
Telephone - office	<input type="text" value="029 2038 8182"/>
Email address	<input type="text" value="sales@poeton.co.uk"/>

If you are applying as an organisation of individuals, every partner needs to give us their details, including their title. If necessary, continue on a separate sheet and tell us the reference you have given the sheet.

Document reference	<input type="text"/>
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6b UK business address *only* if different from above

Address	<input type="text" value="283 Penarth Road"/>
	<input type="text" value="Cardiff"/>
	<input type="text"/>
	<input type="text"/>
Postcode	<input type="text" value="CF11 8UL"/>
Telephone - mobile	<input type="text"/>
Telephone - office	<input type="text" value="029 2038 8182"/>
Email address	<input type="text" value="sales@poeton.co.uk"/>

Go to section 7

7 Contact details

7a Who can we talk to about your application?

This can be someone acting as a consultant or 'agent' for you.

Title	<input type="text" value="Dr"/>
First name	<input type="text" value="Amanda"/>
Last name	<input type="text" value="Owen"/>
Address	<input type="text" value="Environmental Visage Limited"/>
	<input type="text" value="2, Stratford Court"/>
	<input type="text" value="Stratford Road"/>

	Stroud, Gloucestershire
Postcode	GL5 4AQ
Telephone - mobile	07970 712243
Telephone - office	01453 752731
Email address	AOwen@En-Visage.co.uk

7b Who can we talk to about your operation?

Same as the application contact in 7a	<input type="checkbox"/>
Title	Mr
First name	Jason
Last name	Hamling
Address	Poeton Cardiff
	283 Penarth Road
	Cardiff
Postcode	CF11 8UL
Telephone - mobile	
Telephone - office	02920 370950
Email address	JasonHamling@poeton.co.uk

7c Who can we talk to about your billing or invoice?

Same as the application contact in 7a	<input type="checkbox"/>
Same as the operation contact in 7b	<input type="checkbox"/>
Title	Ms
First name	Helen
Last name	Warren
Address	Poeton Cardiff
	283 Penarth Road

	Cardiff
Postcode	CF11 8UL
Telephone - mobile	
Telephone - office	029 2038 8182
Email address	helenwarren@poeton.co.uk

Application for an environmental permit:

Part C2 – General: Varying a bespoke permit

Fill in this part of the form, together with part A, the relevant parts of C3 to C7 and part F1 or F2.

Please check that this is the latest version of the form available from our website.

Note: If you are applying to convert your existing permit to a standard permit or add a standard facility you need to fill out form C1.

If you want to make an administrative change, you should complete form C0.5.

You only need to give us details in this application for the parts of the permit that will be affected (for example, if you are adding a new facility or changing existing ones).

You do not need to resend any information from your original permit application.

Please read through this form and the guidance notes that came with it. All relevant guidance documents can be found on our website.

Contents

1 About the permit

2 About your proposed changes

3 Your ability as an operator

4 Consultation

5 Supporting information

6 Environmental risk assessment

Appendix 1 – Low impact installation checklist

1 About the permit

1a Discussions before your application

If you have had discussions with us before your application, give us the case reference number or details on a separate sheet.

Case or document reference

See Supporting Document Form C2; Q1a

1b Permit number

Permit number this application relates to?

EPR/BP1772IZ

1c Site details

What is the name, address and postcode of the site?

Site name

Poeton Cardiff

Address

283 Penarth Road

Cardiff

Postcode

CF11 8UL

2 About your proposed changes

2a Type of variation

What type of variation are you applying for? (Please tick)

Standalone water discharge activity or point source groundwater activity

Minor technical

Normal variation

Substantial

2b Provide a non-technical summary of your application

Please give us brief details of all the proposed changes to current activities, and any new activities you want to add to your permit.

You can use the box below, in Table 1 below. Or, you can use a separate sheet and send it to us with your application form. Tell us below the reference you have given this document.

Document reference

Table 1 – Details of the proposed changes

This variation application confirms the proposed upgrade to the site effluent treatment plant that will modify and rationalise the treatment processes and will improve the effectiveness of the overall effluent plant. The upgrade will be undertaken in two stages. Due to market requirements, various changes have been made to tank use and layouts including the removal of a Zinc Phosphate tank and the removal of the Copper, Sulphamate Nickel and Tin process (from September 2024). A new Chrome anodising line will consolidate and upgrade the existing line, also moving its location within the Anodising Department, and it is anticipated that a new colour passivate line will be installed, discharging through A35. Finally, it has been observed that the installation includes a number of discharge points to atmosphere that have not previously been included within the Environmental Permit, and this variation application therefore extends the emission points list and provides details of the processes served by each discharge. None of these emission points (to A34) are new, they have simply never been listed on the Permit before.

2c Consolidating existing permits into the modern style

Consolidating your permit can mean:

- combining the original permit and all subsequent changes into a single document (modern permit), or
- combining two or more environmental permits for the same operator and site into a single permit.

Note: In both cases we may require additional information from you about, for example your management system. Therefore we would always advise you to talk to us before you submit any application to modernise or consolidate permits.

2c1 Do you want to have a modern style (consolidated) permit?

No *Go to section 2d*

Yes *Please note: An additional charge may apply for modernising your permit(s).*

2c2 Identify all the permits you want to consolidate by listing the permit numbers/ versions in Table 2 below.

Table 2 – Permit numbers

EPR/BP1772IZ as amended by this variation application.

2d Low impact installations (installations only)

Are any of the regulated facilities low impact installations?

No *Go to section 2e*

Yes

Please give us a description of your proposed activity telling us how you meet the conditions for a low impact installation and send it to us with your application form.

Document reference

Tick the box to confirm you have filled in the low impact installation checklist in Appendix 1 for each regulated facility.

2e Treating batteries

Are you planning to treat batteries? (See the guidance notes on part C2.)

No

Yes Tell us how you will do this, send us a copy of your explanation and tell us the reference you have given this explanation.

Document reference

2f Medium Combustion Plant

Are you applying to *add* additional new Medium Combustion Plant(s) to your existing permit

No

Yes Please complete Table 3 below

Table 3 – Adding Additional Medium Combustion Plant		
	Number Currently permitted for	Number you wish to add
Medium Combustion Plant		

Please complete Appendix 8 of Form C3 for each new Medium Combustion Plant you wish to add.

2g Combined Medium Combustion Plant and Specified Generators

2g1 Are you applying to add a Specified Generator to your existing permit?

No *Go to section 3*

Yes *Go to section 2g2 and complete Appendix 9 of Form C3 for each generator that comprises the Specified Generator.*

2g2 Is the Specified Generator also a new Medium Combustion Plant?

No

Yes Please complete Appendix 8 and Appendix 9 of Form C3 for each new Medium Combustion Plant you wish to add that is also a Specified Generator.

3 Your ability as an operator

If you are only applying to change or add a water discharge activity, you only have to fill in question 3d.

If you are applying to add waste installations or waste operations to a permit that has not previously had them, you need to fill in all of section 3.

If you are applying to consolidate two or more permits or have an updated permit you must fill in question 3d.

3a Relevant offences – installations, waste operations, medium combustion plant and specified generators (See guidance notes on part C2)

Have you, or any other relevant person, been convicted of any relevant offence?

No *Go to section 3b*

Yes Please give details below

Title	<input type="text"/>
First name	<input type="text"/>
Last name	<input type="text"/>
Date of birth (DD/MM/YYYY)	<input type="text"/>
Position held at the time of the offence	<input type="text"/>
Name of the court where the case was dealt with	<input type="text"/>
Date of conviction (DD/MM/YYYY)	<input type="text"/>
Offence and penalty set	<input type="text"/>
Date any appeal against the conviction will be heard (DD/MM/YYYY)	<input type="text"/>

If necessary, use a separate sheet to give us details of other relevant offences, and tell us below the reference number you have given the extra sheet.

Document reference

3b Technical ability - relevant waste operations only (see the guidance notes on part C2)

3b1 Which approved scheme are you using to show you have the suitable technical skills and knowledge to manage your facility?

- CIWM / WAMITAB
- ESA / EU

3b2 Do you already hold the relevant, formal qualifications to manage your facility?

- Yes Tick to confirm you've included all original *and* continuing competence evidence.
- No Tick to confirm you've included evidence you've registered with a Scheme.

3c Finances (installations, waste operations, mining waste operations, medium combustion plant and specified generators)

Do you or any relevant person have current or past bankruptcy or insolvency proceedings against you?

- No *Go to section 3d.*
- Yes Please give details of the required set-up (including infrastructure), maintenance and clean up costs for the proposed facility, against which a credit check may be assessed.

Please note: We may want to contact a credit reference agency for a report about your business's finances.

Landfill, Category A mining waste facilities and mining waste facilities for hazardous waste only

How do you plan to make financial provision (to operate a landfill or a mining waste facility you need to show us that you are financially capable of meeting the obligations of closure and aftercare)?

- Bonds
- Escrow account
- Trust fund
- Lump sum
- Other

Provide a plan of your estimated expenditure on each phase of the landfill or mining waste facility.

Document reference

3d Management systems (all)

You can find guidance on management systems in both 'How to Comply' and 'Horizontal Guidance Note 6 – Environmental Management Systems'. We have also developed environmental management toolkits for some business sectors which you can use to produce your own management system. You can get these by calling 0300 065 3000 or by downloading them from our guidance webpages.

3d1 Does your management system meet the conditions set out in our guidance?

Yes

No

3d2 What management system will you provide for your regulated facility?

EC Eco-Management and Audit Scheme (EMAS)

ISO 14001

BS 8555 (Phases 1–5)

Green Dragon

Own management system

3d3 Make sure you include a summary of your management system which sets out any changes or additional measures you will put in place to the address risks from the proposed changes. Tick the box to confirm you've done this and tell us the reference below.

Document reference

See Supporting Document Form C2; Q3d3

Water discharge activities: Go to section 5.

4 Consultation (fill in 4a to 4c for installations and waste operations and 4d for installations only)

Could the waste operation or installation involve releasing any substance into any of the following?

4a A sewer managed by a sewerage undertaker

No

Yes Please name the sewerage undertaker

4b A harbour managed by a harbour authority

No

Yes Please name the harbour authority

4c Direct into relevant territorial waters or coastal waters within the sea fisheries district of a local fisheries

No

Yes Please name the fisheries committee

4d Is the installation on a site for which:

4d1 a nuclear site licence is needed under section 1 of the Nuclear Installations Act 1965?

No

Yes

4d2 a policy document for preventing major accidents is needed under regulation 5 of the Control of Major Accident Hazards

No

Yes

5 Supporting information

5a Provide a plan or plans for the site (see guidance notes on part C2 for what needs to be marked on the plan)

Document reference

See Supporting Document Form C2;
Q5a

5b Do any of the variations you plan to make need extra land to be included in the permit?

No

Yes Please provide a site report for the extra land.

Document reference

5c Adding an installation

If you are applying to add an installation, tick the box to confirm that you have sent in a baseline report and provide a reference.

Document reference

6 Environmental risk assessment - if you need one (see the guidance notes on part C2)

Provide an assessment of the risks each of your proposed activities cause to the environment. The risk assessment must use H1 or an equal method.

Document reference

See H1 assessments accompanying the application and the BAT Assessment in Appendix A of Supporting Document

Appendix 1 – Low impact installation checklist (see guidance notes on part C2)

Installation reference	Response			Do you meet this?	
Condition	Response			Do you meet this?	
A – Management techniques	Provide references to show how your application meets A.			Yes	<input type="checkbox"/>
	References			No	<input type="checkbox"/>
B – Aqueous waste	Effluent created	m3/day		Yes	<input type="checkbox"/>
				No	<input type="checkbox"/>
C – Abatement systems	Provide references to show how your application meets C.			Yes	<input type="checkbox"/>
	References			No	<input type="checkbox"/>
D - Groundwater	Do you plan to release any hazardous substances or non-hazardous pollutants into the ground?		Yes <input type="checkbox"/>	Yes	<input type="checkbox"/>
			No <input type="checkbox"/>	No	<input type="checkbox"/>
E – Producing waste	Hazardous waste	Tonnes per year		Yes	<input type="checkbox"/>
	Non-hazardous waste	Tonnes per year		No	<input type="checkbox"/>
F – Using energy	Peak energy consumption	MW		Yes	<input type="checkbox"/>
				No	<input type="checkbox"/>
G – Preventing accidents	Do you have appropriate measures to prevent spills and major releases of liquids? (See 'How to comply'.)		Yes <input type="checkbox"/>	Yes	<input type="checkbox"/>
			No <input type="checkbox"/>	No	<input type="checkbox"/>
	Provide references to show how your application meets G.				
H - Noise	Provide references to show how your application meets H.			Yes	<input type="checkbox"/>
	Reference			No	<input type="checkbox"/>
I - Emissions of polluting substances	Provide references to show how your application meets I.			Yes	<input type="checkbox"/>
	Reference			No	<input type="checkbox"/>
J – Odours	Provide references to show how your application meets J.			Yes	<input type="checkbox"/>
	Reference			No	<input type="checkbox"/>
K – History of keeping to the regulations	Say here whether you have been involved in any enforcement action as described in Compliance History Appendix 1 explanatory notes.		Yes <input type="checkbox"/>		
			No <input type="checkbox"/>		

Application for an environmental permit: Part C3 – Variation to a bespoke installation permit

Fill in this part of the form, together with parts A, C2 and F1, if you are varying a bespoke permit for an installation.

Please check that this is the latest version of the form available from our website.

Please read through this form and the guidance notes that came with it. All relevant guidance documents can be found on our website.

Contents

- 1 What activities are you applying to vary?
- 2 Emissions to air, water and land
- 3 Operating techniques
- 4 Monitoring

5 Environmental impact assessment

6 Resource efficiency and climate change

Appendix 1 – Specific questions for the combustion sector

Appendix 2 – Specific questions for the chemical sector

Appendix 3 – Specific questions for the intensive farming sector

Appendix 4 – Specific questions for the clinical waste sector

Appendix 5 – Specific questions for the hazardous and non-hazardous waste recovery and disposal sector

Appendix 6 – Specific questions for the waste incineration sector

Appendix 7 – Specific questions for the landfill sector

Appendix 8 – Specific questions for Medium Combustion Plant ('MCP') and combined MCP/Specified

Generators

Appendix 9 – Specific questions for Specified Generators

1 About your activities

1a Tell us about the activities you want to do.

Fill in Table 1a below with details of all the activities listed in schedule 1 of the Environmental Permitting Regulations (EPR) and all directly associated activities (DAAs) (in separate rows) that you propose to carry out at the installation. Please also use this table if you are applying for a Medium Combustion Plant(s) or Specified Generator(s).

Fill in a separate table for each installation you are applying for. Use a separate sheet if you have a long list and send it to us with your application form. Tell us the document reference.

Document reference

See Supporting Document Form C3; Q1a
Table 1a

Notes to help you complete Table 1a:

1 Quote the section number, part A1 or A2 or B, then paragraph and sub paragraph number as shown in part 2 of schedule 1 to the regulations.

2 Use the description from schedule 1 of the regulations. Include any extra detail that you think would help to accurately describe what you want to do.

3 By 'capacity', we mean:

- the total incineration capacity (tonnes every hour) for waste incinerators;
- the total landfill capacity (cubic metres) for landfills;
- the total treatment capacity (tonnes each day) for waste treatment;
- the total storage capacity (tonnes) for waste storage operations;
- the processing and production capacity for manufacturing operations; or
- the thermal input capacity for combustion activities.

4 The R (recovery) and D (disposal) codes are as set out in Annex I and/or Annex II of the European Waste Framework Directive (as amended).

5 Fill this in as a separate line for each directly associated activity and give an accurate description of any other activities associated with your schedule 1 activities.

6 By 'total storage capacity', we mean the maximum amount of waste, in tonnes, you are able to store on the site at any one time.

Table 1a – Types of activities

Important: Put your main activity first, when listing all of the activities you want to do. Note; some questions only apply to activities involving the acceptance of waste.

Schedule 1 listed activities				For installations that take waste only		
Installation / Activity name	Schedule references (See note 1)	Description of the Activity (See note 2)	Activity capacity (See note 3)	Annex I and Annex 2 (disposal and recovery) codes (See note 4)	Hazardous waste treatment capacity (if this applies) (See note 3)	Non-hazardous waste treatment capacity (if this applies) (See note 3)

Directly associated activities (See note 5)

Name of DAA	Description of the DAA (please identify the schedule 1 activity it serves)

For installations that take waste	Total storage capacity of non-hazardous waste (See note 6)	
	Total storage capacity of hazardous waste (See note 6)	
	Annual throughput (tonnes each year)	

1b Do you intend to accept waste as part of your activities?

No *Go to section 2*

Yes Tell us about the waste types you want to accept. See notes below.

For each line in Table 1a (including DAAs), fill in a separate document to list those types of waste you will accept onto the site for that activity. Give the List of Wastes catalogue code and description.

If you need to exclude wastes from your activity or facility by restricting the description, quantity, physical nature, hazardous properties, composition or characteristic of the waste, include these in the document. Send it to us with your application form.

If you want to accept any waste with a code ending in 99, you must provide more information and a full description in the document. You can use Table 1b as a template.

Document references

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Table 1b – Template example: types of waste accepted and restrictions

Waste code	Description of waste
Example	Example
02 01 08*	Agrochemical waste containing dangerous substances
06 01 02*	Hydrochloric acid

2 Emissions to air, water and land

Fill in Table 2 below with details of the emissions that result from the operating techniques at each of your installations.

Fill in one table for each installation. You can use Table 2 as a template. Please provide the reference for each document.

Document references

See Supporting Document Form C3; Table 2

Table 2 – Emissions (releases)

Installation / Activity name				
Point source emissions to air				
Emission point reference and location	Source	Parameter	Quantity Unit	Unit
Point source emissions to water (other than sewers)				
Emission point reference and location	Source	Parameter	Quantity Unit	Unit
Point source emissions to sewers, effluent treatment plants or other transfers off site				

Emission point reference and location	Source	Parameter	Quantity Unit	Unit
Point source emissions to land				
Emission point reference and location	Source	Parameter	Quantity Unit	Unit

3 Operating techniques

3a Technical standards

Fill in Table 3a for each activity at the installation you have referred to in Table 1a above, and list the relevant technical guidance note (TGN) or notes you are planning to use. If you are planning to use the standards set out in the TGN, there is no need to justify using them.

You must justify your decisions in a separate document if:

- there is no technical standard;
- the technical guidance provides a choice of standards; or
- you plan to use another standard.

This justification could include a reference to the Environmental Risk Assessment provided in section 6 of part C2 (General Bespoke Permit) of the application form. The documents in Table 3a should summarise the main measures you use to control the main issues identified in the H1, H1 assessment, assessment or technical guidance. For MCP/Specified Generators please use the Environment Agency's Specified Generator Tranche B Screening Tool.

For each of the activities listed in Table 3a, describe the type of operation and the options you have chosen for controlling emissions from your process.

Fill in one table for each installation. You can use Table 3a as a template. Please provide the reference for each document.

Document references

Table 3a – Technical standards		
Installation / Activity name	Poeton Cardiff	
Schedule activity or directly associated activity description	Relevant technical guidance note/document or best available techniques as described in BAT conclusions under IED*. You will need to refer to 'How to comply' for all permits.	Document reference (if appropriate)
	'How to comply'	
S2.3 A(1)(a)	How to Comply with your Environmental Permit	Supporting Doc. Operating Techniques
S2.3 A(1)(a) and Effluent Plant	How to Comply – additional guidance for surface treatment	Supporting Doc. Operating Techniques

S2.3 A(1)(a) and Effluent Plant	STM BREF – August 2006	Supporting Doc. Operating Techniques
Effluent Plant	CWW BREF and BAT-C	Supporting Doc. Operating Techniques
*Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control).		

If appropriate, use block diagrams to help describe the operation and process. Give the document references you use for each diagram and description.

Document references

Process Flow Diagrams Appendix C of Supporting Documentation

3b General requirements

Fill in a separate Table 3b for each installation. You can use Table 3b as a template. Please provide the reference for each document.

Document references

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Table 3b – General requirements	
Installation / activity name	Poeton Cardiff
If the TGN or H1 assessment shows that emissions of substances not controlled by emission limits are an important issue, send us your plan for managing them	Document reference or references N/A
If the TGN or H1 assessment shows that odours are an important issue, send us your odour management plan	Document reference or references N/A
If the TGN or H1 assessment shows that noise or vibration are important issues, send us your noise or vibration management plan (or both)	Document reference or references N/A
If our fire prevention guidance or H1 assessment shows that fire risk is an important issues, send us your fire management plan	Document reference or references N/A
If the Environment Agency's Specified Generator Tranche B Screening Tool shows that dispersion modelling is not required to assess the risk to the environment, please send us a completed copy of the tool to support your decision	Document reference or references N/A
If the Environment Agency's Specified Generator Tranche B Screening Tool shows that dispersion modelling is required to assess the risk to the environment, please send us a completed copy of the tool and your completed modelling report and modelling input files to support your application.	Document reference or references N/A

3c Types and amounts of raw materials

Fill in Table 3c for all schedule 1 activities. Fill in a separate table for each installation. You can use Table 3c as a template. Please provide the reference for each document.

Document references

See Supporting Document Form C3; Q3c Table 3c

Table 3c – Types and amounts of raw materials	
Installation name	
Capacity (See note 1 below)	

Schedule 1 activity	Description of raw material and composition material	Maximum amount (tonnes) (See note 2 below)	Annual throughput (tonnes per year)	Description of how the raw material is used including any main hazards (include safety information sheets)

Notes

1 By 'capacity', we mean the total storage capacity (tonnes) or total treatment capacity (tonnes each day).

2 By 'maximum amount', we mean the maximum amount of raw materials on your site at any one time.

Use a separate sheet if you have a long list of raw materials and send it to us with your application form. Please provide the reference for each document.

Document reference

3d Information for specific sectors

For some sectors, we need more information to be able to set appropriate conditions in the permit. This is as well as the information you may provide in sections 5, 6 and 7.

For those activities listed below, you must answer the questions in the related document.

Table 3d – Questions for specific sectors	
Sector	Appendix
Combustion	See the questions in appendix 1
Chemicals	See the questions in appendix 2
Intensive farming	See the questions in appendix 3
Clinical waste	See the questions in appendix 4
Hazardous and non-hazardous waste recovery and disposal	See the questions in appendix 5
Incinerating waste	See the questions in appendix 6
Landfill sector	See the questions in appendix 7
Medium Combustion Plant (includes mobile plant)	See the questions in appendix 8
Combined Medium Combustion Plant/Specified Generator (includes mobile plant)	See the questions in appendix 8 and 9
Specified Generator (includes mobile plant)	See the questions in appendix 9

4 Monitoring

4a Describe the measures you use to monitor emissions by referring to each emission point in Table 2 above

You should also describe any environmental monitoring. Tell us:

- how often you use these measures;
- the methods you use; and

- the procedures you follow to assess the measures.

Document reference

See Supporting Document Form C3; Q4a

4b Point source emissions to air only

Provide an assessment of the sampling locations used to measure point source emissions to air. The assessment must use Technical Guidance Note M1 (Monitoring). This is available in the Guidance section on our Website.

Document reference

N/A

5 Environmental impact assessment

5a Have your proposals had an environmental impact assessment under Council Directive 85/337/EEC of 27 June 1985 [Environmental Impact Assessment] (EIA)?

No Now go to section 6

Yes Please provide a copy of the environmental statement and, if the procedure has been completed:

- a copy of the planning permission; and
- the committee report and decision on the EIA.

Document reference

6 Resource efficiency and climate change

If the site is a landfill, you only need to fill in this section if the application includes landfill gas engines.

6a Describe the basic measures for improving how energy efficient your activities are

Document reference

See Supporting Document Form C3; Q6a

6b Provide a breakdown of any changes to the energy your activities use and create

Document reference

See Supporting Document Form C3; Q6b

6c Have you entered into, or will you enter into, a climate change levy agreement?

No Describe the specific measures you use for improving your energy efficiency.

Document reference

Yes Please give the date you entered (or the date you expect to enter) into the agreement.

Please also provide documents that prove you are taking part in the agreement.

Document reference

SEA/T00074

6d Tell us about, and justify your reasons for, the raw and other materials, other substances and water you will use

Document reference

See Supporting Document Form C3; Q6d

6e Describe how you avoid producing waste in line with Council Directive 2008/98/EC on waste

If you produce waste, describe how you recover it.

If it is technically and financially impossible to recover the waste, describe how you dispose of it while avoiding or reducing any effect it has on the environment.

Document reference

See Supporting Document Form C3; Q6e

7 Medium Combustion Plant

7a Is the total aggregated thermal input of the MCP 20 MW thermal or more?

No

Yes You must either submit a report which shows how your MCP also meets the requirements of Schedule 24 of the Environmental Permitting Regulations which implement the relevant requirements of the Energy Efficiency Directive (2012/27/EU), or an explanation of why Schedule 24 does not apply in your case.

Tell us the reference for this document, below.

Document reference

7b Is the MCP either (a) an individual unit greater than or equal to 20MWth, or (b) one that burns waste biomass as described in Article 3(18) (b) of MCPD?

Yes An individual unit greater than or equal to 20MWth *Go to section 7c*

Yes Burns waste biomass as described in Article 3(18) (b) of MCPD. *Go to section 7c*

No

7c Do any of the MCPs on site meet the criteria of a Chapter 1, Section 1.1 Part B activity or Chapter 5, Section 5.1 Part B activity?

Yes Chapter 1, Section 1.1 Part B activity.

Yes Chapter 5, Section 5.1 Part B activity.

No

If you have ticked 'Yes' to either Chapter 1 or 5 above you must complete a Best Available Techniques assessment in line with the relevant Environmental Permitting technical guidance note. Tell us the reference for this document, below.

Document reference

8 Combined Medium Combustion Plant/Specified Generators

8a Is the total aggregated thermal input of the Specified Generators 20 MW thermal or more?

No

Yes You must either submit a report which shows how your MCP/Specified Generator also meets the requirements of Schedule 24 of the Environmental Permitting Regulations which implement the relevant requirements of the Energy Efficiency Directive (2012/27/EU) or an explanation of why Schedule 24 does not apply in your case.

Tell us the reference for this document, below.

Document reference

8b Is the Specified Generator an individual unit with thermal input greater than or equal to 20 MWth?

No Now complete all relevant appendices.

Yes *Go to section 8c*

8c Does the Specified Generator meet the criteria of a Chapter 1, Section 1.1 Part B activity?

No Now complete all relevant appendices.

Yes This is a Chapter 1, Section 1.1 Part B activity.

You must complete a Best Available Techniques assessment in line with the relevant Environmental Permitting technical guidance note. Tell us the reference for this document, below.

Document reference

--

Appendix 1 – Specific questions for the combustion sector (Not for use for Medium Combustion Plant)

1 Identify the type of fuel burned in your combustion units (including when your units are started up, shut down and run as normal). If your units are dual fuelled (that is, use two types of fuel), list both the fuels you use

Fill in a separate table for each installation.

Installation reference			
Type of fuel	When run as normal	When started up	When shut down
Coal			
Gas oil			
Heavy fuel oil			
Natural gas			
WID waste			
Biomass (see notes 1 and 2 below)			
Biomass (see notes 1 and 2 below)			
Biomass (see notes 1 and 2 below)			
Biomass (see notes 1 and 2 below)			
Biomass (see notes 1 and 2 below)			
Other			
Notes			
1 Not covered by Industrial Emissions Directive 2010/75/EU.			
2 'Biomass' is referred to in The Renewables Obligation Order 2002 (SI 2002 No. 914).			

Give extra information if it helps to explain the fuel you use.

Document reference

2 Give the composition range of any fuels you are currently allowed to burn in your combustion plant

Fill in a separate table for each installation.

Installation reference					
Parameter	Unit	Fuel 1	Fuel 2	Fuel 3	Fuel 4
Maximum percentage of gross thermal input	%				
Moisture	%				
Ash	% wt/wt dry				
Sulphur	% wt/wt dry				
Chlorine	% wt/wt dry				
Arsenic	% wt/wt dry				
Cadmium	% wt/wt dry				
Carbon	% wt/wt dry				
Chromium	% wt/wt dry				

Copper	% wt/wt dry				
Hydrogen	% wt/wt dry				
Lead	% wt/wt dry				
Mercury	% wt/wt dry				
Nickel	% wt/wt dry				
Nitrogen	% wt/wt dry				
Oxygen	% wt/wt dry				
Vanadium	mg/kg dry				
Zinc	mg/kg dry				
Net calorific value	MJ/kg				

3 If NO_x factors are necessary for reporting purposes (that is, if you do not need to monitor emissions), please provide the factors associated with burning the relevant fuels

Fill in a separate table for each installation.

Installation reference	
Fuel	NO _x factor (kgt ⁻¹)
Fuel 1	
Fuel 2	
Fuel 3	
Fuel 4	
Note: kgt ⁻¹ means kilograms of nitrogen oxides released for each tonne of fuel burned	

4 Will your combustion plant be subject to Chapter III of the Industrial Emissions Directive 2010/75/EU? (see Government guidance)

No *This Annex is complete.*

Yes

5 Is your plant (tick an option)

an existing plant (a plant licensed before 1 July 1987)?

a new plant (a plant licensed on or after 1 July 1987 but before 27 November 2002, or a plant for which an application was made before 27 November 2002 and which was put into operation before 27 November 2003)?

a new-new plant (a plant for which an application was made on or after 27 November 2002)?

6 If you run more than one type of plant or a number of the same type of plant on your installation, please list them in the table below

Fill in a separate table for each installation.

Installation reference	
Type of plant	Number within installation
Existing	
New	
New-new	

Gas turbine (group A)	
Gas turbine (group B)	

7 If you run an existing plant, have you submitted a declaration for the ‘limited life derogation’ set out in Article 33 of Chapter III of the Industrial Emissions Directive?

No *Go to section 9*

Yes

8 Have you subsequently withdrawn your declaration?

No

Yes

9 List the existing large combustion plants (LCPs) which have annual mass allowances under the National Emission Reduction Plan (NERP), and those with emission limit values (ELVs) under the LCPD

Installation reference		
	LCPs under NERP	LCPs with ELVs

10 Do you meet the monitoring requirements of Chapter III of the Industrial Emissions Directive?

Yes

Tell us how you meet the monitoring requirements of Chapter III and give us the reference for this document.

Document reference

Appendix 2 – Specific questions for the chemical sector

1 Please provide a technical description of your activities

The description should be enough to allow us to understand:

- the process;
- the main plant and equipment used for each process;
- all reactions, including significant side reactions (that is, the chemistry of the process);
- the material mass flows (including by products and side streams) and the temperatures and pressures in major vessels;
- the all emission control systems (both hardware and management systems), for situations which could involve releasing a significant amount of emissions – particularly the main reactions and how they are controlled;
- a comparison of the indicative BATs and benchmark emission levels standards in Technical Guidance Notes (TGNs) EPR 4.01, EPR 4.02 and EPR 4.03, and chemical sector BREFs.

Document reference

2 If you are applying for a multi-purpose plant, do you have a multi-product protocol in place to control the changes?

No

Yes Provide a copy of your protocol to accompany this application

Document reference

3 Does Chapter V of the Industrial Emissions Directive (IED) apply to your activities?

No This Annex is complete.

Yes Fill in Table 3a – listing each of the activities controlled under the IED.

Table 3a – activities controlled under the IED.	
Installation reference	
Activities	

3b Describe how the list of activities in question 3a above meets the requirements of the IED

Document reference

Appendix 3 – Specific questions for the intensive farming sector

1 For each type of livestock, tell us the number of animal places you are applying for

Installation reference	
Type of livestock	Number of places

2 Is manure or slurry exported from the site?

No

Yes

3 Is manure or slurry spread on the site?

No

Yes

Appendix 4 – Specific questions for the clinical waste sector

If you are applying for an activity covered by the Waste Incineration Directive and wish to accept clinical waste you should fill in questions 1, 2 and 3 of this appendix.

Note: If your procedures are fully in line with the standards set out in EPR5.07 then you should tick the 'yes' box and provide the procedure reference. There is no need for you to supply a copy of the procedure.

1 Are pre-acceptance procedures in place that are fully in line with the appropriate measures set out in section 2.2 of EPR 5.07 and which are used to assess a waste enquiry before it is accepted at the installation?

No Provide justification for departure from EPR 5.07 and submit a copy of the procedures

Document reference

Yes Document reference

2 Are waste acceptance procedures in place that are fully in line with the appropriate measures set out in section 2.2 of EPR 5.07, and which are used to cover issues such as loads arriving and being inspected, sampling waste, rejecting waste, and keeping records to track waste?

No Provide justification for departure from EPR 5.07 and submit a copy of the procedures

Document reference

Yes Document reference

3 Are waste storage, handling and dispatch procedures, and infrastructure in place that are fully in line with the appropriate measures set out in section 3.2 of EPR 5.07?

No Provide justification for departure from EPR 5.07 and submit a copy of the procedures

Document reference

Yes Document reference

4 Are monitoring procedures in place that are fully in line with the appropriate measures set out in section 3.3 of EPR 5.07?

No Provide justification for departure from EPR 5.07 and submit a copy of the procedures

Document reference

Yes Document reference

5 Are you proposing to either

- accept an additional waste not included in Table 2.1 of section 2.1 of EPR 5.07, or
- apply a permitted activity to a waste other than that identified for that waste in Table 2.1?

No

Yes Provide justification : Document reference

6 Please provide a summary description of the treatment activities undertaken on the installation. This should cover the general principles set out in section 2.1.4 of EPR 5.07

Document reference

7 Please provide layout plans detailing the location of each treatment plant and main plant items and process flow

Document reference

Appendix 5 – Specific questions for the hazardous and non-hazardous waste recovery and disposal sector

Note: If your procedures are fully in line with the standards set out in SGN 5.06 then you should tick the 'yes' box and provide the procedure reference. There is no need for you to supply a copy of the procedure.

1 Are pre-acceptance procedures in place that are fully in line with the appropriate measures set out in section 2.1.1 of SGN 5.06, and which are used to assess a waste enquiry before it is accepted at the installation?

No Provide justification for departure from SGN 5.06 and submit a copy of the procedures

Document reference

Yes Document reference

2 Are waste acceptance procedures in place that are fully in line with the appropriate measures set out in section 2.1.2 of SGN 5.06, and which are used to cover issues such as loads arriving and being inspected, sampling waste, rejecting waste, and keeping records to track waste?

No Provide justification for departure from SGN 5.06 and submit a copy of the procedures

Document reference

Yes Document reference

3 Are waste storage procedures and infrastructure in place that are fully in line with the appropriate measures set out in section 2.1.3 of SGN 5.06?

No Provide justification for departure from SGN 5.06 and submit a copy of the procedures

Document reference

Yes Document reference

4 Provide a layout plan giving details of where the installation is based, the infrastructure in place (including areas and structures for separately storing types of waste which may be dangerous to store together) and capacity of waste storage areas and structures

Document reference

5 Provide a summary of the treatment activities carried out on the installation. This should cover the general principles set out in section 2.1.4 of SGN 5.06 and the specific principles set out in sections 2.1.5 to 2.1.15 as appropriate of SGN 5.06

Document reference

6 Provide layout plans giving details of where each treatment plant is based, the main items at each plant, and process flow diagrams for the treatment plant

Document reference

Appendix 6 – Specific questions for the waste incineration sector

If you are proposing to accept clinical waste please also fill in questions 1, 2 and 3 of appendix 4 above.

1a Do you run incineration plants as defined by Chapter IV of the Industrial Emissions Directive (IED)?

No You do not need to answer any other questions in this appendix.

Yes WID applies

1b Are you subject to IED as an incinerator or co-incinerator?

As an incinerator

As a co-incinerator

2 Do any of the installations contain more than one incineration line?

No Go to section 4

Yes

3 How many incineration lines are there within each installation?

Fill in a separate table for each installation

Installation reference	
Number of incineration lines within the installation	
Reference identifiers for each line	

You must provide the information we ask for in questions 4, 5 and 6 below in separate documents. The information must at least include all the details set out in section 2 ('Key Issues') of TGN S5.01 (under the subheading 'European legislation and your application for an EP Permit').

4 Describe how the plant is designed, equipped and will be run to make sure it meets the requirements of IED, taking into account the categories of waste which will be incinerated

Document reference

5 Describe how the heat created during the incineration and co-incineration process is recovered as far as possible (for example, through combined heat and power, creating process steam or district heating)

Document reference

6 Describe how you will limit the amount and harmful effects of residues and describe how they will be recycled where this is appropriate

Document reference

For each line identified in question 3, answer questions 7 to 13 below

Question 3 identifier, if necessary

7 Do you want to take advantage of the Article 45 (1)(f) allowance (see below) if the particulates, CO or TOC continuous emission monitors (CEM) fail?

No Go to section 8

Yes This article allows 'abnormal operation' of the incineration plant under certain circumstances when the CEM for releases to air have failed. Annex VI, Part 3(2) sets maximum half hourly average release levels for particulates (150mg/m³), CO (normal ELV) and TOC (normal ELV) during abnormal operation.

Describe the other system you use to show you keep to the requirements of Article 13(4) (for example, using another CEM, providing a portable CEM to insert if the main CEM fails, and so on).

8 Do you want to replace continuous HF emission monitoring with periodic hydrogen fluoride (HF) emission monitoring by relying on continuous hydrogen chloride (HCl) monitoring as allowed by IED Annex VI, Part 6 (2.3)?

Under this you do not have to continuously monitor emissions for hydrogen fluoride if you control hydrogen chloride and keep it to a level below the HCl ELVs.

No *Go to section 9*

Yes Please give reasons for doing this.

9 Do you want to replace continuous water vapour monitoring with pre-analysis drying of exhaust gas samples, as allowed by IED Annex VI, Part 6 (2.4)?

Under this you do not have to continuously monitor the amount of water vapour in the air released if the sampled exhaust gas is dried before the emissions are analysed.

No

Yes Please give reasons for doing this.

10 Do you want to replace continuous hydrogen chloride (HCl) emission monitoring with periodic HCl emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for hydrogen chloride if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No

Yes Please give reasons for doing this.

11 Do you want to replace continuous HF emission monitoring with periodic HF emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for hydrogen fluoride if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No

Yes Please give reasons for doing this.

12 Do you want to replace continuous SO₂ emission monitoring with periodic sulphur dioxide (SO₂) emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for sulphur dioxide if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No

Yes Please give reasons for doing this.

13 If your plant uses fluidised bed technology, do you want to apply for a derogation of the CO WID ELV to a maximum of 100 mg/m₃ as an hourly average, as allowed by IED Annex VI, Part 3?

No

Does not apply

Yes Please give reasons for doing this.

Appendix 7 – Specific questions for the landfill sector

1 Provide your Environmental Setting and Installation Design (ESID) report

Document reference

2 Provide your hydrogeological risk assessment (HRA) for the site

Document reference

3 Provide your stability risk assessment (SRA) for the site

Document reference

4 Provide your landfill gas risk assessment (LFGRA) for the site

Document reference

Templates for these four reports can be found using the links on our Guidance Webpages.

5 Provide your proposed plan for closing the site and your procedures for looking after the site once it has closed

Document reference

Appendix 8 – Medium Combustion Plant ('MCP') and combined MCP/Specified Generator Check List

Please provide the information below for each new medium combustion plant or combined MCP/Specified Generator as identified in Annex I of the Medium Combustion Plant Directive (EU/2015/2193).			
Questions	Answers		
1 What is the MCPD identifier ¹ (As shown on site plan)?			
2 What is the rated thermal input (MWth) of the medium combustion plant. Where there is more than one medium combustion plant, please provide the individual and aggregated total thermal input for all plants.		MWth (only one)	
		MWth (If more than one)	
3 Please indicate the type of medium combustion plant by ticking the appropriate option.	Diesel engine	<input type="checkbox"/>	
	Gas turbine	<input type="checkbox"/>	
	Dual fuel engine	<input type="checkbox"/>	
	Other engines	<input type="checkbox"/>	
	Other medium combustion plant	<input type="checkbox"/>	
4 Please state the type of fuels used	Fuel type	Tick relevant options	Share of fuels used (%)
	Solid Biomass	<input type="checkbox"/>	
	Other Solid Fuels	<input type="checkbox"/>	
	Gas Oil (Diesel)	<input type="checkbox"/>	
	Liquid fuels other than gas oil	<input type="checkbox"/>	
	Natural Gas	<input type="checkbox"/>	
	Gaseous fuels other than natural gas	<input type="checkbox"/>	
5 Please state the start date of the operation of the Medium Combustion Plant. Or where the exact start date is unknown, provide proof that the operation started before 20 th December 2018.			Start date
	Or, if start date unknown; provide proof:		
			Document reference
6 Please state the sector of activity of the Medium Combustion Plant or the facility in which it is applied (NACE code ²)			
7 Please state the expected number of annual operating hours of the Medium Combustion Plant, and average load in use.			Hours
			Average load in use
8 Please confirm that where the option of exemption under article 6(3) or article 6(8) of the medium combustion plant directive is used, the medium combustion plant will not be operated more than the number of hours referred to in those paragraphs.	Yes, I/We confirm that where the option of exemption under article 6(3) or article 6(8) of the medium combustion plant directive is used, the medium combustion plant will not be operated more than the number of hours referred to in those paragraphs		<input type="checkbox"/>

<p>9 Please confirm that the operator name, registered office address and in the case of stationary medium combustion plant, the address where the plant is located is as stated in Form Part A and Form Part B1.</p>	<p>Yes, I/We confirm that the operator name, registered office address and in the case of stationary medium combustion plants, the address where the plant is located is as stated in Form Part A and Form Part B1.</p>	<input type="checkbox"/>
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Explanatory notes to checklist

1. Identifier – the MCP must be traceable via a serial number or other unique identifier, name plate, manufacturer and/or model.
2. NACE code* means Nomenclature of Economic Activities and is the European statistical classification of economic activities.

Appendix 9 – Specific questions for Specified Generators

Please provide the information below for **each** generator identifier, which comprises the Specified Generator (Excluded generators are not required to be included in this appendix).

If your application is for a specified generator that is also a new medium combustion plant, you will also need to complete appendix 8 for each new medium combustion plant.

Questions	Answers	
1 What is the generator identifier ¹ (As shown on the site plan)?		
2 What is the rated thermal input (MW) of the generator?		MWth
3 Please provide details of any capacity agreement(s) or balancing service agreement(s) for each individual generator, i.e. if they are Tranche A or Tranche B generators.		
4 Please state the total rated thermal input of all generators on site.		MWth
5 Please indicate if the operating hours for each individual Tranche A generator be restricted to 50 hour or less per year.	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
6 Please indicate if the aggregated operating hours for all Tranche A generators be restricted to 50 hour or less per year.	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
7 Will the NOx emissions of any individual Tranche A generator will be greater than 500mg/Nm ³ per year (STP, 15% O ₂)?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>

Explanatory notes to checklist

1. Identifier – the generator must be traceable via a serial number or other unique identifier, name plate, manufacturer and/or model

Application for an Environmental Permit

Part F1 – Charges and declarations

Fill in this part for all applications for installations.

Please read through this form and the associated guidance document that can be found on our website, [here](#).

Contents

1. Working out your charges (you must complete this section).....	2
1a. Type of application	2
1b. Tier 2 Standard Rules Permits	2
1c. Tier 3 Bespoke Permits - Charge Banding Tool	2
1d. Calculating your subsistence charge - Operational Risk Appraisal Tool (Opra)	3
2. Payment.....	4
2a. How do you want to pay?	4
2b. Paying by electronic transfer	4
Reference number	4
Making payments from outside the UK	5
2c. Paying by credit or debit card	5
2d. Paying by cheque or postal order.....	5
3. The Data Protection Act 1998.....	5
4. Confidentiality and national security.....	6
4a. Confidentiality.....	6
4b. National security.....	6
5. Application checklist (you must complete this section)	6
Table 2 - Application checklist	7
7. Declaration.....	8
7a. Are you signing the form on <i>behalf of</i> a relevant person?	8
7b. Does your application include a standard facility?.....	8
7c. Does your application include ecological survey information?.....	9
7d. Declaration	9
7e Declaration for the person or persons <i>receiving</i> the permit (transfers only)	10

1. Working out your charges (you must complete this section)

You have to submit an application fee with your application. You can find out the charge by looking at our current [environmental permitting charging scheme](#). This can be found on our 'How we regulate you' webpages.

Please remember that the charges are revised on 1 April each year and that there is an annual subsistence charge to cover the costs we incur in the ongoing regulation of the permit.

From 22nd January 2024 you will need to use our new Charge Banding Tool to calculate the charge for all Tier 3 permits. This has replaced Opra as the tool to calculate application charges.

The charge banding tool includes charges for additional activities that are within the same permit for:

- Part A2 or Part B activities,
- Medium Combustion Plant (MCP) or specified generator

Waste activities that would need a permit if they are stand-alone are also now included within the charge banding tool.

We have included an example below to help you complete the table.

- The Tier 2 charge example is for an application for a 'New standard rule' permit.
- The Tier 3 charge example is for an installation based charge calculated using our Charge Banding Tool. The charge banding tool can be found on our website and contains the guidance that you will need to populate the tool.

1a. Type of application	Variation of an existing permit
--------------------------------	--

1b. Tier 2 Standard Rules Permits

Tier 2 facilities	Charge for each facility (£)	Number of facilities	Charges due (£)
<i>EXAMPLE - SR2009/No.2 Low impact Part A installation</i>	<i>1,669.00</i>	<i>1</i>	<i>1,669.00</i>

1c. Tier 3 Bespoke Permits - Charge Banding Tool

If you are completing an application for a Tier 3 permit, you will need to complete our [Charge Banding Tool](#) to calculate the application charge.

You will need to send us a copy of your completed charge banding tool spreadsheet with your application.

Charge for your application taken from the Charge Banding Tool	Charge for each facility (£)	Number of facilities	Charges due (£)
---	------------------------------	----------------------	-----------------

<i>Normal Variation</i>	<i>8,967</i>	<i>1</i>	<i>8,967</i>

1d. Calculating your subsistence charge - Operational Risk Appraisal Tool (Opra)

You will need to complete an Opra spreadsheet with your new application to allow us to calculate your associated annual subsistence charge.

You will need to complete an Opra spreadsheet to accompany your application for a variation or transfer. For variations, we would need a completed Opra spreadsheet that reflects the situation on the site once your permit is determined.

We will need to receive your completed Opra spreadsheet before we can issue your permit. The spreadsheet can be found on our website, [here](#).

2. Payment

2a. How do you want to pay?

Tick an option below to show how you will pay.

Electronic transfer (for example, BACS)	<input checked="" type="checkbox"/>	<i>Go to section 2b</i>
Credit or Debit card	<input type="checkbox"/>	<i>Go to section 2c</i>
Cheque	<input type="checkbox"/>	<i>Go to section 2d</i>
Postal order	<input type="checkbox"/>	<i>Go to section 2d</i>

2b. Paying by electronic transfer

If you choose to pay by electronic transfer, use the following information to make your payment.

Company name	Natural Resources Wales
Company address	Income Dept., PO BOX 663, Cardiff, CF24 0TP
Bank	RBS
Address	National Westminster Bank Plc, 2 ½ Devonshire Square, London, EC2M 4BA
Sort code	60-70-80
Account number	10014438

Reference number

You can use any reference number but we prefer the number to be 'EPR' followed by the first nine letters of your organisation name followed by a four-digit number.

For example, for a company named Joe Bloggs Ltd, the reference number might be EPRJOEBLOGGS0001. (Remember you can use any four-digit number at the end.)

The reference number you will provide will appear on our bank statements so we can check your payment. We may need to contact your bank to make sure the reference number is quoted correctly.

You should also email your payment details and payment reference number to banking.team@naturalresourceswales.gov.uk / banking.team@cyfoethnaturiolcymru.gov.uk or fax it to 0300 065 3001 and enter it in the space provided below.

BACS reference EPRPOETONNAT0001

Amount paid £8,967

Making payments from outside the UK

These details have changed. If you are making your payment from outside the United Kingdom (which must be received in sterling), our IBAN number is GB70 NWBK6070 8010 0144 38 and our SWIFT/BIC number is NWBKGB2L.

If you do not quote your payment reference number, there may be a delay in processing your payment and application.

2c. Paying by credit or debit card

If you are paying by credit or debit card, please fill in the separate form CC1.

You can download this from our website or you can ask for one of our customer service providers to send one by post. We will destroy your card details once we have processed your payment. We can accept payments by Visa, MasterCard or Maestro UK card only

2d. Paying by cheque or postal order

You can download this from our website or you can ask for one of our customer service providers to send one by post. We will destroy your card details once we have processed your payment. We can accept payments by Visa, MasterCard or Maestro UK card only.

We will not accept post-dated cheques (cheques with a future date written on them).

Cheque / postal order number

Amount paid

3. The Data Protection Act 1998

We, the Natural Resources Body for Wales (hereafter “Natural Resources Wales”), will process the information you provide so that we can:

- deal with your application
- make sure you keep to the conditions of the licence, permit or registration
- process renewals, and
- keep the public registers up to date.

We may also process or release the information to:

- offer you documents or services relating to environmental matters
- consult the public, public organisations and other organisations (for example, the Health and Safety Executive, local authorities, the emergency services, the Department for Environment, Food and Rural Affairs) on environmental issues,
- carry out research and development work on environmental issues
- provide information from the public register to anyone who asks
- prevent anyone from breaking environmental law, investigate cases where environmental law may have been broken, and take any action that is needed

- assess whether customers are satisfied with our service, and to improve our service, and
- respond to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (if the Data Protection Act allows). We may pass the information on to our agents or representatives to do these things for us.

4. Confidentiality and national security

We will normally put all the information in your application on a public register of environmental information. However, we may not include certain information in the public register if this is in the interests of national security, or because the information is confidential.

4a. Confidentiality

You can ask for information to be made confidential by enclosing a letter with your application giving your reasons. If we agree with your request, we will tell you and not include the information in the public register. If we do not agree with your request, we will let you know how to appeal against our decision, or you can withdraw your application.

Only tick the box below if you wish to claim confidentiality for your application.

Tick the box to confirm you have provided evidence to support your confidentiality claim and give us the document reference, below.

Document reference

4b. National security

You can tell the Welsh Ministers that you believe including information on a public register would not be in the interests of national security.

You must enclose a letter with your application telling us that you have told the Welsh Ministers and you must still include the information in your application. We will not include the information in the public register unless the Welsh Ministers decides that it should be included.

You can find guidance on national security in 'Core Environmental Permitting Guidance' published by Defra and available via the .Gov website.

You cannot apply for national security via this application

5. Application checklist (you must complete this section)

Tell us about the supporting evidence and information you have sent with this application.

Application fee - You must submit the correct application fee in line with our current charging scheme.

Tick the box to confirm you have included the correct fee.

Tick the box to confirm that you have included a copy of your completed charge banding tool spreadsheet.

List all the documents you have included in Table 2. Please see the guidance notes for examples on how to complete the checklist.

If the relevant information for a question forms part of a larger document, please specify the relevant section(s) of the document. This will speed up the process of checking your application and making decisions.

If necessary, continue on a separate sheet and tell us the reference you have given the document below.

Document reference

Table 2 - Application checklist

Question reference	Document title / reference	Document section
Application Forms	Forms A, C2, C3 and F	
Supporting Documentation and Appendices	Supporting Documentation_Poeton Cardiff 2025	Response to application questions
Form C2 Q6	H1 File: H1 Tool v9.2	H1 for discharges to air
Form C2 Q6	H1 File: H1TOOL_2.78	H1 for discharges to water
Form F Q1c	240613-charge-tool-variation	Informing Form F
OPRA Spreadsheet	Opra-spreadsheet-v2-2-2023-25	Calculating Subsistence Fee

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7. Declaration

You must read this section before making the declaration and sending your form to us.

For transfer applications - Both you and the person receiving the permit must make the declaration.

Section 7d must be completed by the current holder *and* Section 7e must be completed by the proposed new holder.

A relevant person should make the declaration. You must be a relevant person or have the authority of a relevant person to sign this application on their behalf.

Relevant people means each applicant, and in the case of a company, a director, manager, company secretary or any similar officer or employee listed on current appointments in Companies House. In the case of a Limited Liability Partnership (LLP), it includes any partner. If the permit holder is an organisation of individuals, each individual (or individual trustee) must complete the declaration.

To simplify and speed up the application process we recommend that the declaration is filled in by an officer of a company or one of the partners in a Limited Liability Partnership (LLP).

If you wish a manager, employee or consultant etc. to sign the declaration on behalf of a relevant person, we will need written confirmation from a relevant person; that is, an officer of the company, a partner in the LLP or the individual, confirming that the person has the authority to fill in the declaration.

If you are joint permit holders you should each fill in your own declaration. We have provided extra spaces for this below. Please send in a separate sheet with your application if you need more room for signatories.

Where the operator is the subject of any insolvency procedure, the declaration must be filled in by the official receiver/appointed insolvency practitioner.

7a. Are you signing the form on *behalf of a relevant person*?

If you are *not* a relevant person, but want to sign the application on their behalf, you must include confirmation that you can do this.

I have included written confirmation from a relevant person to confirm I can sign on their behalf.

7b. Does your application include a standard facility?

If your application includes a standard facility, you also need to confirm that you are able to meet all relevant criteria of the standard rule set/sets for which you are applying.

I confirm that my standard facility will fully meet the rules that I have applied for.

7c. Does your application include ecological survey information?

If your application includes ecological survey information, please see the guidance notes on part F1 and tick the box below to confirm that you have no issue with us using information from any ecological survey you have supplied with your application.

I confirm I am happy for the ecological survey information I have supplied to be used as set out in the guidance.

7d. Declaration

If you're transferring the permit, the current holder or holders should sign this section of the declaration, and the proposed new holder or holders of the permit should sign the declaration in section 7e.

If you knowingly or recklessly make a statement which is false or misleading to help you get an environmental permit (for yourself or another person), you are committing an offence under the Environmental Permitting (England and Wales) Regulations 2010 (as amended).

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

I understand that if I knowingly or recklessly make a false or misleading statement:

- I may be prosecuted, and
- if convicted, I may have to pay a fine and/or go to prison.

By signing below, you are confirming that you understand and agree with the declaration above.

Title	Mr
First name	James
Last name	Poeton
On behalf of (if relevant)	Poeton (Cardiff) Limited
Today's date	28 th February 2025

If you knowingly or recklessly make a statement which is false or misleading to help you get an environmental permit (for yourself or another person), you are committing an offence under the Environmental Permitting (England and Wales) Regulations 2010 (as amended).

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

I understand that if I knowingly or recklessly make a false or misleading statement:

- **I may be prosecuted, and**
- **if convicted, I may have to pay a fine and/or go to prison.**

By signing below, you are confirming that you understand and agree with the declaration above.

Title

First name

Last name

On behalf of (if relevant)

Today's date

7e Declaration for the person or persons *receiving* the permit (transfers only)

The persons 'receiving the permit' is the proposed new permit holder.

Note: If you cannot trace a person or persons holding the permit you may be able to transfer the permit without their declaration (in section 7d above). Please contact us to discuss this and supply evidence in your application to confirm you are unable to trace one or all of the permit holders.

If you knowingly or recklessly make a statement which is false or misleading to help you get an environmental permit (for yourself or another person), you are committing an offence under the Environmental Permitting (England and Wales) Regulations 2010 (as amended).

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

I understand that if I knowingly or recklessly make a false or misleading statement:

- **I may be prosecuted, and**
- **if convicted, I may have to pay a fine and/or go to prison.**

By signing below, you are confirming that you understand and agree with the declaration above.

Title

First name

Last name

On behalf of (if relevant)

Today's date

If you knowingly or recklessly make a statement which is false or misleading to help you get an environmental permit (for yourself or another person), you are committing an offence under the Environmental Permitting (England and Wales) Regulations 2010 (as amended).

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

I understand that if I knowingly or recklessly make a false or misleading statement:

- **I may be prosecuted, and**
- **if convicted, I may have to pay a fine and/or go to prison.**

By signing below, you are confirming that you understand and agree with the declaration above.

Title

First name

Last name

On behalf of (if relevant)

Today's date

ENVIRONMENTAL PERMIT VARIATION APPLICATION

PERMIT NUMBER EPR/BP1772IZ

POETON (CARDIFF) LIMITED

MARCH 2025

Form C2

Q1a Discussions Before Application

Initial discussions have been undertaken with Natural Resources Wales (NRW) site officer Dale Padfield. Mr Padfield is fully aware of the proposed changes, having visited the site and having had numerous discussions with Poeton staff and the consultant that has prepared this application.

Q3d3 Environmental Management Systems

Poeton (Cardiff) Limited has a certified ISO 14001:2015 Environmental Management System. The system is certified and audited by BSi (Certificate Number EMS 87027; expires March 2026) and covers the site provision of surface treatment, including electroplating and anodising coatings, spray painting and non-destructive testing.

The EMS and supporting documents include:

- Procedures for operations which detail the steps to be taken to prevent or minimise risks to the environment from each activity. Available procedures include written method statements for emptying vats and the transfer and secure storage of liquors and chemicals;
- Consideration of actions and control during start up, normal operation, shut down, and emergency conditions, such as leaks and spills;
- Documented site and equipment maintenance plans which consider the operational plant and machinery. This system is currently being transformed into a preventative maintenance system. The site also undertakes regular visual checks of site infrastructure, including drainage;
- Contingency plans and business continuity for breakdowns, enforced shut-downs and other potentially foreseeable changes in normal operational conditions;
- Accident and emergency planning which considers: the likelihood of an accident happening, the consequences of an accident happening, the measures taken to avoid the accident happening, and the measures that will be taken to minimise the impact of the accident if it does occur;
- Procedures for the management of staff, training and maintenance of records, including inductions, training, records of roles and responsibilities and personnel records;
- Procedures for the auditing and review of the management system;
- Maintenance of all system records, which are largely electronic and are controlled;
- Procedures for communication and complaints.

Q5a Site Plan

A satellite site plan, a layout plan, a plan of emissions to atmosphere and a site drainage plan are provided below, as are department floor plans.

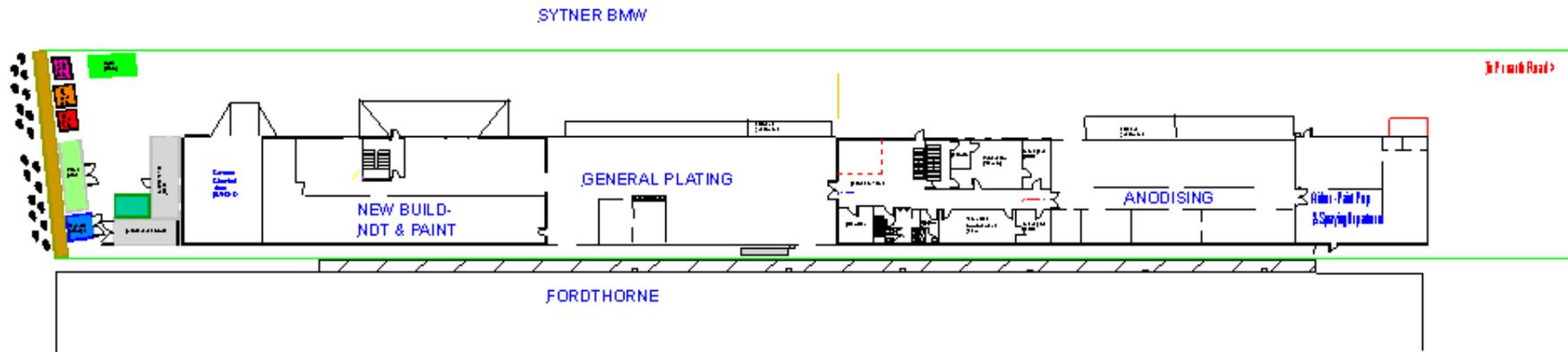
SITE PLANS – Satellite Imagery



Imagery courtesy of Google Earth - Imagery date: 2025
The Poeton (Cardiff) site boundary is outlined in green.

SITE PLANS – Site Layout

POETON (Cardiff) – Site Base Plan



Information:



North

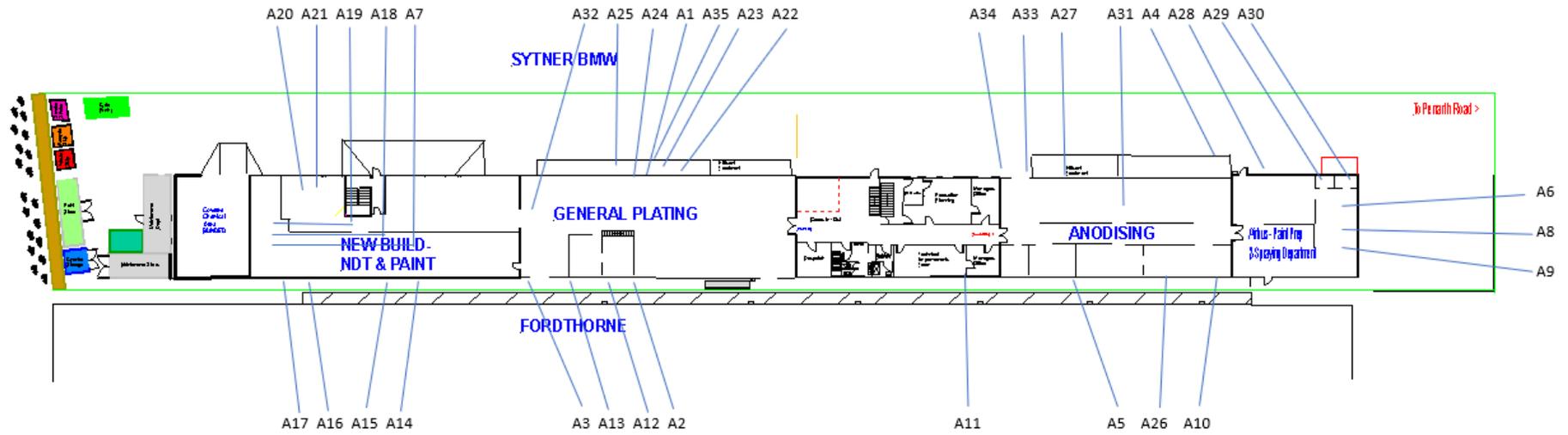
The green line boundary denotes the installation boundary.

All areas of the site are provided with concrete hardstanding, with the only soft landscaping present at the back of the site (to the east) along the railway embankment, and outside of the installation boundary.

The covered and bunded chemical storage area is located at the rear (to the eastern end) of the site, next to the NDT and new paint shop area. Storage outside of this area in the rear yard comprises lockable containerised stores and waste skips. Liquid chemicals are stored in self-bunded, containers.

SITE PLANS – Atmospheric Emission Points

POETON (Cardiff) – Site Plan; Emissions to Atmosphere

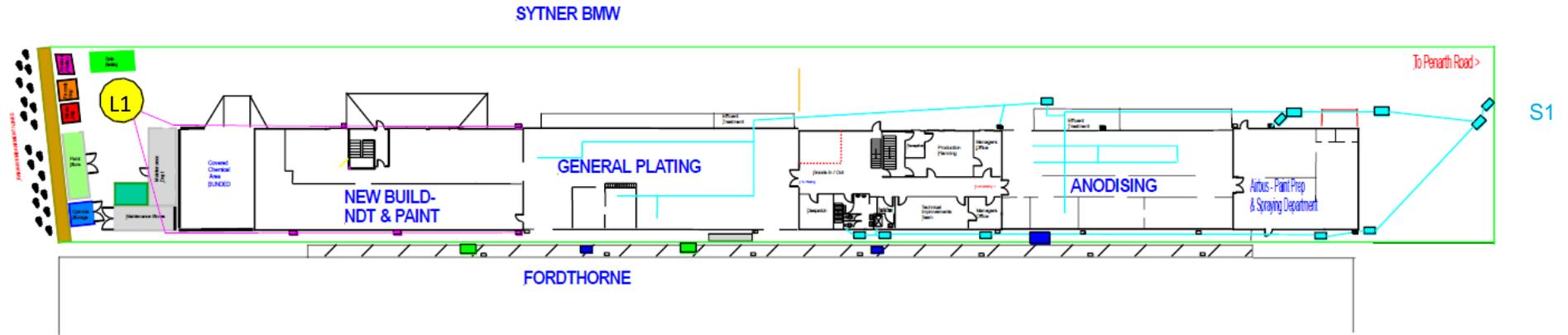


Information:



SITE PLANS – Site Drainage and Discharge Points

POETON (Cardiff) Ltd – Drainage Plan



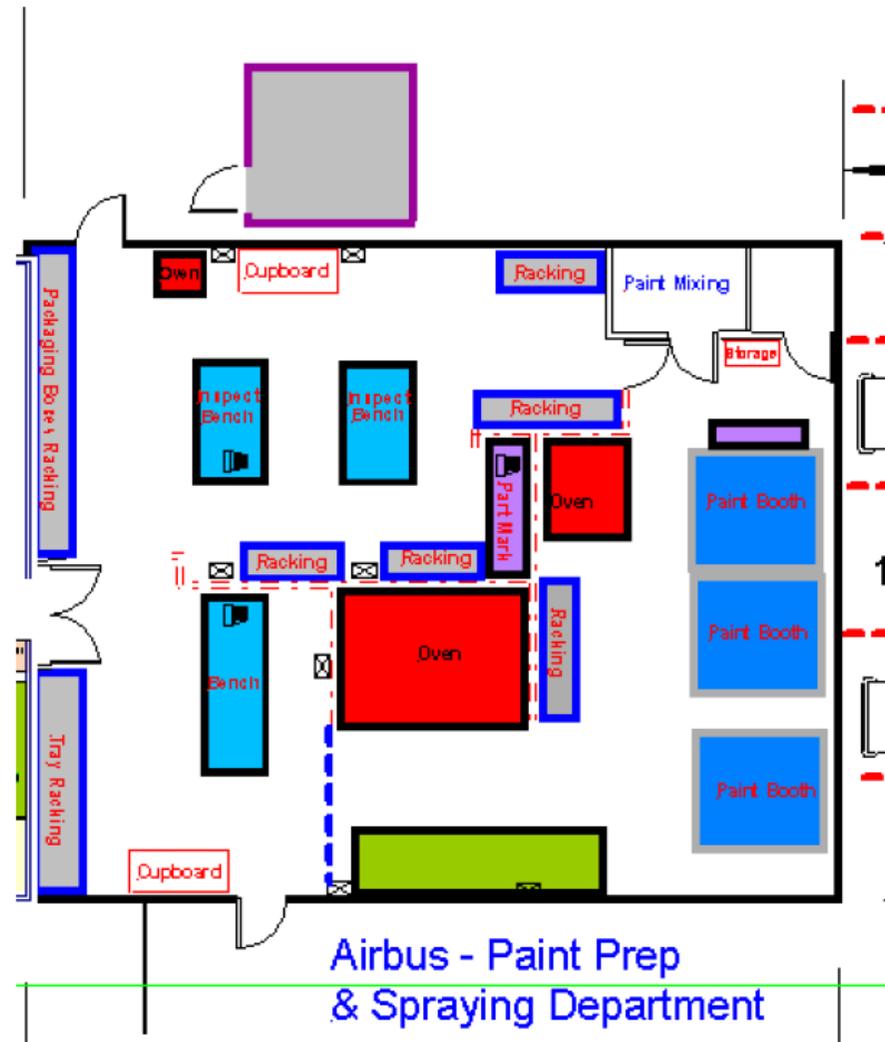
- | | | | |
|------------------------------------|---|--------------------------------|---|
| Drainpipe (Surface Runoff) |  | Drainpipe (To Sewer) |  |
| Drainpipe (To Soakaway) |  | Soakaway |  |
| Manhole Cover (Foul / Trade sewer) |  | Manhole Cover (Domestic sewer) |  |
| Surface Water Drain |  | Drainage Gully |  |
| Site Boundary |  | | |

Information:

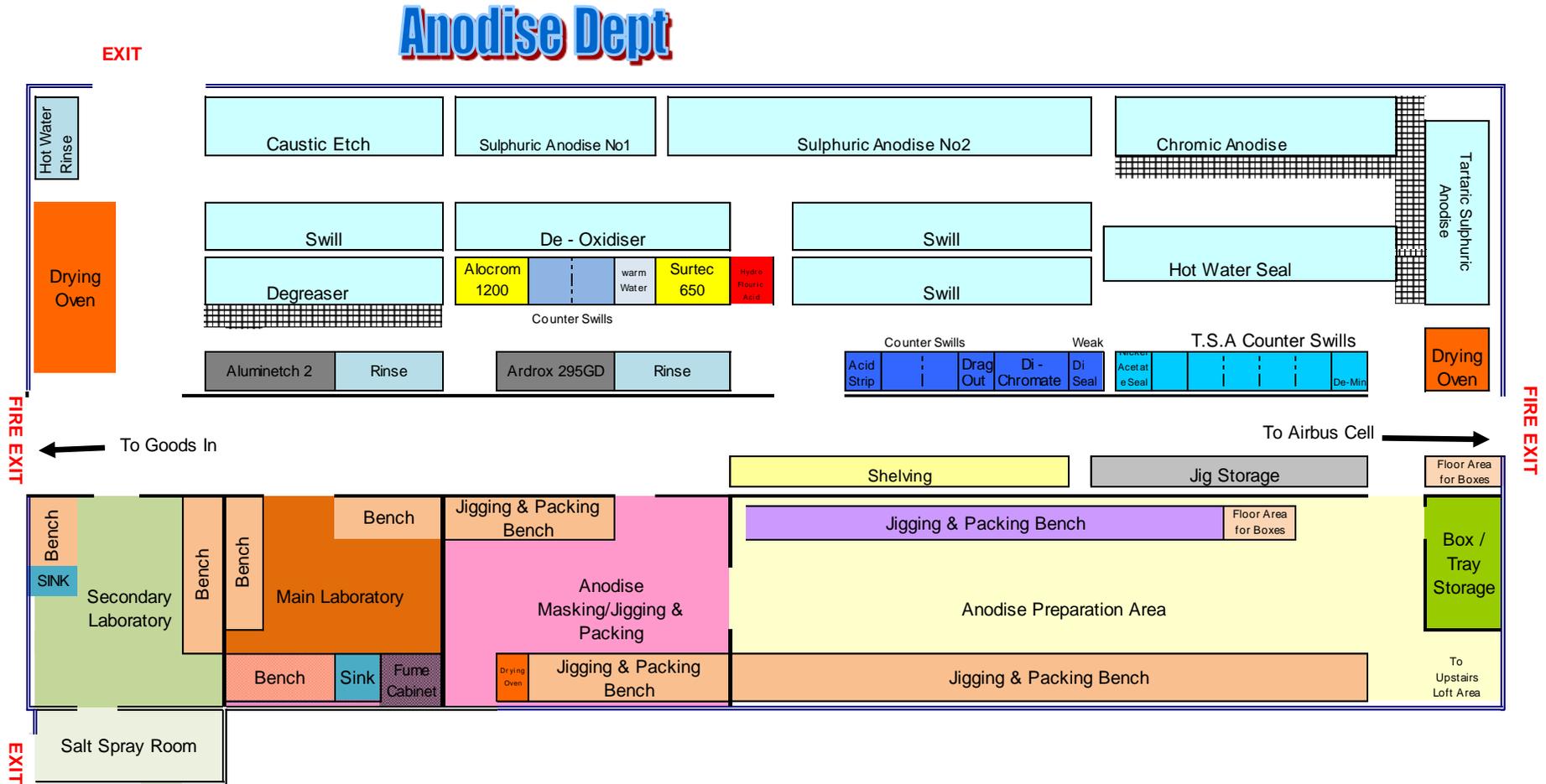


Soakaway receives clean roof-water only and is discharged to land (L1).
 All other drainage from across the site, including from surface water drains, ultimately passes to foul sewer (S1)

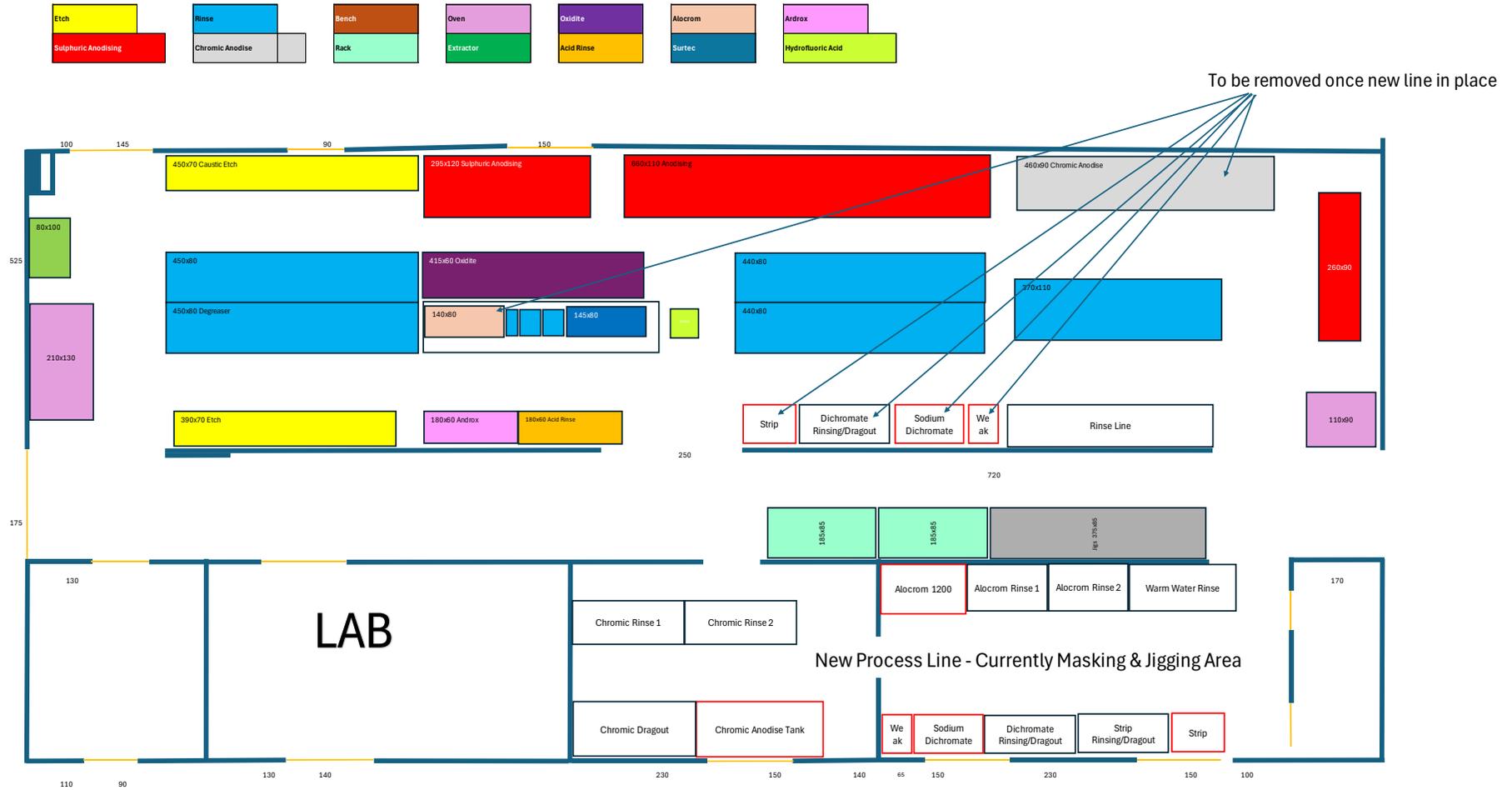
SITE PLANS – Department Floor Plans; in order from the front of the site at Penarth Road, to the rear.



Anodising Department – Current Layout

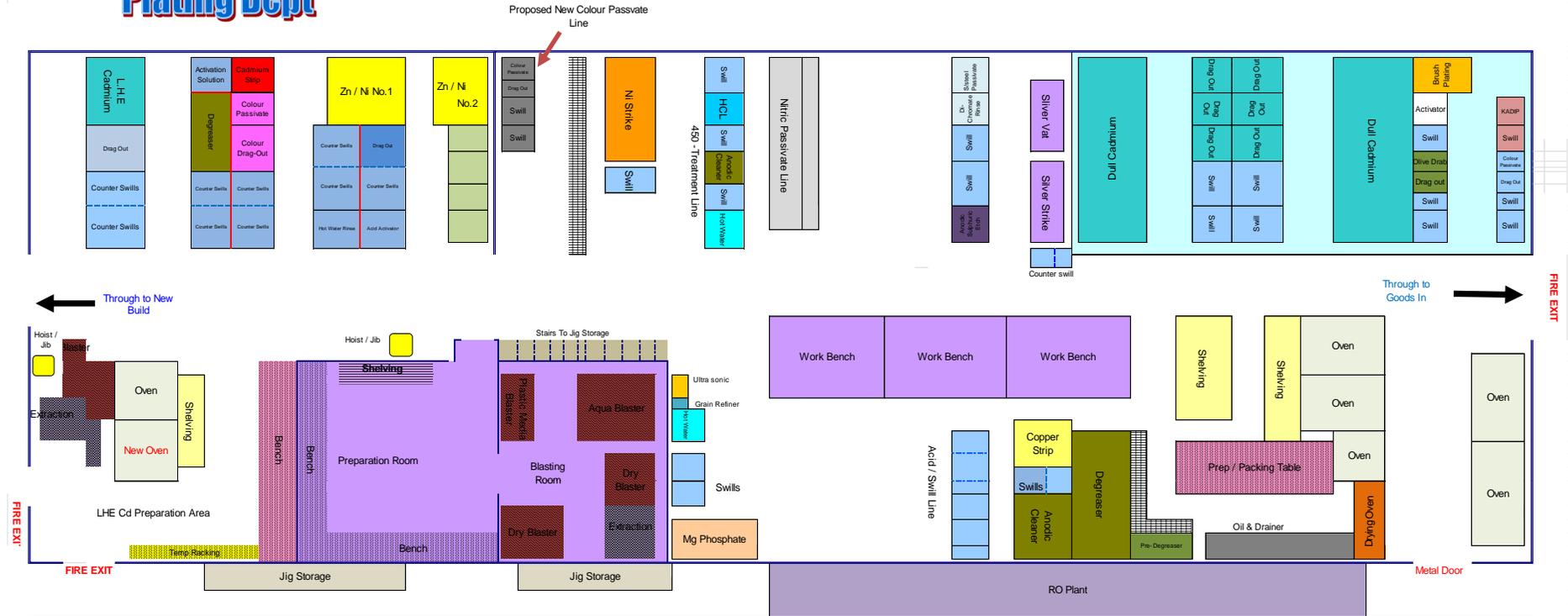


Anodising Department – Proposed Layout



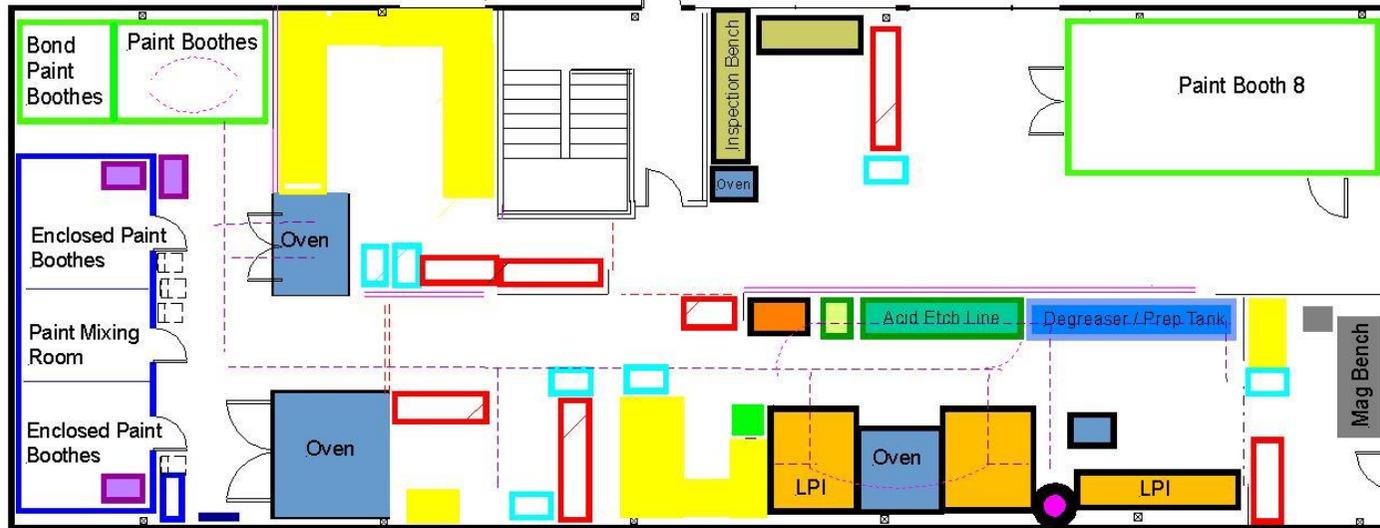
Plating Department – Proposed Layout

Plating Dept



Issue 16

New Build - NDT & Paint



Q6 Environmental Risk Assessment

Two H1 environmental risk assessments have been prepared in support of this application, applying the new (Excel) and earlier (Access) data sheets to consider the impact of emissions to air and water respectively. The assessment workbooks have been provided with this application.

The assessment of potential emissions to atmosphere has applied the results of recent occupational monitoring around the process vats. The Chromium results obtained at the entrance to the lip extraction duct have been further reduced to 1/10th of their value as this point represents only a very small area of the overall vat extraction to the stack, with limited or no Chromium release occurring away from the work-piece. Where abatement systems are in place, their abatement efficiency (believed to be 95 %) has also been taken into account when calculating the emission concentration.

Emissions to air are largely screened as either insignificant or otherwise not significant. Total Volatile Organic Compounds (VOCs) are assessed as both Toluene and Xylenes. The raw materials used that may contribute to VOC releases do not contain Benzene and, of the organic species that could contribute to the release, Toluene and Xylene have the lowest environmental assessment levels for the various long and short-term reference periods. Considering the total emission of VOCs as both Toluene and Xylene species naturally results in an over-estimate of the overall potential impact of VOCs, as it assumes that the total combination of multiple VOC species emit as both of the individual pollutants, thereby effectively doubling the overall release. However, irrespective of this, the emissions pass the screening assessment, either at the initial or secondary test stage.

Emissions of Chromium (as Chromium^(VI)) do not screen, with the process contribution equating to approximately 23.8 % of the Environmental Assessment Level (EAL). This is largely due to the very low EAL for Chromium^(VI) and the relatively high level of detection of the monitoring methods.

When adding a background concentration for Chromium^(VI), which is assumed to be 20 % of the total Chromium background measured at one of the nearest monitoring stations to the site, levels of Chromium^(VI) cannot be screened. However, this is largely due to the background concentration applied (0.0007 µg m⁻³), already significantly exceeding the EAL (0.00025 µg m⁻³). The background concentration of 3.5 ng m⁻³ (0.0035 µg m⁻³ total, or 0.0007 µg m⁻³ when considering 20 % of the background) was measured at the Swansea Morriston heavy metals monitoring station in 2023 and, being an urban traffic monitoring location, is considered to be appropriate to the location of the Poeton site in Cardiff. The assumption that Chromium^(VI) equates to 20 % of total background Chromium is commonly applied, in line with guidance from the Environment Agency¹.

In 2014, Poeton's Gloucester site confirmed, through discussion with monitoring teams and the Environment Agency, that the levels of detection when monitoring Hexavalent Chrome in stack emissions would be unable to demonstrate whether or not the emissions from the site could be screened as insignificant using the H1 methodology or through detailed atmospheric dispersion modelling. The Environment Agency subsequently required the provision of a BAT Assessment in place of the H1 assessment, specifically to review the site Chromium operations against the Best Available Techniques (BAT) identified. An assessment was duly produced at that time, in support of the Gloucester Permit variation application, which considered all of the BAT items detailed in guidance notes:

- Integrated Pollution Prevention and Control Reference Document on Best Available Techniques for the Surface Treatment of Metals and Plastics. August 2006. The European Commission.
- How to comply with your environmental permit. Additional guidance for: The Surface Treatment of Metals and Plastics by Electrolytic and Chemical Processes (EPR 2.07).

Poeton is constantly striving to ensure it operates safe, efficient and effective processes and applies all available and relevant control techniques at their sites. However, in light of the difficulties of screening Chromium from this current assessment, a BAT assessment, similar to that prepared previously for the Gloucester site, has been produced in support of this application and is presented in Appendix A.

¹ https://assets.publishing.service.gov.uk/media/5a80dd59ed915d74e6230e2d/LIT_7349.pdf Guidance on assessing group 3 metal stack emissions from incinerators. Version 4. Environment Agency.

A second H1 assessment has also been prepared using the earlier Access data sheet to consider the impact of emissions to water, via sewer, from the Poeton (Cardiff) installation. Although again, not all discharges are deemed to pass the risk assessment screening tests, Dwr Cymru Welsh Water has recently updated and re-issued the Poeton Trade Effluent Consent (TE67, Direction 04), and has done so with full consideration of the nature of the effluent discharged and capacity of the Cog Moors wastewater treatment facility, which includes activated sludge treatment.

Form C3

Q1a; Table 1a Types of Activities

Installation Name	Poeton Cardiff	
Scheduled Activity	Description of Activity	Activity Capacity
S2.3 A(1)(a) Surface treating metals and plastic materials	<p>Surface treating metals and plastic materials using an electrolytic or chemical process where the aggregated volume of the treatment vats is more than 30 m³.</p> <p>Limits: From receipt of raw materials to dispatch of products and waste.</p>	<p>Process vat capacity = 56.5 m³ for all current and proposed processes including anodising, plating, NDT etc. Rinse vats are not included in this total.</p> <p>Future capacity delivers a small (2.5 m³) reduction on the existing vat volume of approximately 59 m³.</p> <p>Approximately 50 m³ of processing solutions are in use across the site processes at any one time.</p>
Directly Associated Activities		
Effluent treatment	Treatment of process effluent prior to discharge into the public sewer.	
Painting of components	Coated components may be painted as a finishing activity prior to packaging and dispatch. This activity is not new but has, thus-far, not been included on the Permit.	
Non-Destructive Testing of product	Quality control (non-destructive testing) of coated components. This activity is not new but has, thus-far, not been included on the Permit.	

The installation does not take waste.

Q2 Emissions

The most appropriate permitting guidance notes for the industry are:

- Integrated Pollution Prevention and Control Reference Document on Best Available Techniques for the Surface Treatment of Metals and Plastics. August 2006. The European Commission.
- How to comply with your environmental permit. Additional guidance for: The Surface Treatment of Metals and Plastics by Electrolytic and Chemical Processes (EPR 2.07)

As detailed in the aforementioned guidance documents, the main environmental impacts from the surface treatment industry relate to energy and water consumption, the consumption of raw materials, emissions to surface and groundwaters, solid and liquid wastes and the potential for contamination of land and water sources. The surface treatment of metals and plastics is not a major source of emissions to air, although local air quality can be an issue for some installations, for example those emitting Oxides of Nitrogen in urban areas, and occupational controls are usually required in key process areas.

It is noted that, although there are currently four Air Quality Management Areas in Cardiff, none of these are in the vicinity of the Poeton Cardiff installation, and as such, neither process nor fugitive releases from the site are likely to have a significant impact on local air quality.

Air emissions from the sector are not significant and are easily dealt with using readily available in-process techniques or end of pipe abatement measures where necessary. Whilst surface treatment installations should ensure that emissions from local exhaust ventilation across the site do not have an adverse environmental impact, material losses and pollution are considered to be negligible from well-designed extraction systems.

Table 2 below considers the emissions to atmosphere from the Poeton Cardiff installation. The vast majority (A1 – A34) are existing emission points, although many have not previously been listed on the Permit. A35 is an anticipated extract from a new colour passivate line, although this new line and emission point has not currently been confirmed as required.

Emission concentrations are not readily quantifiable as these are not generally measured other than for occupational health and safety purposes. Emissions to atmosphere of all substances are controlled using appropriate abatement techniques including the use of additives to retain the plating substances within the tanks, the appropriate balance of air extraction and lidded or croffled tanks, air extraction control techniques and, where required, the treatment of extracted air prior to release. Therefore, although the potential components of the release from each discharge point are listed in Table 2, discharges of most substances are considered to be at negligible or not measurable levels.

Table 2 Emissions to Atmosphere

Installation Name		Poeton Cardiff		
Discharge Point	Source	Parameter	Measured Quantity 2024 (mg m ⁻³)#	Abatement
A1	Electroless Nickel Extraction – currently out of service	Nickel (when in service)	Not in use	None
A2	Phosphates Extraction	Manganese	0.05990	None
A3	NDT – De-greaser / Alum Etch / Ardrex 295	Hydrogen	Not measured (NM) – negligible levels	None
A4	Tartaric Sulphuric Anodising Extraction	Sulphuric Acid Tartaric Acid Hydrogen	None detected (ND)	None
A5	Laboratory Fume Cupboard Extraction	Various	NM – negligible levels	None
A6	Paint Spray Booth 1	Organic paint, Chromium ^(VI) and Isocyanates	Total Organic Paint = 37.89	25mm fibre and 50 mm fibreglass
A7	Paint Spray Booth 7	Organic paint, Chromium ^(VI) , Isocyanates and combustion gases*	Chromium ^(VI) = 0.000278	Pleated cardboard and 50 mm fibreglass
A8	Paint Spray Booth 2	Organic paint and Chromium ^(VI)	All organic paint use considered under A6 NM – negligible levels	25mm fibre and 50 mm fibreglass
A9	Paint Spray Booth 3	Organic paint, Chromium ^(VI)	All organic paint use considered under A6 NM – negligible levels	25mm fibre and 50 mm fibreglass
A10	Air replacement unit (100 kW process gas burner)	Combustion gases	NM – negligible levels	None
A11	'Domestic' type boiler (non-process: 20 kW)	Combustion gases	NM – negligible levels	None
A12	General Extraction for Blasting Room. <i>A cloth bag filter unit discharges abated process exhaust into the room, and the extraction from the room is emitted via A12.</i>	Particulate	NM – negligible levels	None
A13	Down Draught Bench	VOCs	NM – negligible levels	None
A14	Liquid Penetrant Inspection Electrostatic Booth	Penetrant	NM – negligible levels	Wet booth – no further abatement
A15	Liquid Penetrant Inspection Developer Booth	Paint powder	NM – negligible levels	Pleated paper
A16	Oven Exhaust	Organic paint	NM – negligible levels	None
A17	Down Draught Bench	VOCs	NM – negligible levels	None

Discharge Point	Source	Parameter	Measured Quantity 2024 (mg m ⁻³)#	Abatement
A18	Paint Mixing Room 2 and Gun Wash Station	Organic paint, Chromium ^(VI) , Isocyanates and VOCs	All organic paint use considered under A6 NM – negligible levels	None
A19	Paint Booth 6	Organic paint, Chromium ^(VI) , Isocyanates and combustion gases*	All organic paint use considered under A6 NM – negligible levels	Pleated cardboard and 50 mm fibreglass
A20	Paint Booth 4	Organic paint, Chromium ^(VI) , Isocyanates and combustion gases* (when in service)	Not in use	Pleated cardboard and 50 mm fibreglass
A21	Paint Booth 5	Organic paint, Chromium ^(VI) , Isocyanates and combustion gases*	All organic paint use considered under A6 NM – negligible levels	Pleated cardboard and 50 mm fibreglass
A22	S/Steel Passivates Extraction	Sodium Dichromate Nitric Acid	None detected	None
A23	HCl Extraction	Hydrochloric Acid	None detected	None
A24	Zn/Ni 1 Extraction	Zinc Nickel	Zinc = 1.47 Nickel = None detected	None
A25	Zn/Ni 2 Extraction	Zinc Nickel	Zinc = 1.47 Nickel = None detected	None
A26	Chromic Anodising / Dichromate Seal	Chromium ^(VI) Sodium Dichromate and Hydrogen	0.0000244~	Scrubber and filter
A27	Anodising – Ardrex 295	Hydrogen	NM – negligible levels	None
A28	Down Draught Bench	VOCs	NM – negligible levels	None
A29	Paint Mixing Room 1	Organic paint, Chromium ^(VI) , Isocyanates and VOCs	All organic paint use considered under A6 NM – negligible levels	None
A30	Mixing / Cleaning Booth and Gun Wash Station	Organic paint, Chromium ^(VI) , Isocyanates and VOCs	All organic paint use considered under A6 NM – negligible levels	None
A31	Hot Water Seal (process gas heater: 130 kW)	Combustion gases	NM – negligible levels	None
A32	Paint Booth 8	Organic paint, Chromium ^(VI) and Isocyanates	All organic paint use considered under A6 NM – negligible levels	25mm fibre and 50 mm fibreglass
A33	Caustic Etch	Hydrogen	NM – negligible levels	None
A34	Caustic Etch	Hydrogen	NM – negligible levels	None
A35	Colour Passivate	Chromium ^(VI)	NM – negligible levels anticipated	None

* Paint booths 4 – 7 are served by a 375 kW gas fired burner air replacement unit.

The Measured Quantity 2024 (mg m⁻³) was calculated from the measured concentration at the monitoring point relating to a pollution extraction vent / duct or vat, and the stack volumetric flow-rate which may include additional extraction points thereby increasing the quantity of air in the flue. The efficiency of abatement plant have also been accounted for.

Concentrations of Chromium have been reduced to 1/10th of the measured value as the monitoring is undertaken at the entrance to the extraction duct, local to a workpiece. This measured value would represent only a very small area of the overall vat extraction to the stack, and hence has been reduced accordingly.

~ Includes measured data from Gloucester site (2024) representative of the new process proposed.

Where emissions of substances have been detected during occupational monitoring exercises, these have been carried forward into an H1 environmental risk assessment, the results of which were summarised in response to Question 6 in Form C2.

Table 2 (Continued) Emissions to Sewer

As detailed above, the use of water around a surface treatment installation and the potential discharge of pollutants into water courses are a key environmental indicator and potential impact from the sector. The Poeton Cardiff installation incorporates an effluent treatment plant that discharges effluent to foul sewer for further treatment by Dwr Cymru prior to release to the environment.

Difficulties in controlling the existing effluent plant during the second half of 2022 and Quarter 1 2023 have resulted in Poeton (Cardiff) Limited investing in an upgrade and replacement of their effluent plant during 2023 and 2024. As a result of this upgrade detailed within this Permit variation application, the following emissions to sewer have been proposed by Dwr Cymru and can be agreed.

Installation Name	Poeton Cardiff			
Discharge Point and Location	Source	Parameter	Quantity	Unit
Main site (S1) – discharges into public (1,800 mm) sewer on Penarth Road	Main Factory Effluent Treatment Plant	Volume	150	m ³ day ⁻¹
		Flow-rate	12	m ³ hr ⁻¹
		Temperature (max)	43	°C
		pH	6 - 11	pH
		Settled COD	500	mg l ⁻¹
		Total Suspended Solids (TSS)	250	mg l ⁻¹
		Free Cyanide	1.5	mg l ⁻¹
		Weekly Average Free Cyanide*	1	mg l ⁻¹
		Total Metals (Cu+Pb+Zn+Ni+Cr)	5	mg l ⁻¹
		Total Copper	2.5	mg l ⁻¹
		Total Lead	1	mg l ⁻¹
		Total Nickel	2.5	mg l ⁻¹
		Total Zinc	2.5	mg l ⁻¹
		Total Chromium	3	mg l ⁻¹
		Weekly Average Chromium*	2	mg l ⁻¹
		Total Cadmium	0.6	mg l ⁻¹
		Weekly Average Cadmium*	0.3 (Annual 10.4)	mg l ⁻¹ (kg)
		Annual Average Mercury*	0.005 (0.106)	mg l ⁻¹ (kg)
Total Sulphates	1,000	mg l ⁻¹		

* Limits specified by Natural Resources Wales within the Environmental Permit (EPR/BP1772IZ).

Hexavalent Chrome in the effluent (Cr^{VI}) is reduced to trivalent chrome (Cr^{III}) using sodium metabisulphite prior to treatment and discharge to sewer.

The proposed discharge limits for the releases to sewer constitute a reduction in load of TSS, free Cyanide, total metals and individual levels of Copper, Nickel, Zinc, Chromium and Cadmium from the previous Trade Effluent Consent TE67, Direction 3. As such, the potential contributions from the site to the waste-water treatment works will be reduced from that which is currently permitted.

Limits for Sulphide, anionic detergents and fats, oils and greases have been removed.

There are no direct releases to water course.

A single soak-away (L1) releases clean roof water to land. Discharges are segregated from other surface water run-off, with roof water directed into the soakaway which is protected from other run-off contributions by a wall, and hence only clean roof water can be discharged via L1.

Q3 Operating Techniques and Technical Standards

The proposed changes to the existing activities at the installation are as follows:

1. A significant upgrade to the site effluent treatment plant that will effectively modify and rationalise the treatment processes and will improve the effectiveness of the overall effluent plant. The upgrade will be undertaken in two stages.
2. Four process tanks are no longer required and were removed in September 2024. The removal of the Copper, Sulphamate Nickel and Tin processes (Tanks G1000 - Zinc Phosphate; G0260 – Copper; G0370 – Tin; and Electroless Nickel 450) have no impact on the emission points as these tanks were not extracted.
3. The consolidation, upgrade and re-location of the Chrome anodising line into the existing anodise preparation and jigging area.
4. The potential inclusion of a new colour passivate line that will require a new extraction point (A35).
5. The incorporation of a number of discharge points to atmosphere that have not previously been included within the Environmental Permit.

Poeton is constantly striving to ensure that it operates safe, efficient and effective processes and the site adds suppressant to the Chromic anodising plant to reduce potential losses from the process. Additionally, research has shown that using mechanical agitation reduces the concentration of Chromium^(VI) in air compared to that observed when using air agitation. The site employs pumped (hydraulic) agitation with eductors in the Chromic anodising plant, as with other processes. Poeton also applies lids or croffles to all relevant heated processing tanks to reduce vapour loss.

A detailed description of the proposed effluent treatment plant techniques and the appropriate standards for its operation is provided in the following section.

3.1 The Effluent Plant Upgrade

Having recorded a number of elevated concentrations in effluent samples during the second half of 2022 and Quarter 1 2023, Poeton (Cardiff) Limited (Poeton) was required to investigate the cause of the elevated levels and breaches.

Investigations revealed a number of issues associated with the effluent treatment plant operations that had ultimately led to Poeton not having full and effective control over that operation, including:

- Changes in staff, sometimes from senior positions and suddenly;
- A dosing valve with an intermittent fault, thereby making the fault hard to detect, and inaccuracies in the flow meter reading due to foam and ripples on the waters' surface;

- A lack of automation and alarms, coupled with a single daily check;
- Required improvements to sample storage and processing;
- The aging effluent plant required repair and, in places, replacement, and the planned preventative maintenance of the system (current and future) required improvement.

As a result of these issues, Poeton committed to the installation of a new effluent plant, and worked to make immediate and necessary improvements during the first half of 2023 to minimise the potential for exceedances to occur. Detailed training on the operational control and chemistry undertaken at each stage of the effluent treatment process was also provided to all relevant staff.

Several issues were identified around the existing plant that required prompt action as a result of the age of the process and insufficient maintenance having been undertaken in the past. This has led to concerns about integrity of treatment pits and underground transfer pipes amongst others, and the potential for ground or water contamination to occur. Other issues were due to the plant layout which resulted in an inefficient and sometimes counter intuitive treatment process, with effluent entering the system at less-than-ideal stages, and poor accessibility to areas of the plant making it difficult to carry out inspections.

The effluent plant upgrade therefore incorporated the following important elements:

In-ground collection and treatment pits are to be replaced with small double skinned collection sumps, to facilitate the pumping of effluent to above ground, bunded or self-bunded treatment tanks. Sumps will be similarly sized across the site, each with a capacity of approximately 400 litres only to facilitate continuous flow of collected effluent and the easy replacement of any self-bunded unit should it fail. A weekly visual check of all sumps will be incorporated into the documented preventative maintenance schedule.

The new plant will employ secondary containment and / or other appropriate measures as required to ensure that primary containment vessels are protected and, in the event of a spillage or a leak, or in the event of an emergency situation at the site, the content of the tanks is retained wherever possible and cannot release to the environment. Detailed guidance on the requirement of containment systems is provided in the CIRIA Report 736 on Containment systems for the prevention of pollution; Secondary, tertiary and other measures for industrial and commercial premises (CIRIA 736) and the requirements of this document will be adhered to in the tank and bunding specifications.

It is noted that, as a first step in determining the requirements of containment systems, CIRIA 736 requires an assessment of the risks associated with the containment of chemicals and effluent at any individual site. A risk assessment has therefore been produced for the Poeton Cardiff site and assigns a medium risk to the site, therefore requiring class 2 containment, as defined by CIRIA 736, for the installation.

A copy of the risk assessment is provided in Appendix B.

In addition to the replacement of sunken treatment pits with small collection sumps before transfer into above ground treatment tanks, Poeton will replace all below ground gravity transfer pipes associated with the effluent treatment system with double skinned, above ground pumped transfer lines. The visibility of the future system will be a significant improvement, not least because it will minimise the current difficulties in accessing some areas of the plant which have poor accessibility. The use of double skinned pits and pipework, along with leak detection in the sumps and appropriately designed primary and secondary containment of chemical stores and treatment tanks will minimise the potential for a catastrophic failure of the new system, that could result in the release of contaminants into the sewer or directly into the environment.

An important step in the upgrade is the collection and separate treatment of key effluents, specifically the Cyanide based solutions from the remainder of the site effluents. Cyanide requires alkaline conditions to reduce it to Cyanate and hence the solutions from the Cyanide based coating lines are treated with Sodium Hypochlorite and Sodium Hydroxide to control the pH to alkaline. Currently, the Chromium based solutions then join the Cyanide based solutions but require the dosing of acid and Sodium Metabisulphite to reduce the Chromium^(VI) to Chromium^(III), which in turns acidifies the combined effluent and dissolves the alkaline metals.

The further addition of the anodising section solutions introduces both Sulphuric and Chromic acids, at which point, further dosing of Sodium Hydroxide is required to ensure that the final solution is alkaline once again, such that the alkaline metals, including Silver, Cadmium, Copper, Nickel and Zinc, can be filtered or precipitated from the effluent.

With the review and upgrade of the effluent plant, comes the opportunity to separate the collection and initial treatment lines in order to avoid the requirement for re-dosing, with the Cyanide solutions being collected in an independent sump, with a second, emergency spillage sump also serving the Cyanide based plating area, both of which are directed to a dedicated treatment tank for the reduction of Cyanide and suspension of the metal contaminants (Ag, Cd, Cu, Zn, Ni) before passing to the precipitation tank.

Poeton intends to install a cartridge filter in the transfer line between the Cyanide reduction tank and the precipitation tank. The cartridge filter will therefore reduce levels of Cyanate and the alkaline metals suspended in the effluent before this waste stream joins the main plating shop effluent, reducing the requirement for the effluent to remain alkaline during further treatment. The inspection and replacement of the cartridge filters will be incorporated into the maintenance system, although the required frequency of the filter changes is not currently known. As required, the filters will be removed and replaced before the spent filter is drained and dried and sent as solid hazardous waste for disposal.

All chemical dosing is automated, based on the nature and strength of the incoming effluent in each collection and treatment tank.

The Chrome based solutions will, in future, simply use the acidic anodising effluents to maintain the appropriate pH conditions when dosing Sodium Metabisulphite for initial treatment, although fresh acid will be available to dose where required. The separation of the first treatment steps of the Cyanide and Chrome based contaminants therefore avoids the need for two dosing steps as follows:

- 1) Fresh acid will not usually be required when dosing Sodium Metabisulphite for the reduction of Chromium, as the incoming effluent will not have been mixed with the Cyanide based effluent and therefore will have a lower (less alkaline) pH when it enters the treatment tank.
- 2) With no further effluent contributions to the Cyanide effluents, the alkaline conditions initiated in the first treatment phase are maintained until the filtration, precipitation and settlement phases, and therefore, much of the Cyanate will require no additional dosing of Sodium Hydroxide, although dosing will be available into the precipitation tank should it be required.

More appropriate segregation or mixing of the different influent streams in future, provides the appropriate homogenisation of the effluent and results in greater control of the treatment steps downstream, mitigating the impacts of short-term variations in the influent quality.

Any final alkaline dosing is provided in the precipitation tank. However, due to the segregation of the Cyanide based solutions from the other plating solutions for the majority of their passage through the system to this point, the requirement for further dosing with Sodium Hydroxide will be minimised, with the Cyanate readily precipitating once mixed with flocculant as it passes into the settlement tank. As required, effluent can be re-circulated for secondary settlement if required, being pumped from the final release point back into the precipitation tank for re-treatment.

Once settled and otherwise ready for discharge, the effluent passes through a final pH adjustment tank, being dosed with clean (raw material) acid or alkali as required, and is directed to the V-notch weir for discharge. Although some additional chemical dosing will therefore still be required throughout the effluent treatment process, the proposed new design will make better use of the different effluent streams to treat one another, thereby resulting in a reduced need to dose additional chemicals and a more efficient process overall.

Process flow diagrams of the proposed treatment process are provided in Appendix C.

There are 2 receiving tanks which enable appropriate balance and homogenisation of the separate effluent streams. This is an improvement on the current system which does not promote buffering or equalisation. A lack of buffering capacity at the site historically has resulted in a need for significant manual intervention, with constant supervision and dosing in an attempt to ensure that the effluent remains in specification.

The effluents from the Poeton Cardiff process can have a highly variable pH and the original effluent system included Sodium Hydroxide dosing at a fixed rate, suggesting that the dosing will only be partially effective at maintaining the pH within the correct range and would require significant manual intervention.

Poeton has recently installed an additional neutralisation tank to minimise the frequency of intervention required by operators, and staff were given updated training in the chemistry of each stage of the effluent treatment process. These, amongst other urgent improvements to the original system, improved the control and quality of the effluent discharge in the short-term, and will be retained as inherent practices within the updated effluent treatment system.

The future system will include a single point of control and monitoring for the entire system, that will be managed by trained staff. Additional alarm systems will be installed across the effluent treatment process to facilitate swift notification and action, including low level alarms on chemical dosing tanks, and relevant staff will be fully trained in the chemical flow through, and control of the new effluent plant.

Detailed procedures will be developed and implemented for all aspects of the effluent treatment process, including trouble-shooting procedures for common issues, and a minimum of two staff will be trained in all aspects of the new plant operation, in order to build and maintain system resilience that can otherwise fail should staff change quickly or without warning. Process Control Document PCD 054 provides information on daily and weekly effluent testing and analysis and the effluent plant controls.

A detailed, documented planned preventative maintenance system will also be implemented and will apply the manufacturers recommended cleaning and maintenance schedules and requirements as a minimum. The Quality Department controls the site planned preventative maintenance system, which logs all maintenance requirements and raises weekly work sheets. However, all staff are responsible for considering their workplace infrastructure and equipment and all breakdowns or damage to equipment must be reported.

All staff are trained in their roles, and updated training will be provided where new systems such as the effluent plant, or new or additional maintenance requirements are incorporated into the site operations. As required, training on the new plant and its control will be facilitated by the technology providers, either directly to all relevant staff, or to key staff who will then provide detailed training to other relevant operators. Training will be documented, and instruction and procedure documents will be produced where required. This will include the day to day operational and trouble-shooting procedures noted above but will also be developed to specify the methodology employed for sampling and reporting, considering both internal and external requirements, and specifying, for example, the requirements and methodology of the annual mass balance, reportable under the Environmental Permit. As required, Poeton Cardiff will liaise with the wider Poeton group to ensure that the most appropriate and transparent control measures and methodologies are implemented.

3.2 Actions and Scheduling

The table below details the key actions proposed by this variation application and the timings associated with each, in order or priority:

Action	Planned Completion	Notes
Repair or replace broken mixers in treatment tanks	December 2022	Completed
Reline below ground treatment pits	December 2022	Completed
Reroute Zn/Ni rinses to cyanide treatment drain (Cyanide treatment also breaks down the Zn/Ni)	November 2023	Completed
Fit low and high-level alarms to chemical dosing tanks	End October 2023	Requested for new tanks. Planned install date to be from March 2025
Construct access platform for settlement tank	End of November 2023	To be quoted after full installation of plant upgrades
Reroute treated Cyanide effluent and add filter to remove Cadmium waste	November 2023	Treated Cyanide has been rerouted. Filter to be added in Phase 2
Repair large rinse 2 tank in anodising section	December 2023 / January 2024	Completed
Evaluate potential cost savings of installing a filter press	End of September 2023	Completed
Evaluate water re-use system and prepare CapEx proposal	End of November 2023	Completed
Determine if current meters can provide output to a control panel	End October 2023	Reusing equipment with new plant. However, quotes being obtained for new meters as more will be installed
Map new effluent plant – chemical flow and controls	End Q3 2023	Completed
Prepare CapEx for phase 2	End Q4 2024	Waiting for quote
Action	Planned Completion	
Reroute chrome containing waste to a single point	To be actioned as part of new plant. Moving the single point to outside general plating	
Add final pH adjustment tank prior to sewer discharge	In plans and being quoted	
Storage of waste acid solution for use in effluent plant	Existing practice	
Install mixers on dosing tanks made up from solid chemicals	In plans and being quoted	
Improve access to chrome/cyanide treatment area and visibility of treatment tanks	In plans and being quoted	
Install secondary sludge settlement tank	Increasing filter capacity in the plans	
Identify single control area and install control panel/monitoring station	In plans and being quoted	
Investigate feasibility of installing a bypass tank for temporary storage during plant breakdown	Insufficient space to allow for this currently. May investigate after new plant install	
Identify person to be responsible for effluent plant operation at completion of project	To be done after plant install	
Train a minimum of 2 people in how the new system works	To be done after plant install	

Q3c; Table 3c Raw Materials

Raw materials use is usually determined through quality standards and process specifications dictated by the customer or surface engineering bodies. Risk assessments are undertaken when any new material is to be brought to site, and consideration is given to the health, safety and environmental impacts of new materials.

In the last 12 months, the site used approximately 22 tonnes of raw material solid and liquid chemical supplies, paints and thinners etc. The site also used approximately 29,000 tonnes of potable water. A brief summary of the chemicals and paint use at the site is provided below.

Installation Name	Poeton Cardiff		
Capacity	> 30 m ³ aggregated		
Schedule 1 Activity	S2.3 A(1)(a) Surface treating metals and plastic materials		
Description of the Material and Composition	Max. Stored (m³ or approx. T)	Annual Throughput (m³ or approx. T)	Description of Use and Main Hazards
Coating chemicals	10.4	18	Chemicals used across site include acids, alkalis, and metal-based solutions that could be harmful to health or the environment
Primer, paints, polish etc.	1	2	
Catalyst, thinners, hardener etc	0.6	1.5	
Potable water	N/A	29,000	Water use / flooding

Q4a Monitoring

It is generally accepted that the surface treatment of metals and plastics is not a major source of emissions to air, and as such, no monitoring of emissions to atmosphere has been undertaken and none is proposed, although regular occupational monitoring and annual checks on the LEV systems around workstations are undertaken. There is no evidence of any adverse environmental or human health impact from the emissions from local exhaust ventilation systems at the Poeton Cardiff site.

With regard to discharges to sewer, the flow rate and pH of the effluent discharge from the main site treatment plant are measured continuously and pH is checked manually at least twice per day. A daily spot sample of effluent is also analysed using Microwave Plasma – Atomic Emissions Spectrometry (MC-AES) to determine the levels of Chromium, Copper and Nickel in the effluent, and a weekly composite sample is also analysed.

Historically, effluent analysis has been facilitated by the Poeton (Gloucester) site laboratory. However, from 2025, Poeton (Cardiff) has installed an MP-AES in order to analyse their own samples. During an initial training period, Poeton (Gloucester) will continue to analyse effluent samples from the Cardiff site, with the Cardiff site laboratory taking on the analysis in due course once suitable training has been demonstrated and procedures have been formulated.

Dwr Cymru also sample the site effluent on a monthly basis.

As detailed in response to Q2 of Form C3 (page 18 above), Dwr Cymru has recently proposed new emission limit values for the site Trade Effluent Consent and these result in a reduction in load of TSS, free Cyanide, total metals and individual levels of Copper, Nickel, Zinc, Chromium and Cadmium from the previous Trade Effluent Consent TE67, Direction 3. As such, the potential contributions from the site to the waste-water treatment works will be reduced from that which have previously been permitted.

The effluent flow meter is checked, and the reading is manually recorded monthly. In accordance with MCERTS guidelines, the meter is also serviced and calibrated annually.

Form C3 Question 6 Resource Efficiency and Climate Change

Q6a Basic Energy Efficiency Measures

Poeton attempts to control energy use at the site and applies several energy efficiency measures as follows:

- Where appropriate, new treatment vats are fitted with lids, and several older vats have been fitted with temperature controls to reduce energy consumption;
- Hexagons (croffles) are used on high temperature vats where appropriate to reduce heat and evaporative losses, although these can lead to quality and operational problems. Poeton therefore also reduces fan speeds when appropriate to minimise heat losses;
- Lighting across the site has been replaced with LED lighting to reduce energy consumption;
- Some extraction fans are fitted with inverters to control speed, which is reduced where possible. More inverters will be installed as upgrades are made.
- Air agitation will be gradually replaced with mechanical agitation on high temperature tanks where appropriate as mechanical agitation reduces heat losses as well as emissions.

Q6b Changes in energy consumption

There are no significant or notable changes anticipated in the energy consumption from the proposed changes to the site processes. Although some pumping of site effluent will be required to enable the use of above-ground drainage runs, these are expected to be countered by savings across other parts of the upgraded system and the removal of Copper Cyanide coating at the site, which requires a tank temperature of 45 – 65 °C.

Q6c Climate Change Levy Agreement

Poeton retains a Climate Change Agreement, which was most recently updated in December 2023. This is an umbrella agreement held by the Surface Engineering Association. The current agreement runs to March 2027 but is due to be amended again in 2025 to account for the agreement to extend the scheme further, to March 2033.

The site Target Unit (TU) Identifier is SEA/T00074 and copies of Schedules 2 – 6 are provided over page.

Copies of Schedules 2 – 6 of Agreement SEA/T00074

UNDERLYING CLIMATE CHANGE AGREEMENT FOR THE SURFACE ENGINEERING SECTOR

Agreement Dated: 22 December 2023
TU Identifier: SEA/T00074

SCHEDULE 2

THE OPERATOR

Operator or organisation name: Poeton (Cardiff) Ltd
Company registration number: 00518848

Whose address for service of all notices under this Agreement is
By post:

Poeton Industries Ltd
Eastern Avenue
Gloucester
GL4 3DN
England

Electronically:
johnarcher@poeton.co.uk

Administrative contact
johnarcher@poeton.co.uk

SCHEDULE 3

THE SECTOR ASSOCIATION

Surface Engineering Association

Whose address for service of all notices under this Agreement is

By post:
Surface Engineering Association
Federation House
10 Vyse Street
Birmingham
West Midlands
B18 6LT
England

Sector Contact
David Elliott

Electronically:
dave.elliott@sea.org.uk

THE UMBRELLA AGREEMENT

The Agreement dated 27 November 2023 made between the Administrator and the Sector Association.

UNDERLYING CLIMATE CHANGE AGREEMENT FOR THE SURFACE ENGINEERING SECTOR

Agreement Dated: 22 December 2023
TU Identifier: SEA/T00074

SCHEDULE 4

ACTIVITIES UNDERTAKEN BY A FACILITY FALLING WITHIN THE SECTOR

A facility belongs to the surface engineering sector if it is a facility which surface treats substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating or which surface treats metals and plastic materials using an electrolytic or chemical process.

SCHEDULE 5

FACILITIES TO WHICH THIS AGREEMENT APPLIES

Facility identifier	Site name and address	UK ETS identifiers
SEA/F00087	Poeton Industries Ltd Penarth Road, Cardiff, Glamorgan, CF1 7UL, Wales	

SCHEDULE 6

TARGET UNIT TARGETS

Target unit identifier	Target period	Target type	Baseline primary energy/carbon	Energy/ carbon unit	Baseline throughput	Throughput unit	Numerical target	Percent target
SEA/T00074	TP1 (1 Jan 2013 to 31 Dec 2014)	Relative	1,845,278.200	kWh	1,459,000.000	units	1.170	7.510%
	TP2 (1 Jan 2015 to 31 Dec 2016)	Relative	1,845,278.200	kWh	1,459,000.000	units	1.138	10.040%
	TP3 (1 Jan 2017 to 31 Dec 2018)	Relative	1,845,278.200	kWh	1,459,000.000	units	1.107	12.490%
	TP4 (1 Jan 2019 to 31 Dec 2020)	Relative	1,845,278.200	kWh	1,459,000.000	units	1.075	15.020%
	TP5 (1 Jan 2021 to 31 Dec 2022)	Relative	4,238,753.300	kWh	5,813.000	£k value added	680.549	6.670%
	TP6 (1 Jan 2024 to 31 Dec 2024)	Relative	4,238,753.300	kWh	5,813.000	£k value added	641.683	12.000%

Q6d Raw Materials and Water Use

As detailed in response to Question 3c (page 24 above), raw materials use is usually determined through quality standards and process specifications dictated by the customer or surface engineering bodies. Risk assessments are undertaken when any new material is to be brought to site, and consideration is given to the health, safety and environmental impacts of new materials.

Poeton is working towards the phasing out of Chromate plating and where possible applies 'Chromate free' coatings. These contain significantly less Chromium than traditional coatings, although some Chromium is still included in some of the processes, in the form of a Dichromate seal. Poeton aims to apply materials which have the least potential environmental and human health impact wherever practicable, whilst meeting market demand, and anticipates replacing all Chromate containing primers with Chromate free coatings eventually. However, as with all of the Poeton processes, this must be accepted by customers under their strict quality assurance schemes prior to being implemented.

The Chromate based processes applied at Poeton are all used by the aerospace industry. Until thorough and lengthy testing has been undertaken, and approvals can be obtained for the use of alternative measures, the approved techniques must all continue in order to serve the aerospace industry. As alternative and proven techniques become available such as 'Chromate free' (reduced Chrome) processes, they are employed by Poeton where possible, to coat non-aerospace pieces.

Trivalent Chrome free passivate has been trailed at the Poeton Cardiff site and they have recently received permission from one customer to start using this on their production parts.

In order to minimise water-use and chemical losses, Poeton adopts drag-out systems and two-stage counter-flow rinsing on process lines where possible. The Cadmium plating process incorporates a three-stage drag-out rinse system followed by a two-stage counter-flow rinse, with the initial drag-out tank topping up the plating tank and subsequent drag-out and rinse tanks topping up the next in line.

Washing lines have also been installed over the Cadmium processing tanks, to allow light parts that hold solution to be hung up and drain off straight back into the tank prior to rinsing. Larger parts and jigs are held over the tank to drain for at least 30 seconds prior to rinsing.

On newer lines, spray rinses have been installed where possible to minimise water use. These sprays only activate when there is work in the rinses. Rinses are manually checked and are turned off when they are not required.

Opportunities for multistage cascade rinsing are limited due to space restrictions at the site, as the multistage counter-flow rinsing technique requires a much larger footprint. Spray rinses are therefore more efficient and suitable to an existing site. The site also uses lower dissolved solids concentration solutions where practicable but is generally limited by customer specifications.

Q6e Waste Avoidance

Poeton strives to minimise the waste created by their process and re-use or recycle what they can of the waste they do create. Specialist wastes including sludge, and chemical wastes ultimately go for disposal, having been segregated appropriately by Poeton prior to dispatch. The waste management provider treats the Nickel solutions to recover the metal prior to disposal.

Solid hazardous waste is sent to an energy from waste facility and the site segregates and recycles paper, cans, plastic bottles and cups, cardboard, print cartridges and computer items from general wastes prior to any non-recyclables also being sent to an energy from waste facility. Chemical containers are also re-used where possible, by returning the empty containers to the supplier, or are sent for recycling once empty and clean.

In 2022 the site produced approximately 47.3 tonnes of process / hazardous waste, 4.2 tonnes of which was recycled / recovered. The waste management Company aims to reduce the tonnage of material for disposal, removing and treating the effluent portion before disposing of the residual filter-cake.

Minimising water use and disposal is an important raw material and waste reduction measure at the site. This is achieved through the use of drag-out systems on vats where possible. However, improvements are constantly being considered and are trialled and introduced as appropriate.

The unprecedented impact of the Covid-19 pandemic affected trends in raw materials and utilities use. With operations beginning to return to normal from 2022 / 2023, a new baseline has been created to assess the improvements that will be made through the projects now proposed. Levels between 2023 and 2024 have remained stable.

Q7 and Q8 Medium Combustion Plant and Specified Generators

Not applicable.

Although the site does employ a number of combustion processes for air and water heating, each of the units, individually and combined, has an input capacity of less than 1 MW_{th}.

Appendix A

Summary of Best Available Techniques for the Surface Treatment of Metals and Plastics, and a Comparison with the Poeton (Cardiff) Limited Operations at Poeton Cardiff

This assessment of the Poeton Cardiff operations considers the installations' compliance with the Best Available Techniques (BAT) proposed for the surface coating industry. The report considers all of the BAT items detailed in the two relevant guidance notes as follows:

- Integrated Pollution Prevention and Control Reference Document on Best Available Techniques for the Surface Treatment of Metals and Plastics. August 2006. The European Commission.
- How to comply with your environmental permit. Additional guidance for: The Surface Treatment of Metals and Plastics by Electrolytic and Chemical Processes (EPR 2.07)

This summary has been prepared with detailed knowledge of the site operations from key staff that have provided input into this document including Jason Hamling (HSE and Facilities Manager) and John Archer (R and D Manager).

In summary most of the techniques highlighted as the best available are already employed at the Poeton site, where relevant and feasible. Space restrictions prevent the use of techniques such as 3-5 stage cascade rinsing, however where these are not available, other techniques such as spray rinsing are employed, with additional controls such as timer switches optimising the efficiency of these systems.

It is therefore considered that the methods employed at the Poeton Cardiff installation, constitute BAT for that site.

BAT	Current Status at Poeton Cardiff
Implement and adhere to an EMS	ISO14001
Implement a housekeeping and maintenance programme, which will include training and the preventative actions workers need to take to minimise specific environmental risks	<p>Poeton Environmental Procedure EPPI 01 (latest issue), which provides for daily, weekly, monthly, quarterly, annual and periodic checks of equipment, and training of relevant staff. The HSE and Facilities Manager undertakes a monthly inspection and visual checks of site plants, bunds, flooring, tanks and pipes, considering damage, drips and leaks of liquids or steam. The Quality Department also control a planned preventative maintenance system, which logs all maintenance requirements and raises weekly work sheets. All breakdowns must be reported.</p> <p>Site procedures are updated and developed as required to account for changes to processes or plant.</p>

<p>Minimise the environmental impacts of reworking by management systems that require regular re-evaluation of process specifications and quality control jointly by the customer and the operator</p>	<p>The Quality Team produces a routing sheet / inspection report for every job to identify the specific processes to be undertaken for every part treated. An example of the issues to be considered include: where masking of the piece is required; the process to be undertaken on each part (dictated by a quality data card which provides step by step instructions for the process, including duration, temperature etc.); plus any special instructions.</p> <p>Steel test rods may also be plated to ascertain the plating rate, and are checked prior to the completion of the processing time to ensure that the required thickness is not exceeded.</p> <p>Poeton always work in line with the customer specification, and this includes the ability to re-work pieces (e.g. a piece may be capable of being reworked up to three times, but this is all specified by the customer).</p>
<p>Benchmark energy, water and raw materials usage, and optimise usage</p>	<p>Recording and analysis of annual energy, water and waste figures, with efforts to minimise their use / creation being important waste reduction measures for the site. Environmental issues, including this analysis are considered during the annual management review for environmental issues.</p>
<p>Optimise individual activities and process lines by calculating the theoretical inputs and outputs for selected improvement options and comparing with those actually achieved</p>	<p>The customer requirements dictate the solution concentrations.</p> <p>Each tank is operated within a target range of chemical concentrations, and these are checked by the laboratory on a regular basis. The tank solutions are audited from a quality perspective and for considerations of cost and waste minimisation. All laboratory tests are recorded, and all tank maintenance records are kept indefinitely.</p> <p>Poeton operates to ARP4992 the aerospace industry's recommended practice for solution control, and this general solution control methodology is followed for all solutions.</p> <p>Ullage levels are worked to in line with the HSE / industry approved code of practice.</p>
<p>Design, construct and operate an installation to prevent pollution by the identification of hazards and pathways, simple ranking of hazard potential and implementing a three-step plan of actions for pollution prevention – 1) good design, 2) good location, 3) inspection and maintenance</p>	<p>Poeton has operated at the current Cardiff site since 1963, however the site and processes have developed over time. Process vessels are designed for their specific use and are located appropriately within the site buildings and within bunds where required.</p> <p>All equipment is regularly checked to avoid unnecessary breakdowns, and the site operates a planned preventative maintenance programme. This is expanded as required to accommodate new equipment or process areas. The HSE and Facilities Manager also undertakes a monthly inspection and visual checks of site plants, bunds, flooring, tanks and pipes, considering damage, drips and leaks of liquids or steam.</p>

	<p>All of the site process drainage is routed to the effluent plant, and this is in the process of being upgraded, routing effluent pipework and treatment tanks above ground, with only small double skinned collection sumps remaining within the flooring.</p> <p>With consideration of specific process areas:</p> <p>All process tanks are located above ground and are bunded where appropriate. Any new tank that does not require specific bunding is located within a plastic tray to prevent drips and spills.</p> <p>All drainage across the process areas ultimately runs to the effluent plant although, through the effluent plant upgrade, discrete collection sumps and tanks will permit the segregation and dedicated treatment of specific chemical types, thereby treating the effluent as efficiently and effectively as possible prior to discharge.</p> <p>The flooring in the chemical processing areas is constructed of engineering blue brick although this does not extend to paint process areas, where it would not be required. All floors are inspected regularly, both for environmental and health and safety reasons, and all staff are required to report any defects that they observe.</p> <p>Any refurbishment across the process areas of the site is designed appropriately for the intended use.</p>
<p>Store chemicals appropriately and separately where necessary</p>	<p>Chemicals are stored appropriately and separately where necessary as follows:</p> <p>All site chemicals stores are located towards the rear of the site in purpose built, bunded containers. There are four containers, one each for wet acids, wet alkalis, dry acids and dry alkalis. There is also a bunded paint store which includes frost protection heating, and a small (3 m x 3 m x 3 m) dedicated bunded Cyanide container. All of these units are locked with restricted access.</p> <p>The site stores small LPG bottles in a locked cage, again towards the rear of the site, to power the site fork-lift trucks. There are no welding gases or others stored on site as a general practice, except for medical Oxygen stored in the first aid room.</p> <p>In the main process areas, chemicals are stored in coating vats during use and these are bunded where required. Any small containers required across the shop floor would be stored in a tray or bund, with any spillage across the site running to the dedicated effluent treatment plant.</p> <p>The site laboratory stores small quantities of chemicals in laboratory cupboards and includes a flammables cupboard.</p>

<p>Avoid the degradation of work pieces by storing for the minimum time necessary and in optimum conditions</p>	<p>Work pieces are valuable and time critical so that incoming work pieces are processed almost immediately on arrival at the site or are only held for short periods in the containers that they arrive in.</p>
<p>It is BAT to agitate process solutions to ensure a movement of fresh solution over the work faces. This may be achieved by one or a combination of:</p> <ul style="list-style-type: none"> • hydraulic power and eductors • mechanical agitation of the workpieces • low pressure air agitation systems in: <ul style="list-style-type: none"> o solutions where the air assists cooling by evaporation particularly when used with materials recovery o anodising o other processes requiring high turbulence to achieve high quality o solutions requiring oxidation of additives o where it is necessary to remove reactive gases (such as hydrogen). <p>It is not BAT to use low pressure air agitation with:</p> <ul style="list-style-type: none"> • heated solutions where the cooling effect from the evaporation increases the energy demand • cyanide solutions as it increases carbonate formation • solutions containing substances of concern where it increases the emissions to air. <p>It is not BAT to use high pressure air agitation because of the high energy consumption.</p>	<p>Poeton generally uses pumped agitation with eductors in place of air agitation, with the exception of rinse tanks and on the alkaline cleaner tank in the anodizing plant, which use low pressure air agitation. Although the rinse tanks will retain air agitation, the latter will be changed when the tank is upgraded or replaced, although this is not currently scheduled.</p> <p>Compared to air agitation, use of eductors or mechanical agitation can be an efficient way of ensuring adequate mixing in the process tank but produce considerably less emissions of humid air.</p>
<p>Use electro dialysis technology for the re-oxidation of chromium^(VI) reduced to chromium^(III) in chromic acid anodising electrolytes.</p> <p>Use hydrogen peroxide in the pickling tanks to reduce NOx emission and acid consumption.</p>	<p>Poeton Cardiff has limited use of Chromium based solutions.</p> <p>Electrolytes are tankered away and disposed of (applicable to all process solutions) as it is uneconomical for the site to treat this waste in-house). The site does treat its dilute contaminated rinse waters, which may contain Cadmium, Copper, Chrome, Nickel, Zinc, Silver, Sulphate and Aluminium.</p>

<p>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.</p> <p>A minimum of 4 and preferably 5 stages of cascade rinsing after chromic/sulphuric acid etch, with techniques for minimising drag-out. Consider alternatives to chromic/sulphuric acid as an etchant.</p> <p>Provide jig or barrel supports whilst draining for manually operated process tanks.</p> <p>Use continuous filtration and removal of sludge from phosphating process tanks.</p>	<p>Heated treatment tanks (> 30 °C) are fitted with lids where possible, or croffles where lids are not suitable due to design or short processing times, and several older tanks have been fitted with temperature controls to reduce energy consumption. All heated tanks are temperature controlled.</p> <p>Rinsing stages are often specified by the customer. Drag-out tanks are used extensively across the process, and direct approximately 60 % of the collected liquor from the parts directly back into the process tanks. Counter swill tanks are used, although a lack of space often prevents 4 – 5 stages being applied.</p> <p>Jigs are used where possible in order to maximise the drainage efficiency, although it is not always possible to use them without impacting the coating quality.</p> <p>Plating is an intensely manual process, and so staff can ensure sufficient drain time above the processing tank, followed by drag-out tanks.</p>
<p>Reduce electricity consumption by:</p> <ul style="list-style-type: none"> • minimise reactive energy losses for all three phase supplies by testing at annual intervals to ensure that cosine between the voltage and the current peaks lies permanently above 0.95 • reduce the voltage drop between conductors and connectors by minimising the distance between the rectifiers and anodes. The installation of the rectifiers in direct proximity of the anodes is not always possible or may subject the rectifiers to sever corrosion and/or maintenance. Alternatively, bus bars with larger cross-sectional area can be used: • keep the bus bars short, with sufficient cross-sectional area, and keep cool, using water cooling where air cooling is insufficient; • use individual anode feeding by bus bar with controls to optimise current setting; • regularly maintain rectifiers and contacts (bus bars) in the electrical system; • install modern electronically-controlled rectifiers with a better conversion factor than older types; 	<p>Electricity use and efficiencies are always discussed at the Senior Management Team meetings and during the annual environmental review.</p> <p>Poeton do not test cosine annually. However, monthly electricity bills do report the reactive power charged for during the period. This is regularly less than 1 % of the total power use in any period.</p> <p>The site has relatively low power requirements and uses digital rectifiers except for the two older, larger (12 V) ones that serve the anodizing process. The site processes do not require any steam heating.</p> <p>Bus bars are sized for the required current and are air cooled, and anodes are fed individually.</p> <p>The site does not undertake any dewatering within the processes. The Company does, however, minimise water use by applying drag-out tanks and spray rinses.</p> <p>As air testing is the only way to determine whether or not COSHH is being met and, as there is no local or continuous occupational monitoring, the extracts for the tanks must be set for the worst-case operation. Regular local exhaust ventilation monitoring is required, and all fans employ inverter control, with all including dampers in the flues.</p>

<ul style="list-style-type: none"> • increase of conductivity of process solutions through additives and by maintenance of solutions (this must be in be optimised with Sections 5.1.5.3, 5.1.5.3.1 and 5.1.6.1 of BREF); • use modified wave forms (e.g. pulse, reverse) to improve metal deposits, where the technology exists. <p>Also employ:</p> <ul style="list-style-type: none"> • High efficiency dewatering techniques to minimise drying energy. • Minimisation of water use and closed circulating water systems. • Using spent cooling water (which is raised in temperature) for rinsing purposes. • Automated control for DC rectifiers. • Electrolytic processes that operate under thermally stable conditions without the need for heating or cooling. • Minimum use of fume extraction consistent with COSHH Regulations. • Inverter speed control or flow damper for fume extraction centrifugal fans. 	<p>Other energy efficient measures undertaken or underway at the site include:</p> <ul style="list-style-type: none"> • The Company is in the process of changing all fluorescent light fittings to LED, and these are being replaced as and when new fittings are required. Approximately 98 % of the site now employs LED lighting. • Heated tanks are insulated and include temperature controllers. • The site is currently operational continually from Monday through to 14:00 on Fridays with additional / weekend working as required but with the site usually shut at weekends. • It is standard site practice to turn equipment off when it is not in use, unless it is more efficient to leave it on. • The site proposes to install timers on their drying ovens, although this project has not currently been scheduled. • Process areas are not generally heated.
<p>Reduce heating losses by:</p> <ul style="list-style-type: none"> • seeking opportunities for heat recovery • reducing the amount of air extracted across the heated solutions • optimising the process solution composition and working temperature range. Monitor temperature of processes and control within these optimised process ranges • insulating heated solution tanks by one or more of the following techniques: <ul style="list-style-type: none"> o using double skinned tanks o using pre-insulated tanks o applying insulation • insulating the surface of heated tanks by using floating insulation sections such as spheres or hexagonals. Exceptions are where: 	<p>Electricity use and efficiencies are always discussed at the Senior Management Team meetings and during the annual environmental review. The HSE and Facilities Manager undertakes a monthly inspection and visual checks of site plants, including consideration of steam leaks, and the planned preventative maintenance programme ensures that all equipment and plant remain in good order.</p> <p>Extraction rates are reduced as far as COSHH will allow, and process solutions and process temperature ranges are optimised, according to the data quality card.</p> <p>Heated tanks are insulated and include temperature controllers and lids or croffles.</p>

<ul style="list-style-type: none"> o workpieces on racks are small, light and may be displaced by the insulation o workpieces are sufficiently large to trap the insulation sections (such as vehicle bodies) o the insulation sections can mask or otherwise interfere with the treatment in the tank 	
<p>It is BAT to:</p> <ul style="list-style-type: none"> • prevent over-cooling by optimising the process solution composition and working temperature range. Monitor temperature of processes and control within these optimised process ranges • use closed refrigerated cooling system, for new or replacement cooling systems • remove excess energy from process solutions by evaporation where: <ul style="list-style-type: none"> o there is a need to reduce the solution volume for make-up chemicals o evaporation can be combined with cascade and/or reduced water rinsing systems to minimise water and materials discharged from the process • install an evaporator system in preference to a cooling system where the energy balance calculation shows a lower energy requirement for forced evaporation than for additional cooling and the solution chemistry is stable. <p>It is BAT to design, locate and maintain open cooling systems to prevent the formation and transmission of legionella</p>	<p>There are not thought to be any realistic opportunities for heat recovery from any of the site processes and cooling is only required on processes applying low voltage and low current energy, thereby minimizing the amount of heat to be removed.</p> <p>The site does have three Glycol chillers which run at approximately 5 °C and between them serve the Sulphuric Anodising, Tartaric Sulphuric Anodising; LHE-Cad and Zinc/Nickel 1 and 2 processes. The chillers and associated pipework are lagged.</p> <p>The Quality System (routing sheet and quality data card) identifies the optimum temperature for the operation, and monitoring and control ensure that this is maintained.</p> <p>Where a tank has excess solution and requires partial emptying, the solution is pumped to the site effluent plant for treatment and reuse, which is a significantly more energy efficient method of removal than evaporation.</p>
<p>Minimise water usage by:</p> <ul style="list-style-type: none"> • water economy • monitoring all points of water and materials usage in an installation, record the information on a regular basis, according to the usage and the control information required. 	<p>Techniques are employed as appropriate and as follows:</p> <p>Water use is metered and minimised, being considered as an important raw material and waste reduction measure at the site. There is a single incoming water meter for the site which is read weekly, although provides a daily total that can be accessed on-line. Water meters are not employed on individual lines but manages tank top-up through the Quality System.</p> <p>The site also has a single, MCERTs flow meter for the release, which logs continually but is read daily.</p>

<p>The information obtained should be used for benchmarking and the environmental management system.</p> <ul style="list-style-type: none"> • prolong process fluid life where possible • recover water from rinsing solutions and re-use in a process suitable for the quality of the water recovered • avoid the need for rinsing between activities by using compatible chemicals in sequential activities. <p>You should use the following techniques where appropriate:</p> <ol style="list-style-type: none"> 1. Multistage cascade rinsing. 2. Closed-loop or recirculation systems with three to four stage cascade rinsing and rinse water treatment (ion exchange, reverse osmosis, electrodialysis, air swept evaporation or vacuum evaporation). 3. Conductivity probes. 4. Water meters on each line. 5. Flow restrictors. 6. 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. 7. Drag-in – drag-out tanks (ECO rinse system) to reduce mass drag-out and subsequent rinse water consumption. 8. Continuous filtration and removal of sludge from phosphating process tanks. 9. Recycling of trade effluent to less critical rinsing stages (e.g. use of ion exchange or other treatment units to re-circulate rinse waters). 10. Ion exchange or other treatment unit to re-circulate rinse waters. 11. There should be two or three stage cascade pickling with continuous pickle acid feed 	<p>Meter readings and efficiency target performance are reported at the annual management review for environmental issues.</p> <p>Site processes follow a strict quality assurance system, with a routing sheet / inspection report for every job to identify the specific processes to be undertaken for every part treated. This includes detailed consideration of the quality of the process fluid.</p> <p>The site uses lower dissolved solids concentration solutions where possible, but again, this is subject to the terms of the quality system and customer specifications.</p> <p>The Company finds limited scope for running compatible chemicals to avoid rinsing but will employ such techniques wherever possible. Proprietary cleaners are employed, and previous trials with biological cleaners within the group were unsuccessful.</p> <p>Water minimisation is achieved through the use of drag-out systems and / or counter swills on some process tanks (Sulphuric Anodising, Tartaric Sulphuric Anodising, Cadmium and Zinc/Nickel processes), and process solutions are retained for as long as possible before being changed due to contamination levels being reached or quality issues being experienced.</p> <p>Opportunities for multistage cascade rinsing are limited due to space restrictions, but are employed where possible and in as many stages as possible at each point. Rinses are only on when in use, and the flow is controlled with a conductivity meter where possible and when in line with customer specifications. The application of conductivity probes and alternative rinse processes is considered at any process upgrade.</p> <p>Drag-out and swill tank liquor is used to top up the next tank in the process line, thereby promoting a closed-loop system.</p> <p>Where possible, spent solutions are used within the effluent plant for pH control.</p> <p>Heated tanks are insulated and include temperature controllers and lids or croffles.</p> <p>The waste management Company that currently receives the site sludge aims to reduce the tonnage of material for disposal, removing and treating the effluent portion before disposing of the residual filter-cake.</p>
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<p>and continuous discharge to the effluent treatment facility.</p> <p>12. There should be a minimum of two stages of cascade rinsing with agitation.</p> <p>13. Spent pickle acid for pH control in the effluent treatment facility.</p> <p>14. 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.</p> <p>15. Electrochemical metals recovery technology for unreturned drag-out.</p> <p>16. Evaporation technology in conjunction with 3-5 stage cascade rinsing to allow closed loop operation.</p> <p>17. Hydrogen peroxide in the pickling tanks to reduce NOx emission and acid consumption.</p> <p>18. 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.</p> <p>19. Recycle trade effluent to less critical rinsing stages.</p> <p>20. Proprietary cleaners that allow a lower operating temperature.</p> <p>21. 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.</p>	
<p>Use of:</p> <ul style="list-style-type: none"> • Eco-rinse (pre-dip) tanks • Multiple rinses • Spraying 	<p>Where possible, Poeton adopts drag-out systems and / or counter swills on some process tanks (Sulphuric Anodising, Tartaric Sulphuric Anodising, Cadmium and Zinc/Nickel processes). The application of alternative rinse processes, such as spray rinsing, is considered at any process upgrade.</p>

<p>Reduce the viscosity of the solution and thereby reduce drag-out by optimising the process solution properties (see Section 4.6.5 of BREF):</p> <ul style="list-style-type: none"> • lowering the concentration of chemicals or using low-concentration processes • adding wetting agents • ensuring the process chemicals do not exceed the recommended values • ensuring the temperature is optimised according to the process range and the conductivity required 	<p>The site uses reduced viscosity solutions where possible, both as a health and safety and environmental measure, but again, this is subject to the terms of the quality system and customer specifications. It is critical that any new technique or material does not have an effect on the quality of the part, and hence only solutions that suit the customer specification can be employed.</p>
<p>Waste prevention, reduction, re-use. Close the loop of raw material losses</p> <ol style="list-style-type: none"> 1. Effluent treatment facilities should be designed to process spent process fluids and recover anode metals for reuse, e.g. Cadmium, Copper and Nickel. 2. Spent alkaline cleaners and acid pickles should be used for pH control in the effluent treatment facility. 3. Evaluate the use of phosphating sludge as a filler for agricultural and horticultural use. 4. Filter cake may have uses, and these should be investigated in preference to landfill disposal. 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. 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. 7. Consider use of ion exchange or other treatment unit to re-circulate rinse waters. 8. Consider use of closed loop operation with three to four stage cascade rinsing, so that 	<p>Some tanks include drag-out systems or drag in and drag-out systems which re-claim the drag water as the rinse. Counter swill tanks are employed where possible, (approximately 90 % of rinse tanks across the site are counter flow).</p> <p>Liquid chemicals are sent for treatment prior to disposal, and in the past, the electroless Nickel solution has had its Nickel content recovered by a third party. However, this is currently not economically viable and hence their service has been withdrawn. There is no electrochemical metals recovery undertaken on site.</p> <p>Some spent acid and alkali wastes can be used to neutralise the incoming effluent.</p> <p>Hexavalent Chrome in the effluent (Cr^(VI)) is reduced to trivalent chrome (Cr^(III)) using Sodium Metabisulphite.</p> <p>Specialist wastes including sludge and chemical wastes ultimately go for disposal. However, the waste management Company that currently receives the site sludge aims to reduce the tonnage of material for disposal, removing and treating the effluent portion before disposing of the residual filter-cake.</p> <p>Poeton re-uses packaging where possible and encourage customers to use bespoke packaging for their parts, in order that the finished products can be returned to the customer in the packaging they came in.</p>

<p>drag-out can be returned upstream to balance the evaporative loss and minimise waste.</p> <p>9. Minimise drag-out by maximising the drainage time of the work over the tank or in a separate drainage tank.</p> <p>10. Use electrochemical metals recovery technology for unreturned drag-out.</p> <p>11. Use electro dialysis technology for the re-oxidation of hexavalent chromium [chromate, or Cr(VI)] degraded to trivalent chromium [Cr(III)] in chromic acid anodising electrolytes.</p>	
<p>Increase the process bath life as well as maintain output quality, particularly when operating systems near to, or at, the closing of the materials loop by:</p> <ul style="list-style-type: none"> • determining critical control parameters • maintaining them within established acceptable limits by the removal of contaminants 	<p>Poeton Environmental Procedure EPPI 01 (latest issue), which provides for daily, weekly, monthly, quarterly, annual and periodic checks of equipment, and training of relevant staff. The HSE and Facilities Manager undertakes a monthly inspection and visual checks of site plants, bunds, flooring, tanks and pipes, considering damage, drips and leaks of liquids or steam. The Quality Department also control a planned preventative maintenance system, which logs all maintenance requirements and raises weekly work sheets.</p> <p>Site procedures are updated and developed as required to account for changes to processes or plant.</p> <p>All breakdowns must be reported.</p> <p>Routine solution checks are undertaken by the laboratory team (to prescribed procedures) and are based on the stability of the solution within the tank and the work being undertaken. The requirements are dictated by the specification being worked to.</p>
<p>Minimise waste-water for treatment, keep problematic flows separate, test, treat, discharge</p>	<p>Water use is minimised across the processes as detailed above through the use of drag-out systems on some tanks, and process solutions are retained for as long as possible before being changed due to contamination levels being reached or quality issues being experienced.</p> <p>The new effluent plant layout will ensure that wastes are appropriately separated to promote optimum treatment, with Cyanide based wastes, containing Cadmium, Copper and Silver, and the Zinc/Nickel waste waters being collected and having their pH raised to alkaline conditions to reduce the Cyanide, before passing through a cartridge filter to remove the bulk of the metals. Chromium based effluents and all other process waters are retained at an acidic pH, with the hexavalent Chrome reduced to trivalent Chrome before passing to the precipitation tank.</p>

	<p>After this initial treatment, the two effluent streams can effectively be mixed with flocculant in the single precipitation tank and pass through the settlement process and final pH dosing before discharge.</p> <p>Testing of the effluent prior to release includes twice daily pH, and daily spot samples for Cadmium. A weekly composite sample is taken for Cadmium, Nickel and Chromium analysis.</p> <p>Resilience is built into the system through the duplication of the incoming (receiving) and buffer tanks, allowing for easier cleaning and maintenance whilst enabling operations to continue.</p>
<p>Identify significant noise sources and potential targets in the local community. It is BAT to reduce noise where impacts will be significant by using appropriate control measures</p>	<p>Noise is not a significant issue for the site with sources comprising the air extraction systems, and vehicle movements around the site. The site is not aware of any noise complaints made against it, either directly or via the Regulators. Regular and planned preventative maintenance of equipment including the extraction fans and vehicles, should minimise the potential for noise issues to develop due to worn parts.</p> <p>The site is located in a commercial area of Cardiff and the nearest residential development is approximately 70 metres to the East. A railway line (to the East) and Penarth Road, a four lane, busy roadway to the West, lie between Poeton and the nearest residential areas and would mask any noise created by the plant.</p>
<p>Protect soil and ground water and ease site decommissioning using appropriate containment measures</p>	<p>The main operational areas of the site include comprehensive hardstanding such as sealed (chemical resistant) concrete and engineering brick floors. The HSE and Facilities Manager undertakes a monthly inspection and visual checks of site plants, bunds, flooring, tanks and pipes, considering damage, drips and leaks of liquids or steam, and ensuring that damage to any key infrastructure is reported and rectified. As such, there is limited potential for soil or groundwater contamination to occur.</p> <p>The Quality Department also control a planned preventative maintenance system, which logs all maintenance requirements and raises weekly work sheets. All breakdowns must be reported.</p>
<p>In jig (rack) lines, it is BAT to arrange the jiggling to minimise loss of work pieces and maximise current carrying efficiency</p>	<p>The nature of the jig loading is driven by quality to ensure that the pieces don't touch and can be fully coated and drain appropriately. The jigs may hang the pieces at certain angles or in certain configurations so as to avoid air locks, however the quality of the coating operation is the primary focus.</p> <p>Jigs are checked for their electrical current carrying capacity and are largely pre-coated to ensure that they are non-conductive. Therefore, only very small contact areas will receive any additional coating. For example, where possible the jigs are made of Titanium which receives a minimum anodized coating before becoming non-conductive.</p>

<p>Prevent drag-out of process solutions in jig processing lines by a combination of the following techniques (see Section 4.6.3 of BREF):</p> <ul style="list-style-type: none"> • arrange the workpieces to avoid retention of process liquids by jiggling at an angle and jiggling cup-shaped components upside down • maximise draining time when withdrawing the jigs. Indicative reference values for draining jigs are given in Table 4.2. This will be limited by: <ul style="list-style-type: none"> o the type of process solution o the quality required (long draining times can result in the process solution part drying on the substrate) o the transporter duty time available for automatic plants • regularly inspect and maintain jigs so there are no fissures or cracks to retain process solution, and that the jig coatings retain their hydrophobic properties • arrange with customers to manufacture components with minimal spaces to trap process solution or to provide drainage holes • fit drainage ledges between tanks canted back to the process tank. • spray-rinse, mist or air spray excess process solution back into the process tank (see Sections 4.6.6 and 4.7.5 of BREF). This may be limited by: <ul style="list-style-type: none"> o the type of process solution o the quality required. 	<p>Where possible, Poeton adopts drag-out systems and / or counter swills on some process tanks (Sulphuric Anodising, Tartaric Sulphuric Anodising, Cadmium and Zinc/Nickel processes). The application of alternative rinse processes is considered at any process upgrade.</p> <p>Drag-out tanks are used extensively across the process, and direct approximately 60 % of the collected liquor from the parts directly back into the process tanks. Counter swill tanks are used, although a lack of space often prevents 4 – 5 stages being applied.</p> <p>The minimisation of drag-out has to be compromised with the need for quality and the maximisation of coverage. The jigs may hang the pieces at certain angles or in certain configurations so as to avoid air locks, however the quality of the coating operation is the primary focus. Jigs are inspected regularly to ensure that there are no fissures or cracks.</p>
<p>Prevent drag-out of process solutions in barrel processing lines by a combination of the following techniques (see Section 4.6.4 of BREF):</p> <ul style="list-style-type: none"> • constructing the barrels from a smooth hydrophobic plastic and inspecting regularly for worn areas, damage, recesses or bulges that may retain process solution • ensuring the bores of holes in the barrel bodies have sufficient cross-sectional area in relation to 	<p>Poeton does not have any barrel processing lines.</p>

<p>the required thickness of the panels to minimise capillary effects</p> <ul style="list-style-type: none"> • ensuring the proportion of holes in the barrel bodies is high as possible for drainage while retaining mechanical strength • replacing holes with mesh plugs (although this may not be possible with heavy workpieces). 	
<p>On withdrawing the barrel, it is BAT to prevent drag-out of process solutions in barrel processing lines:</p> <ul style="list-style-type: none"> • withdrawing slowly to maximise drag-out, see Table 4.3 • rotating intermittently • sparging (rinsing using a pipe inside the barrel) • fitting drainage ledges between tanks canted back to the process tank • inclining the barrel from one end where possible. <p>It should be noted that while these techniques reduce the drag-out in barrel lines, recovery of the subsequent first rinse is more effective.</p>	<p>Poeton does not have any barrel processing lines.</p>
<p>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.</p> <p>Use electrochemical metals recovery technology for unreturned drag-out.</p> <p>Use evaporation technology in conjunction with 3-5 stage cascade rinsing to allow closed loop operation.</p>	<p>Electrolytes are tankered away and disposed of (applicable to all process solutions) as it is uneconomical for the site to treat this waste in-house). The site does treat its dilute contaminated rinse waters, which may contain Cadmium, Copper, Chrome, Nickel, Zinc, Silver, Sulphate and Aluminium.</p> <p>The site uses lower dissolved solids concentration solutions where possible, but again, this is subject to the terms of the quality system and customer specifications.</p>
<p>You should consider using the following techniques in order to save energy:</p> <ol style="list-style-type: none"> 1. Centrifugal drying for small work. 	<p>Poeton does not employ centrifugal or hot water tank driers at their Cardiff site.</p>

<p>2. Providing lids for hot water tank driers. 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.</p>	
<p>For decorative uses, it is BAT to replace hexavalent Chromium either:</p> <ul style="list-style-type: none"> • by plating with trivalent chromium. Where increased corrosion resistance is required, this can be achieved by trivalent Chromium solution with increased Nickel layer underneath and/or organic passivation (for Cr(III) Chloride based solutions, see Section 4.9.8.3, and for Cr(III) Sulphate based solutions, 4.9.8.4). <p>Or:</p> <ul style="list-style-type: none"> • with a Chromium-free technique, such as tin-Cobalt alloy, where specifications allow (see Section 4.9.9) <p>However, there may be reasons at the installation level where hexavalent Chromium is used for decorative finishes, such as where customer specifications require it for:</p> <ul style="list-style-type: none"> • colour • high corrosion resistance • hardness or wear resistance. 	<p>Poeton does not produce decorative pieces, and the use of hexavalent Chrome is critical for the quality of some of the technical pieces produced. Poeton does however, employ trivalent Chrome or non-Chrome systems where possible, and uses a non-Chrome primer in the site painting processes where possible. It is anticipated that it will ultimately be possible to replace all Chromate containing primers with Chrome free primers.</p>
<p>When using hexavalent Chromium plating, it is BAT to:</p> <ul style="list-style-type: none"> • reduce air emissions by one or a combination of the following (see Section 4.18): <ul style="list-style-type: none"> o covering the plating solution during plating, either mechanically or manually, particularly when plating times are long or during non-operational periods 	<p>The Poeton Cardiff site handles limited quantities of Chrome and the tanks are not covered as there is a requirement to reduce heat build-up in the tanks during plating processes.</p> <p>The site does use suppressant and applies air extraction across all relevant processes but does not condense the mists, relying instead on appropriate freeboard levels (300 mm on Chrome tanks) and extraction rates. All extraction points include dampers to control the rate of extraction and fans are turned off when not in use.</p>

<p>o use air extraction with condensation of the mists in the evaporator for the closed loop materials recovery system. Substances which interfere with the plating process may need to be removed from the condensates before re-using, or removed during bath maintenance (see Section 4.7.11.6)</p> <p>o for new lines or when rebuilding the process line and where the workpieces have sufficient uniformity of size, enclose the plating line or plating tank (see Section 4.2)</p> <ul style="list-style-type: none"> • operate hexavalent Chromium solutions on a closed loop basis. This retains PFOS and Cr(VI) in the process solution. 	<p>Drag-out and swill tank liquor is used to top up the next tank in the process line, thereby promoting a closed-loop system.</p>
<p>It is only BAT to recover hexavalent Chromium in concentrated and expensive solutions such as black chromating solutions containing silver. Suitable techniques such as ion exchange or membrane electrolysis techniques used at the normal scale for the sector.</p>	<p>Expensive solutions such as black Chromating solutions are not used at the site.</p>
<p>It is BAT to plate Cadmium in a closed loop system, see Section 5.1.6.3.</p> <p>It is BAT to carry out Cadmium plating in separately contained areas, with a separately monitored emission level to water.</p>	<p>Drag-out and swill tank liquor is used to top up the next tank in the process line, thereby promoting a closed-loop system.</p> <p>Cadmium plating is undertaken in a completely contained area and, with the upgrade of the effluent treatment plant and drainage system, Cyanide based effluents, including the Cadmium plating liquors will also undergo separate collection and treatment before combining with the rest of the effluent in the precipitation tank for final treatment and discharge.</p>
<p>It is BAT to liaise with the customer or operator of the previous process (see to Section 4.3.2) to:</p> <ul style="list-style-type: none"> • minimise the amount of oil or grease and/or • select oils, greases or systems that allow the use of the most environmentally friendly degreasing systems. 	<p>Poeton work to the customer specification and would not attempt to dictate any requirements to their customers, some of whom audit the degreasing and oiling of parts. Parts do however come in with very little oil on, largely because demand is so high that parts aren't machined too far in advance of plating, and so the protection requirements of the oil are less than historically.</p>

<p>In addition, the following BAT apply specifically to anodising:</p> <ul style="list-style-type: none"> • heat recovery: It is BAT to recover the heat from anodising sealing baths using one of the techniques described in Section 4.4.3. • recovery of caustic etch: It is BAT to recover caustic etch if: <ul style="list-style-type: none"> o there is a high consumption of caustic solution o there is no use of any additive to inhibit the precipitation of the alumina o the etched surface achieved meets specifications. • closed loop rinsing: It is not BAT for anodising to use a closed rinsed water cycle with ion exchange, as the chemicals removed are of similar environmental impact and quantity to the chemicals required for regeneration • use PFOS-free surfactants. 	<p>Temperatures are set and monitored. Where appropriate, new treatment tanks are fitted with lids, and several older tanks have been fitted with temperature controls to reduce energy consumption. Croffles are used on high temperature tanks where appropriate, although these can lead to quality and operational problems. Poeton is therefore attempting to find an alternative system to resolve these problems, which may also allow fan speeds to be reduced when appropriate.</p> <p>The site does not have running hot water processes, instead using static tanks. However, where possible, the surface area of the solutions within the sealing tanks is minimised by using deep, slender tanks, thereby minimising heating losses.</p> <p>The site does not undertake caustic etch processes.</p> <p>On newer lines where possible, spray rinses have been installed. These rinses only activate when there is work in the system.</p>
<p>The benchmark value for emission (Section 3 on page 84 of the SGN) should be achieved unless alternative values are justified and agreed with the Regulator in the Permit. Benchmark is 1 mg/m³ for Cr(VI) and compounds of Chromium, but substitution with less hazardous materials is the preference.</p>	<p>Limited testing of emissions to atmosphere has been undertaken at the site, due to the limited likelihood of elevated emissions from the processes. Monitoring for volatile organic compounds (VOCs) was undertaken from the paint spray operations in early 2014, and confirmed the emissions of VOC as being 'trivial'. The results of this monitoring campaign were submitted with the 2015 Permit Variation (EPR/BP1771IZ/V002 issued 07/01/2016). No further emissions monitoring has been proposed or requested from the site operations.</p>
<p>Identify the main chemical constituents of the emissions (this includes, in particular, the speciation of VOCs to understand the potential harm of the releases) and assess their fate in the environment.</p>	<p>The main emissions to atmosphere from the Poeton process may include compounds of Chromium, Sulphuric Acid, Tartaric Acid, Nitric Acid, Hydrogen Chloride, Ammonia, Magnesium, Nickel and Zinc.</p> <p>The VOC species within the raw materials used at the site include Ethylbenzene, Methyl Ethyl Ketone, Methanol, Propan-2-ol, Toluene and Xylene, amongst other species. None of the raw materials currently in use at the site include Benzene.</p> <p>The site also undertakes non-destructive testing which employs a liquid penetrant to facilitate inspection. The fluorescent dyes used require no extraction and are non-hazardous liquids. The process also incorporates an emulsifier tank to remove the oil-based penetrant, but again no extraction is required on this tank. Finally, the wash off is separated and passes through a Carbon filter to remove the dye, with the Carbon being disposed of as chemical waste when changed.</p>

<p>Vent and chimney heights should enable adequate dispersion.</p>	<p>The main environmental impacts from the surface treatment industry relate to energy and water consumption, the consumption of raw materials, emissions to surface and groundwaters, solid and liquid wastes and the potential for contamination of land and water sources. The surface treatment of metals and plastics is not a major source of emissions to air. Occupational controls are installed in key process areas.</p> <p>As air emissions from the sector are not significant, they can be dealt with using readily available in-process techniques or end of pipe abatement measures where necessary, as demonstrated in Table 2 of the Permit variation application (EP Form C3). However, the variation also seeks to include all emission points onto the Permit, with many extraction points, including Local Exhaust ventilation (LEV) points having been omitted from the original Permit.</p>
<p>Local extraction rates should be capable of regulation by local dampers.</p>	<p>All of the extraction points include dampers to control the extraction rate. Extraction fans also have inverters and are turned off when the process is not in use.</p>
<p>Releases from wet scrubber vents should be hot enough to avoid visible plume formation in the vicinity of the vent.</p>	<p>A wet scrubber system is employed on release point A26. This includes a double bank mist eliminator.</p>
<p>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. Fume extraction through the upper sides of process tanks is not recommended.</p> <p>LEVs should use the minimum extraction rates to meet COSHH; and where possible extraction should not be used at all.</p> <p>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.</p> <p>LEVs should not cause an adverse environmental impact and site must be compliant with the IED.</p>	<p>The Poeton policy is to have at least 150 mm between the solution level and the top of the tank wherever possible. For Chromate processes Poeton maintains a minimum freeboard level of 300 mm. Therefore, the tanks themselves contribute to entrapment of contaminants emitted from the surface of the solution, minimising extraction rates.</p> <p>Regular testing is undertaken at the extraction points to confirm that the minimum extraction rates are met. The site works to the COSHH local exhaust ventilation requirements and regular monitoring of the systems regularises this.</p>

<p>Process tank operating freeboard should be at least 125mm (preferably 150mm), and not less than 150mm for hexavalent chromium plating, Chromic Acid anodising, and Chromic/Sulphuric Acid etch tanks.</p>	<p>For Chromate processes Poeton maintains a minimum freeboard level of 300 mm. Ullage levels in all other plating tanks are 150 mm.</p>
<p>Prevent releases of harmful substances to the aquatic environment. Minimise water use and contamination risk of process or surface water. Wherever possible, closed loop cooling systems should be used and procedures in place to ensure blow down is minimised. Measures should be taken to prevent harmful materials and substances from entering the water circuit.</p>	<p>All process effluent and high-risk site drainage discharge into the effluent treatment plant for treatment prior to discharge to sewer.</p> <p>As harmful materials are used across the site processes, there is no way of preventing these from entering the water circuit. However chemical use is minimised where possible, with staff working to quality protocols to ensure the optimal treatment of each piece.</p> <p>Chemicals are stored in secure and bunded areas across the site in order to minimise the potential for unintended and / or abnormal releases to the effluent plant. Operators are trained in their individual roles, and the site includes a Spill Team which has staff in each section who are trained to deal with spillages.</p> <p>Significant spills would be reported to the effluent plant operator and the plant would be stopped to prevent any escape and to enable suitable and sufficient treatment prior to release.</p>
<p>Consider providing treatment to a level which will enable release to the environment if possible, or to a level where it can be returned to the process. Particular consideration should be given to the fate of the concentrated residues of such techniques. The tankering of such residues off site as waste, simply transfers the problem to another place unless they are sent to a facility with the genuine ability to recycle the materials.</p> <p>Where discharge of contaminated water is necessary, the emissions benchmarks should be achievable.</p>	<p>The site continues to work within the limits of its Trade Effluent Consent. The flow and pH levels of the effluent discharges are measured continuously and pH is checked twice per day. Levels of Cadmium, Chromium and Cyanide are measured weekly in-house, and Dwr Cymru undertake monthly sampling.</p> <p>The site is keen to recycle its filter cake and remains vigilant to any opportunities for such. However currently the options for recycling are cost prohibitive.</p> <p>Spent process solutions, such as contaminated Chrome plating solution have to be changed and as the Company does not have the capacity to treat these solutions on site, they are tankered away for treatment and disposal. It is currently uneconomical to recover other metals from effluent or sludge.</p> <p>The most effective way for the site to reduce their discharges to the environment currently is to re-use some of their process waters as rinse water where possible. Additionally, anodising solutions are re-used in the effluent treatment plant for pH control.</p>

<p>Establish and record the routing of all installation drains and subsurface pipework, and identify all subsurface sumps and storage vessels. Minimise potential leakages and ensure swift detection if they do occur, particularly where substances are involved. Provide secondary containment and/or leak detection for subsurface pipework, sumps and storage vessels. Establish an inspection and maintenance programme for all subsurface items.</p>	<p>Tank and drainage plans are maintained for the site, and the internal drains are checked regularly for leaks.</p>
<p>Where effluent is treated off-site at a sewage treatment works, the treatment provided should be as good as would be achieved if effluent were treated on site. Will the sewer by-pass and are plans needed in the event that it might? Is there a suitable monitoring programme in place? Need to retain a full understanding of chemicals discharged and fate, and avoid breaches of Consent / water quality standards.</p>	<p>The discharge from the site is of effluent which has undergone primary treatment to remove any hazardous substances to acceptable levels (as dictated by the terms of the Trade Effluent Consent). In the event of an especially high effluent concentration, the plant can be stopped to prevent off-site release, and as required, excess effluent would be tankered away for third party treatment and disposal.</p>
<p>Use buffer tanks to enable gradual use / treatment of spent fluids rather than waste disposal.</p>	<p>Two separate collection and treatment tanks that receive the effluents from the small sumps are sufficiently sized to ensure full treatment and enable the holding of site effluent as required in the event that further treatment is necessary, or the daily discharge volume has been reached.</p>
<p>Detail ETP (primary, secondary and tertiary treatment) and how dissolved metals are removed. Handling peak loads through the effluent treatment plant should be demonstrated.</p>	<p>The new effluent plant layout will ensure that wastes are appropriately separated to promote optimum treatment, with Cyanide based wastes, containing Cadmium, Copper and Silver, and the Zinc/Nickel waste waters being collected and having their pH raised to alkaline conditions to reduce the Cyanide, before passing through a cartridge filter to remove the bulk of the metals.</p> <p>Chromium based effluents and all other process waters are retained at an acidic pH, with the hexavalent Chrome reduced to trivalent Chrome before passing to the precipitation tank.</p> <p>After this initial treatment, the two effluent streams can effectively be mixed with flocculant in the single precipitation tank and pass through the settlement process and final pH dosing before discharge.</p> <p>Peak loads are managed using the two initial collection tanks followed by two buffer tanks to ensure that the full site load can be handled and treated satisfactorily. Treated waste-water enters a final pH adjustment tank, and can be dosed with clean acidic effluent as required, thereby minimising the use of raw materials. The pH limit range of the Trade Effluent Consent is 6 – 11.</p>

<p>Avoid fugitive releases (cover vessels and skips, cleaning and housekeeping issues). Maintain a fugitive emissions plan / inventory of emissions as necessary.</p> <p>A simple water scrubber should be fitted to the vent outlet of hydrochloric acid tonnage storage vessels (for use during filling operations).</p> <p>Regularly clean fume extraction ducting and mist eliminators.</p>	<p>Dusty materials are not stored externally without a cover, and most dry materials are stored inside, either within the process building, or within the dry store.</p> <p>The site does not employ scrubbers or mist eliminators on extraction vent stacks, but has no issue with visible or wet discharges.</p>
<p>When transferring volatile liquids, use subsurface filling and vapour balance lines. Vent systems should be chosen to minimise breathing emissions and, where relevant, should be fitted with knock-out pots and appropriate abatement equipment. Minimise storage temperatures where an increase could result in emissions (e.g. solar absorbing paint etc).</p>	<p>Solvents are used in the anodising area. Parts may be lacquered to avoid plating in areas on the part, and solvents are then used to remove the lacquer. The solvent containers are lidded when in use and when not in use, and hence emissions from the containers will only occur during the very short period taken to put the work piece in and to take it out.</p>
<p>Detail, check and maintain surfacing to prevent release of substances to ground.</p>	<p>Poeton Environmental Procedure EPPI 01 (latest issue) Provides for daily, weekly, monthly, quarterly, annual and periodic checks of equipment, and training of relevant staff. Monthly visual checks include consideration of the flooring and the bunds. Checks are documented and all site procedures are updated as required, e.g. to take account of new processes.</p>
<p>Bund all harmful liquids.</p>	<p>Harmful liquids are stored within bunded areas, either within the chemical store, or the waste store. Within the process building, drainage directs any spillages to the effluent treatment plant which can be re-circulated in order to prevent any release to sewer.</p>

<p>Storage areas should be located away from watercourses and sensitive boundaries. Clearly marked and signed plus containers should be clearly labelled. Maximum storage capacity of storage areas should be stated and not exceeded. The maximum storage period for containers should be specified. Appropriate storage facilities should be provided for special requirements such as for substances that are flammable, sensitive to heat or light and the like; also incompatible waste types should be kept separate. Containers should be stored with lids, caps and valves secured and in place. This also applies to emptied containers. Storage containers, drums and the like should be regularly inspected. Procedures should be in place to deal with damaged or leaking containers.</p>	<p>Chemicals are stored appropriately and separately where necessary as follows:</p> <p>All site chemical stores are located towards the rear of the site in purpose built, bunded containers. There are four containers, one each for wet acids, wet alkalis, dry acids and dry alkalis. There is also a bunded paint store which includes frost protection heating, and a small (3 m x 3 m x 3 m) dedicated bunded Cyanide container. All of these units are locked with restricted access. Their location is not close to any sensitive boundary or water course, and the site includes comprehensive security measures including fencing, lockable gates and CCTV surveillance.</p> <p>The site stores small LPG bottles in a locked cage, again towards the rear of the site, to power the site fork-lift trucks.</p> <p>In the main process areas, chemicals are stored in coating vats during use and these are bunded where required and any small containers required across the shop floor would be appropriately labelled and stored in a tray or bund, with any spillage across the site running to the dedicated effluent treatment plant.</p> <p>The site laboratory stores small quantities of chemicals in laboratory cupboards and includes a flammables cupboard.</p> <p>All containers, whether full or empty are stored with lids in place, and empty containers are removed from site as soon as a full load is available.</p> <p>Monthly checks are undertaken on all storage locations, and a monthly stock check is undertaken by the Company Purchasing Officer.</p>
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Appendix B

CIRIA 736 Risk Assessment for Containment Classification

Poeton (Cardiff) Limited



Environmental Visage

**CIRIA 736 RISK ASSESSMENT FOR
CONTAINMENT CLASSIFICATION**

**POETON CARDIFF
POETON (CARDIFF) LIMITED**

283 PENARTH ROAD, CARDIFF, CF11 8UL

**Report Issue No: 2
Report Date: January 2025
Report Author: Amanda Owen**

Executive Summary

This report has been prepared on behalf of Poeton (Cardiff) Limited (Poeton) by Environmental Visage Limited. It presents the assessment of the risks associated with the containment of chemicals and effluent at their surface coating facility on Penarth Road, Cardiff. The risk assessment has been prepared to support further consideration of the suitability and integrity of the site process equipment and infrastructure, and to aid in the design and upgrade of the site effluent treatment plant.

This report details the containment classification risk assessment and considers the hazards associated with any potential failure of containment, and also the likelihood of such an incident occurring. It has been produced in accordance with the guidance provided within CIRIA Report 736 on Containment systems for the prevention of pollution; Secondary, tertiary and other measures for industrial and commercial premises (CIRIA 736), which details the measures that site operators can take to minimise the risk of pollution from leaking or burning substances stored on their sites in the event of an emergency.

The overall risk of pollution associated with the current containment facilities at the Poeton Cardiff site is considered to be medium, and therefore, class 2 containment, as defined by CIRIA 736, would be recommended at the site.

Contents

Executive Summary.....	i
Contents	i
Issue and Revision Record.....	i
1. Introduction.....	1
2. Site and Local Features	1
3. Approach	3
3.1 Hazard Assessment	3
3.2 Likelihood Assessment.....	4
3.3 Risk Assessment	5
4. Hazard Assessment	5
5. Likelihood Assessment.....	6
6. Risk Assessment.....	7
7. Conclusions.....	7

FIGURES

- Site Location Plan
- Local Sensitive Environmental Receptors
- Geological Map
- Flood Risk Map – Rivers And Sea
- Flood Risk Map – Surface Water

Issue and Revision Record

Issue	Date	Author	Review / Authorise	Description
DRAFT	21/09/2023	A. Owen	ENVISAGE	Draft for review and comment
1	20/11/2023	A. Owen	ENVISAGE	Issue 1
2	20/01/2025	A. Owen	ENVISAGE	Update prior to submission of the variation application - Issue 2

1. Introduction

Poeton (Cardiff) Limited (Poeton) commissioned Environmental Visage Limited (Envisage) to undertake a risk assessment of the containment of chemicals and effluent at their surface coating facility on Penarth Road, Cardiff. The treatment operations undertaken at the site are associated with the surface preparation and corrosion protection of metal and plastic components for the aerospace, engineering and electronics industries. The total volume of surface treatment vats used at the site exceed 30m³ and chemicals are stored and used across the site, albeit secondary containment is provided where appropriate. Additionally, process effluent is collected and treated in the on-site effluent treatment plant, prior to discharge to sewer within the terms of a Trade Effluent Consent with Dwr Cymru. Some of the chemicals used at the site could have a negative impact on the environment if released, and can cause significant environmental damage if not properly contained. As such, it is important to assess the appropriateness of the site processes, containment systems and infrastructure, to adequately manage the risks associated with the process.

CIRIA 736 identifies three classes of containment which may be required for storage facilities, and these provide an increased level of protection for higher risk facilities. The three classes are based on a low, medium and high-risk potential. Therefore, in order to determine the class of containment required at the installation, it is necessary to undertake an assessment of the risks associated with a potential release.

This document details the risk assessment undertaken for the Poeton site on Penarth Road in Cardiff.

Within the assessment:

- **hazard** is the intrinsic property of a substance or physical situation, with the potential for creating damage to human health and / or the environment;
- **risk** is the likelihood of a specific effect occurring within a specified period or in specified circumstances. Risk is therefore a combination of consequence and the likelihood (or probability of occurrence) of that consequence, and consequence can be further defined in terms of the extent, severity, and duration of harm.

2. Site and Local Features

The Poeton site in Cardiff is located at 283 Penarth Road, Cardiff, CF11 8UL. Located in the south-western quarter of the city in the commercial and industrial area, the site is situated approximately 800 m west of the River Taff at its nearest point, and approximately 1.4 km to the north-west of Cardiff Bay Wetlands Reserve. The centre of the site is at National Grid Reference ST 17390 74759 and the site covers an area of approximately 0.32 Ha. A summary of the site and local features considered by this risk assessment is presented below, and mapping of the local area is provided within the Figures section.

Poeton has operated at their Cardiff site since 1963 (more than 60 years), although the site was a metal-finishers before then, being the Magrath Metal Finishing site. The site has a long, thin and largely rectangular footprint, with the process buildings running along the northern boundary with access and parking along the southern edge. The surrounding area is largely commercial, with car dealerships to the north and south, the main Cardiff Royal Mail Sorting Office to the west and the branch-line to Penarth and Barry Island to the east. Situated approximately 1 km east of the open rural area of Leckwith, and approximately 1 km west of the River Taff as it enters Cardiff Bay, the commercial location of the Poeton Cardiff site quickly gives way to the suburbs and city centre of Cardiff to the north, rural expanses to the west and the Cardiff Bay and Bristol Channel to the south and east.

Previous site investigationsⁱ identify that the recorded geology of the area is Mercia Mudstone, comprising predominantly red-brown mudstones, normally calcareous and with green-grey mottles and bands, weathering to firm to stiff clays near the surface. The solid geology is overlain by superficial estuarine Alluvium which comprises silty Clay with impersistent peat beds. There is no geological faulting thought to be within a relevant distance to influence the site. Site investigations undertaken in January 2015 largely confirmed the geological mapping with made ground identified over natural Clay grading to gravel and cobbles denoting the estuarine Alluvium.

Mercia Mudstone is classed as a secondary B aquifer, comprising predominantly lower permeability layers which may store and yield limited amounts of water due to localised features such as fissures, thin permeable horizons and weathering. The superficial drift is classed as unproductive. As a result of the unproductive and lower permeability of the geology across the area, there are no recorded abstraction points locally and the site is not located in a Source Protection Zone.

Ground water is present beneath the site however, and regular (5-yearly) testing is facilitated.

The site is located within 1 km of both the Rivers Taff and Ely and the Bristol Channel is located less than 3 km distant. However, the area benefits from the Flood Defences of the Cardiff Bay barrage and Natural Resource Wales Flood Risk record specifies that the site is at a low risk of flooding from any sources and has no record of flooding in the past.

The Rivers Taff and Ely are both within the South East Valleys Management Catchment. The 'valleys' rivers begin high in the Brecon Beacons and flow through steep-sided valleys to the low-lying coastal areas of Cardiff and the Gwent Levels. The valley slopes have managed grassland and forest, while the narrow valley floors are extensively urbanised. While many of the rivers have recovered from historical degradation caused by the iron, coal and other industries, the narrow valley floors mean that industrial and urban development has tended to lie close to the banks of the rivers, resulting in extensive man-made changes, loss of riverside habitats and leaving rivers vulnerable to urban pollution.

In 2015, the River Taff carried a moderate quality classification, whilst the stretch of the River Ely from approximately Pontyclun, out to the Severn Estuary carried a bad quality classification.ⁱⁱ

With limited ground water potential beneath the site and no surface waters in the immediate vicinity, the potential for the migration of any ground pollution from the site into water courses is limited.

The nearest sensitive ecological receptor to the site is Cwm Cydfin, in Leckwith. A long-standing Site of Special Scientific Interest (SSSI), the site comprises a mixed deciduous woodland adjacent to saltings of the River Ely in a valley overlying Triassic Marls and Rhaetic rocks, locally exposed in cliffs beside a tidal creek. The main trees are pedunculate oak, ash, elm, maple with hazel, dogwood and spindle. The ground flora is varied and especially rich alongside the streams.

Further afield from approximately 3 km, the Severn Estuary is a designated SSSI, a Special Area of Conservation (SAC), a Special Protection Area (SPA), and a Ramsar designated site.

Poeton Cardiff undertakes surface treatment processes at their site, providing specialist metal-based coatings to metal and plastic components, for use in industries such as automotive and aerospace. The processes involved are located within three main production areas;

- the anodising shop (degreasing, Sulphuric and Chromic anodising);
- the plating shop (phosphating, Nickel, Copper and Cadmium plating);
- and the non-destructive testing (NDT) and paint shop (testing and acid etch inspection and wet painting).

Process effluent is treated in the onsite effluent treatment plant prior to discharge to sewer.

The processes require the storage and use of liquid chemicals, several of which could have a significant impact if released into the environment. The site has been operated by Poeton for more than 60 years and was a metal finishing process prior to that. Although the infrastructure and operations across the site have always developed to meet best practices and techniques, recent issues caused by staffing changes and missed maintenance have resulted in the requirement to upgrade and replace much of the effluent treatment plant and, additionally, changes are proposed to some processing lines. In doing so, Poeton Cardiff will take the opportunity to ensure that their new site infrastructure considers the requirements of the CIRIA 736 guidance, and all best available techniques in order to minimise the potential for any release to the environment during normal or emergency conditions, and this assessment considers the planned infrastructure and future practices at the site.

Delivering highly specialised components, many of which have key safety functions in critical industries, quality is paramount and the site is manned during normal working hours by management and highly trained staff, with no regular access provided to the general public. Located in a commercial area and with neighbouring businesses that would be far more attractive to thieves or vandals, the site does not suffer from unauthorised access or vandalism. Strict operational practices and regular housekeeping measures provide the opportunity for any defects to be identified and dealt with promptly, and form the main maintenance practices for the site infrastructure.

3. Approach

The aim of a containment system is to break the pathway between a source and a receptor. The likelihood that a containment system will fail to break the pathway will depend on several factors associated with the way it has been designed, built, operated and maintained. The overall site hazard rating is based on consideration of the likely source, pathway and receptor linkages.

The likelihood rating then goes on to consider the events that may lead to the release of polluting matter to the environment, and the potential that these would occur. The overall site risk can then be calculated and is classified as low, medium or high. This can then be directly applied to the containment classification system (1 – 3) to determine the level of containment integrity required at the site. Within this risk assessment, a matrix scoring methodology has been applied to assess each element of a potential release in turn.

3.1 Hazard Assessment

The three crucial elements to be considered for any potential pollution incident consist of identifying the **SOURCE** of pollution, the **PATHWAY** it will take, and the **RECEPTOR** that could be affected. Taken together, these three elements comprise the hazard to be assessed, and a complete linkage of all three elements must be present for a pollution incident to occur. The hazard assessment of the installation will apply a low, medium or high category to each elemental hazard, and a final assessment of the overall hazard of the installation can then be determined. For consistency, the following descriptions have been applied when reviewing each elemental hazard:

Source;

HIGH – priority substances, highly toxic substances, high oxygen demand substances, substances affecting appearance (oils, dyes, detergents etc.), run-off or fire-fighting water containing any such substances

MEDIUM – substances which do not fall into the HIGH classification but which may still have a negative impact on ground or water courses

LOW – substances which are unlikely to have a negative impact on ground or water courses

Pathways / Receptors:

Geology;

HIGH – highly sensitive sub-strata with no protective deposits overlying

MEDIUM – sensitive strata with protective deposits

LOW – low permeability strata

Groundwater;

HIGH – major aquifer / abstractions / shallow groundwater levels / direction of groundwater (if known)

MEDIUM – minor aquifer / limited or less sensitive abstractions / groundwater presence / direction of groundwater (if known)

LOW – non aquifer / no abstractions / no known groundwater

Surface water;

HIGH – High or Good quality water course (WFD Catchment Classification) in the vicinity (up to 2 km) with potential release (direct or indirect)

MEDIUM – Moderate quality water course (WFD Catchment Classification) in the vicinity (up to 2 km) with potential release (direct or indirect)

LOW – Poor or Bad quality water course (WFD Catchment Classification) in the vicinity (up to 2 km) with potential release (direct or indirect)

Flood risk;

- HIGH – site is at risk of flooding (High category on flood risk mapping)
- MEDIUM – site has limited potential of flooding (Medium category on flood risk mapping)
- LOW – site has no potential to flood (Low category on flood risk mapping)

Treatment Sites (i.e. potential release to WWTW / other sensitive receptor);

- HIGH – site releases / could release to treatment site with no or limited control
- MEDIUM – site releases / could release to treatment site but could be controlled
- LOW – site releases / could release to treatment site but emergency measures are in place for efficient and effective control

Sensitive Sites;

- HIGH – European or SSSI sites in the immediate vicinity (adjacent the site)
- MEDIUM - European or SSSI sites in the wider area (up to 2 km)
- LOW – less sensitive local sites in the wider area (up to 2 km)

Once each elemental hazard has been ranked, a score is applied to each using the following formula:

- HIGH ratings = 3
- MEDIUM ratings = 2
- LOW ratings = 1

The total rating of each potential source of pollution can then be summed and assessed against the following scoring matrix:

Total Score	0-10	11-17	17-21
Overall Hazard Rating	LOW	MEDIUM	HIGH

Where overlap occurs (i.e. 17 points), consideration will be given to the rating applied to most elements.

3.2 Likelihood Assessment

Once the overall site hazard rating has been identified, it is appropriate to assess the likelihood of a hazardous incident occurring, in order that the overall risk can be determined. Similarly to the hazard assessment, the likelihood assessment will apply a low, medium or high category to each activity which may impact on the likelihood of occurrence, before a final assessment of the overall likelihood of the hazards occurring can be made. For consistency, the following descriptions have been applied when reviewing each activity:

Operations;

- HIGH – storage and processing facilities in constant use
- MEDIUM – storage and processing facilities with a high throughput
- LOW – storage and processing facilities with low throughput

Maintenance;

- HIGH – no maintenance procedures in place for the primary or secondary containment
- MEDIUM – some, irregular maintenance of the primary and secondary containment
- LOW – planned, preventative maintenance of the primary and secondary containment

Security and Historical Vandalism;

- HIGH – site has limited security and / or suffers from vandalism
- MEDIUM – site has some security measures and / or has suffered from minor or potential incidents, but has no regular threat
- LOW – site has good security measures and / or has never suffered from vandalism

Once each activity has been assessed for its likelihood, the overall likelihood rating of the installation can be determined using the following formula:

- HHH / HHM / HMM = **HIGH**
- HHL / HML / MMM / MML = **MEDIUM**
- HLL / MLL / LLL = **LOW**

3.3 Risk Assessment

The final stage of the risk assessment will compare the ratings of the hazard and likelihood assessment against the matrix below, and the final rating can then be determined:

		LIKELIHOOD		
		HIGH	MEDIUM	LOW
HAZARD	HIGH			
	MEDIUM			
	LOW			

Red boxes represent a high overall risk and therefore require class 3 containment

Orange boxes represent a medium overall risk and therefore require class 2 containment

Green boxes represent a low overall risk and therefore require class 1 containment

4. Hazard Assessment

The hazards associated with the Poeton Cardiff operations on Penarth Road are as follows:

HAZARD FEATURE /	PATHWAY	RECEPTOR	HAZARD RATING	HAZARD SCORE
Source; Chemical Raw Materials	See below	See below	HIGH	3
Source; Chemicals in Use	See below	See below	HIGH	3
Source; Effluent	See below	See below	HIGH	3
Source; Firewater – Fire and Rescue Service (FRS) has visited site, but have not stipulated how they would manage any fire	See below	See below	HIGH - assumed rating in the absence of further information	3
Geology	Made ground over Estuarine Alluvium (silty Clay) which in turn overlies Mercia Mudstone, comprising predominantly red-brown mudstones – limited vertical movement although some lateral movement is possible through made ground	Low permeability strata beneath the site. Some potential for pollution to impact on land adjacent to the site	LOW	1
Ground Water	Ground water is present beneath the site, although is thought to be discontinuous and is unlikely to impact significantly on surface waters in the area	The site overlies a secondary B aquifer, comprising predominantly lower permeability layers in the bedrock, with superficial strata being unproductive. There are no known abstractions or source protection zones in the area	LOW	1
Surface Water	Pollution could travel through the made ground or along the groundwater	The Rivers Taff and Ely are both located within 2 km. The Taff has a Moderate classification whilst the Ely has a Bad classification	MEDIUM	2

HAZARD FEATURE /	PATHWAY	RECEPTOR	HAZARD RATING	HAZARD SCORE
Flood Risk	The site has a low risk of flooding.	-	LOW	1
Treatment Site	Sealed drainage across the process areas of the site and a significant upgrade due to the effluent plant including above ground pipework, double skinned sumps and bunded treatment tanks. Plant can recirculate effluent until treated to appropriate levels. All site effluent discharges to Dwr Cymru foul sewer for further treatment prior to release. Any accessible surface water drainage in yard also goes to foul sewer. Clean roof-water runs to a soak away which is protected from yard run-off with a raised kerb / wall.	Dwr Cymru waste-water treatment plant No contribution to local surface water system	MEDIUM	2
Sensitive Sites	Pollution could travel through the made ground or along the groundwater	One SSSI is located within 2 km of the site (the Cwm Cydfin woodland). However, this is more than 1 km distant from the site and is separated from it by the River Ely and therefore there is limited possibility that the woodland could be impacted by a contaminative incident at the site	LOW	1
TOTAL RATING FOR CHEMICAL RAW MATERIALS			MEDIUM	11
TOTAL RATING FOR CHEMICALS IN USE			MEDIUM	11
TOTAL RATING FOR EFFLUENT			MEDIUM	11
TOTAL RATING FOR FIREWATER			MEDIUM	11

5. Likelihood Assessment

The likelihood of an incident occurring at the Poeton site on Penarth Road in Cardiff is as follows:

ACTIVITY / INCIDENT	PREVENTATIVE MEASURES	LIKELIHOOD RATING
Operations	Storage and processing facilities in constant use	HIGH
Maintenance	Documented daily checks and maintenance. Recent issues have been addressed, maintenance is now more frequent and thorough, and will be updated as required	LOW - MEDIUM
Security / Historical Vandalism	The site has no history of unauthorised access or vandalism. The site is fenced and gates are closed overnight, despite some 24-hour working. Gates are locked when site is unmanned and Poeton employs CCTV across the site. A vehicle barrier is located part-way down the site which would also help to prevent unauthorised access	LOW - MEDIUM
TOTAL RATING		MEDIUM

6. Risk Assessment

The source materials and the hazards associated with the Poeton Cardiff operations on Penarth Road are medium, as is the likelihood of occurrence, and thus the overall risk associated with the containment at the site is **MEDIUM**, requiring **class 2 containment**.

7. Conclusions

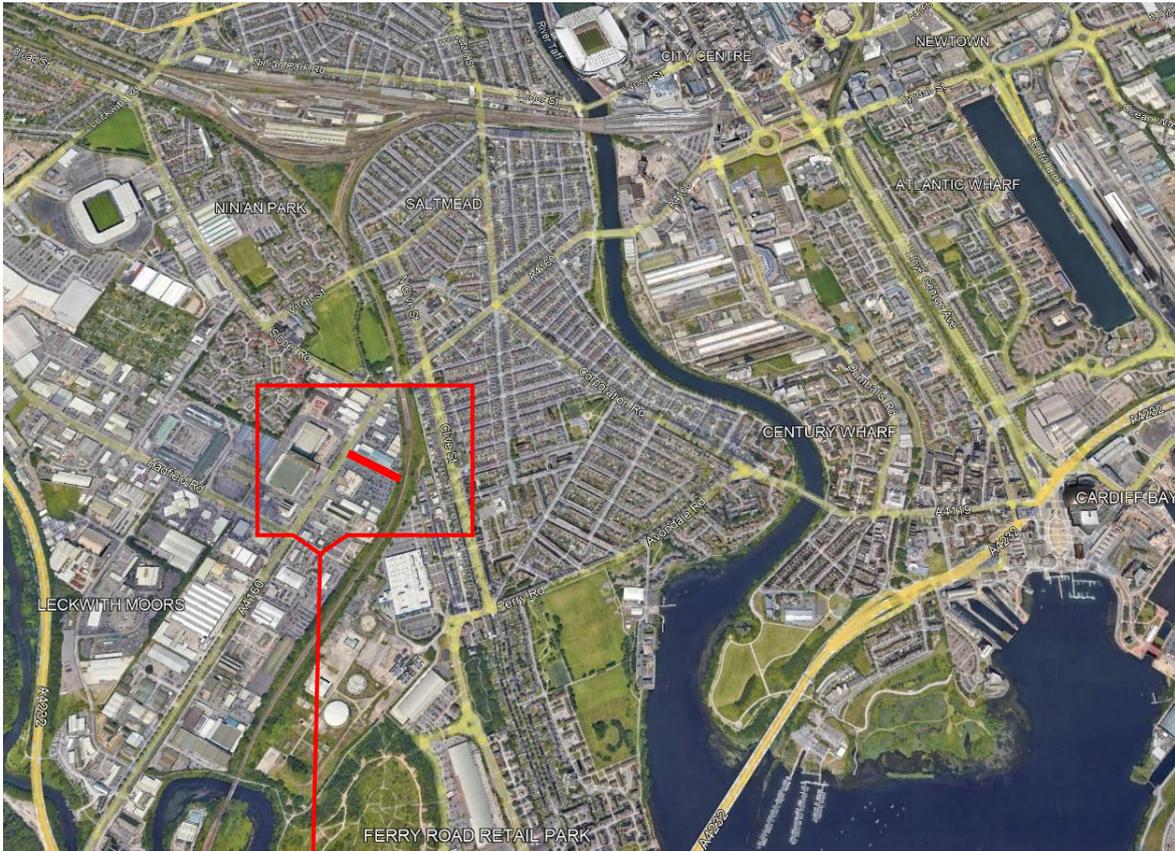
An assessment of the risks associated with materials containment at the Poeton (Cardiff) Limited site on Penarth Road in Cardiff has been undertaken in order to determine the class of containment required for the materials storage at the site. The assessment has considered the source materials, in this instance various metal-based chemicals and acids that can be harmful to the environment, as well as potential fire water, the site-specific hazards associated with the potential pathways for and receptors of any pollution incident, and the likelihood of such an incident occurring.

The overall risk of pollution to ground or water due the failure of containment at the site is considered to be of **MEDIUM** concern, and therefore any secondary containment of oil and chemical tanks at the site should meet the requirements of **class 2** as specified in CIRIA 736.

FIGURES

Ordnance Survey on behalf of the Controller of His Majesty's Stationary Office,
© Crown Copyright 100055158 (2025) Environmental Visage Limited

SITE LOCATION PLAN



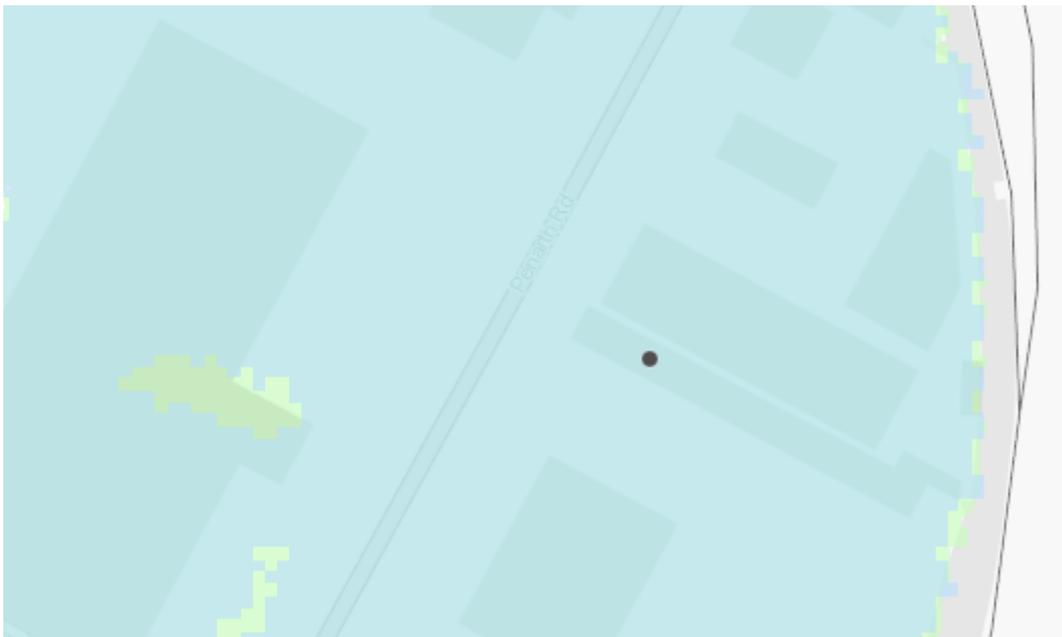
Wider Cardiff area with Poeton marked in red



Site boundary outlined in red

Imagery courtesy of Google Earth - Imagery date: 2022.

FLOOD RISK MAP – RIVERS AND SEA



Poeton Cardiff is marked with a black spot.
The entire site is at low risk of flooding from both rivers and the sea.

FLOOD RISK MAP – SURFACE WATER AND SMALL WATER COURSES



Poeton Cardiff is marked with a black spot.
None of the site is at and measurable risk of flooding from surface water or small water courses.

Flood risk maps are drawn from Natural Resource Wales data (<https://flood-risk-maps.naturalresources.wales/>). The key for the flood risk mapping is over page.

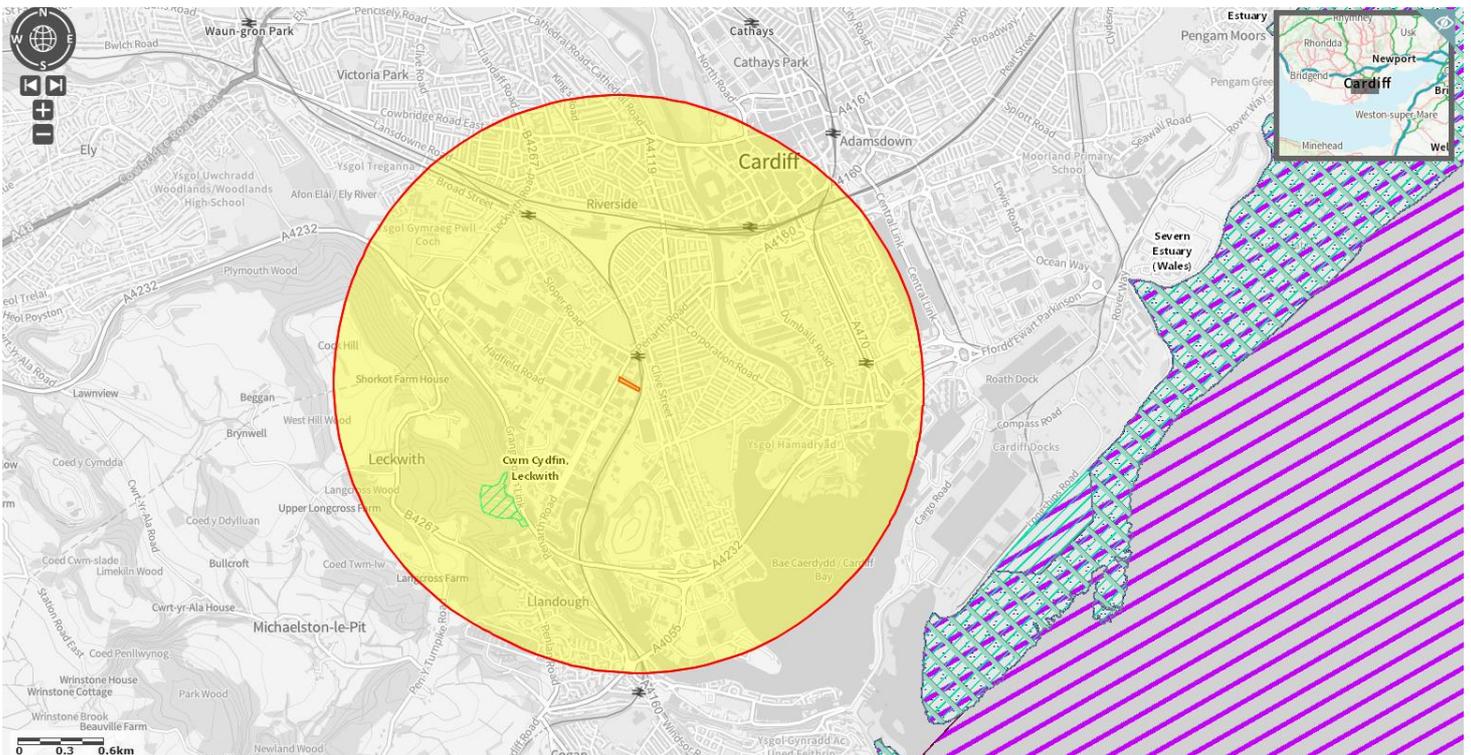
Key for Flood Risk Mapping

- Flood Risk from Rivers
 - High
 - Medium
 - Low

- Flood Risk from the Sea
 - High
 - Medium
 - Low

- Flood Risk from Surface Water & Small Watercourses
 - High
 - Medium
 - Low

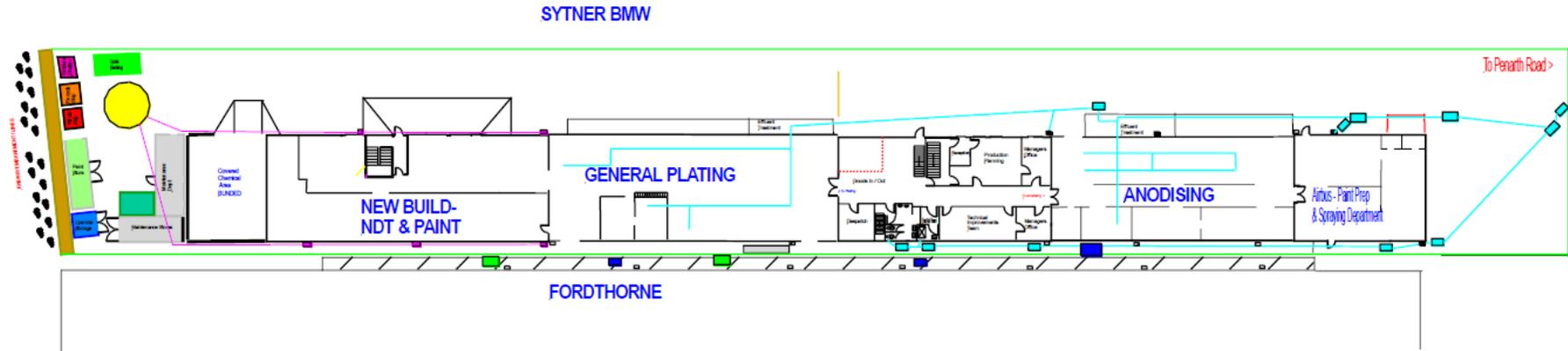
LOCATION OF NEARBY SENSITIVE ECOLOGICAL RECEPTORS TO POETON CARDIFF



Data drawn from MAGIC website (<https://magic.defra.gov.uk/magicmap.aspx>)

SITE DRAINAGE PLAN

POETON (Cardiff) Ltd – Drainage Plan



- | | | | |
|------------------------------------|---|--------------------------------|---|
| Drainpipe (Surface Runoff) |  | Drainpipe (To Sewer) |  |
| Drainpipe (To Soakaway) |  | Soakaway |  |
| Manhole Cover (Foul / Trade sewer) |  | Manhole Cover (Domestic sewer) |  |
| Surface Water Drain |  | Drainage Gully |  |
| Site Boundary |  | | |

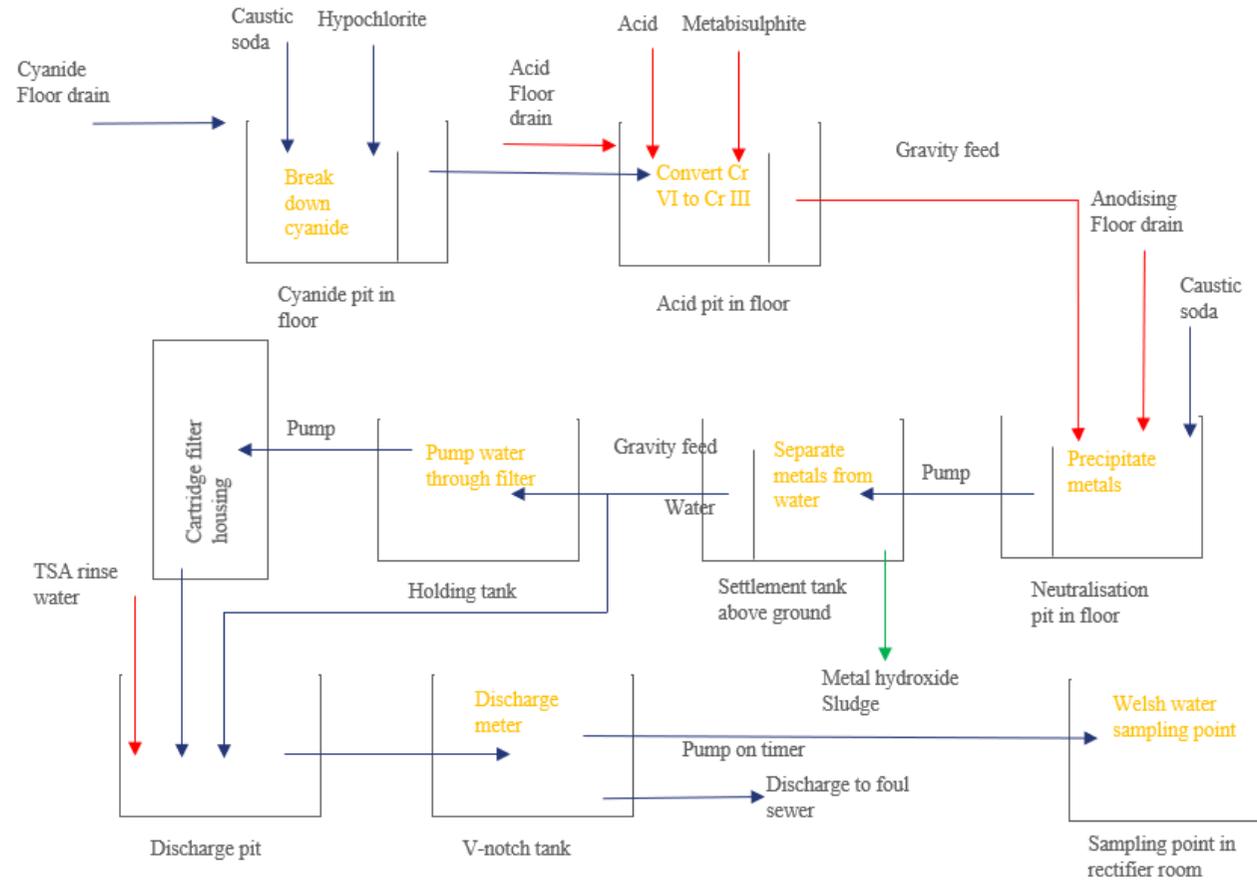
References

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- ⁱ Ground Investigation Report for the Proposed Extension to Poeton (Cardiff) Limited, Penarth Road, Cardiff, CF11 8UL. February 2015. Wilson Associates
 - ⁱⁱ South East Valleys Management Catchment Summary. 2016 Update. Natural Resources Wales

Appendix C

Process Flow Diagrams

Current flow through effluent plant



Proposed flow through effluent plant

