Cyfoeth Naturiol Cymru
Natural Resources Wales

Natural Resources Wales permitting decisions

The Royal Mint
Substantial Variation

Decision Document

Application for Substantial Variation

The application number is: PAN-016079
The permit variation number is: EPR/KP3135KV/V006
The Operator is: The Royal Mint Limited
The Installation is located at: The Royal Mint, Llantrisant, Pontyclun, Rhondda Cynon Taf, CF72 8YT

The Royal Mint has made an application for a substantial variation to allow the deposit of waste, its storage and treatment. The incoming waste will consist of printed circuit boards and they will be treated to recover precious metals.

The treatment process involves:

- De-soldering and associated scrubbing plant;
- Component / Board Separation;
- Board Shredding and Processing;
- Surface Gold Reactor and associated scrubbing plant; and
- Granulation and Separation.

These changes include adding three new emission points:

- A32 from the de-soldering scrubbing plant;
- A33 from the surface gold reactor scrubbing plant; and
- A34 the dust extraction from the board shredding operation.

We have decided to issue the variation for The Royal Mint operated by The Royal Mint Limited.

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

Purpose of this document

This decision document:

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

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

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1 Our decision

Based on the information currently available to us we are minded to issue a permit variation to the Operator. This would, if issued, allow it to operate the Installation, subject to the conditions in the Permit.

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

This Application is to operate an installation which is subject principally to the Environmental Permitting Regulations 2016 (EPR) and is subject to the requirements of the Industrial Emissions Directive (IED).

The permit contains many conditions taken from our standard Environmental Permit template including the relevant Annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the permit, we have considered the Application and accepted the details are sufficient and satisfactory to make the standard conditions appropriate.

This document should be read in conjunction with the application and supporting information and permit.

2 How we reached our decision

2.1 Receipt of Application

The Application was accepted as duly made on 13 March 2023. This means we considered it was in the correct form and contained sufficient information for us to begin our determination, but not that it necessarily contained all the information we would need to complete that determination.

The Operator made a claim for no claim for commercial confidentiality. We have not received information in relation to the Application that appears to be confidential in relation to any party.

2.2 Consultation on the Application

We carried out consultation on the Application in accordance with the Environment Permitting Regulations (EPR), our statutory Public Participation Statement (PPS) and our Regulatory Guidance.

Furthermore we have also considered the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 during our assessment process.

We advertised the Application by a notice placed on our website, which contained all the information required by the EPR/IED, including advising people where and when they could see a copy of the Application. The consultation started 21 April 2023 and ended 19 May 2023.

A copy of the Application and all other documents relevant to our determination (see below) are available for the public to view. Anyone wishing to see these documents could arrange for copies to be made.

We sent copies of the Application to the following bodies, which includes those with whom we have “Working Together Agreements”:

- Rhondda Cynon Taf council – Environmental Health;
- Rhondda Cynon Taf – Planning department;

- Public Health Wales; and
- Health and Safety Executive.

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly.

Further details along with a summary of consultation comments and our response to the representations we received can be found in Annex 1. We have taken all relevant representations into consideration in reaching our determination.

2.3 Draft Permit Consultation

We have carried out a consultation on our draft decision. This consultation will began on 6 December 2023 and ended on 8 January 2024.

2.3 Requests for Further Information

Further information was requested by way of a Schedule 5 Notice requiring information on emissions to air and Best Available Techniques. The Schedule 5 Notice was sent on 16 June 2023. The Operator's response to the Schedule 5 Notice was provided on 4 July 2023. The additional information supplied satisfied the requirements of the Schedule 5 notice issued.

Further updated information on proposed emissions was received on 10 August 2023.

A copy of the information notice and e-mails requesting further information were placed on our public register as were the responses when received.

3 The Legal Framework

The variation will be issued under Regulation 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the IED; and
- subject to aspects of the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 which also have to be addressed.

We address the legal requirements directly where relevant in the body of this document. NRW is satisfied that this decision is consistent with its general purpose of pursuing the sustainable management of natural resources (SMNR) in relation to Wales, and applying the principles of SMNR. In particular, NRW acknowledges that it is a principle of sustainable management to take action to prevent significant damage to ecosystems. We consider that, in granting the Permit, a high level of protection will be delivered for the environment and human health through the operation of the Installation in accordance with the permit conditions. NRW is satisfied that this decision is compatible with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources.

4 The changes to the Installation

4.1 Description of the Installation and related issues

4.1.1 The changes to the permitted activities

The variation adds the deposit of waste, its storage and treatment. The incoming waste will consist of printed circuit boards (PCBs) and they will be treated to recover precious metals.

The treatment process involves:

- De-soldering and associated scrubbing plant;
- Component / Board Separation;
- Board Shredding and Processing;
- Surface Gold Reactor and associated scrubbing plant; and
- Granulation and Separation.

These changes include adding three new emission points:

- A32 from the de-soldering scrubbing plant;
- A33 from the surface gold reactor scrubbing plant; and
- A34 the dust extraction from the board shredding operation.

We consider these emission points in more detail later.

4.1.2 The Site

The installation boundary remains unchanged by this variation. However, the site layout has additional details as shown on layout drawing 90400/01/00/179 as referenced in the consolidated permit.

4.1.3 Key Issues in the Determination

Key issues include the deposit of waste, its storage and treatment, and the addition of three new emission points to air. These are considered in more detail below.

4.2 The site and its protection

4.2.1 Proposed site design: potentially polluting substances and prevention measures

The operator has detailed suitable storage for the solid wastes. All activities relating to the PCB storage and processing are located within buildings. All process and storage areas are fully enclosed, therefore any spillages or runoff will be effectively contained within the building and tankered off site.

We are satisfied that this is appropriate.

4.3 Operation of the Installation

4.3.1 Management

We are satisfied that appropriate management systems and management structures will be in place for this installation, and that sufficient resources are available to the Operator to ensure compliance with all the Permit conditions. The Operator has an environmental management system (EMS) which is accredited to ISO14001. The new activities will be integrated into the Operator's existing EMS.

4.3.2 Accident management

The operator has stated the following:
"The site will be accepting printed circuit boards only. No other waste electrical and electronic equipment (WEEE) wastes will be accepted on site. The PCBs are coated in bromine which is a fire retardant material resulting in there being a very low combustion risk from the material. Due to this, a Fire Prevention Plan is not considered appropriate for the site and has not been included within the application. The site has been designed to allow active fire-fighting. The site has a dedicated fire hydrant ring which is connected to a mains water supply and would provide a continuous supply of water in the event of a fire."

We agree with the Operator's conclusion that there is very low risk of combustion associated with the proposed changes and consider that the proposed measures for control of fire to be adequate.

In addition, in order to ensure that the management system proposed by the Operator sufficiently manages the residual risk of accidents, permit condition 1.1.1a requires the implementation of a written management system which addresses the pollution risks associated with, amongst other things, accidents.

4.3.3 Operating techniques

We have reviewed the techniques proposed by the operator and compared these with the relevant guidance notes.

The proposed techniques / emission levels for priorities for control are in line with the benchmark levels and we consider them to represent appropriate techniques for the facility.

We have specified that the Operator must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process.

These are specified in the Operating Techniques table in the permit.

4.3.4 Energy efficiency

We are satisfied that the Operator will ensure that energy is used as efficiently as possible.
The Operator is already required to report energy usage under condition 4.2.2 and Schedule 4.

4.3.5 Avoidance, recovery or disposal of wastes produced by the activities

Having considered the information submitted in the Application, we are satisfied that the waste hierarchy referred to in Article 4 of the Waste Framework Directive (WFD) will be applied to the generation of waste and that any waste generated will be treated in accordance with this Article.

We are satisfied that waste from the Installation that cannot be recovered will be disposed of offsite using a method that minimises any impact on the environment. Permit condition 1.4.1 will ensure that this position is maintained.

5 Minimising the Installation's environmental impact

For this variation to the installation, the principal emissions are:

- Emissions to air of dust, Hydrogen bromide (HBr), Hydrogen chloride (HCl) and Acetic acid, with smaller emission concentrations of Cu, Zn, Pb, Cl_2 and ClO_2.

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of emissions from the Installation on human health and the environment and what measures we are requiring to ensure a high level of protection.

The operator provided an assessment of the risk posed by the proposed emissions. They then also provided a report describing the results of modelling of the proposed emissions.

The assessment shows that, applying the conservative criteria in our guidance on Environmental Risk Assessment, all emissions may be categorised as environmentally insignificant. We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory.

We will discuss the operator's risk assessment in more detail below.

5.1 Assessment of Impact on Air Quality

The assessment of the risk of an impact on air quality provided by the operator shows the risk to be very low. A report detailing the assessment of the local air quality impacts arising from the proposed new activities, including detailed dispersion modelling, was supplied on 20 October 2023. This report examined the full range of parameters emitted, these being Cu, Zn, Pb, HBr, HCl, acetic acid, Cl_2, ClO_2, PM_{10} and $PM_{2.5}$. Where existing sources emit these pollutants, these have been included in the assessment.

Following the modelling, the report concluded that “There are no emissions from the new sources that have the potential to have a significant detrimental impact on habitat sites. Therefore, the assessment has focussed on the impact of emissions on human health”.

This is consistent with the low emission rate and use of best available techniques.

The site is not located in an air quality management area or an area identified in the Welsh Government’s clean air plan.

5.1.1 Human Health

As described above, this variation will add three emission points.

The assessment of the local air quality impacts arising from the installation of new activities including detailed dispersion modelling report considered the emissions on a worst case scenario basis, such as assuming that 100% of the particulates emissions were $PM_{2.5}$.

The report concluded: “Even under the worst-case assessment adopted, the impact of the new emission sources on local air quality would be assessed as not significant or that there would be no exceedance of the air quality standard or environmental assessment level.”

This conclusion is consistent with the low and very low rates of emissions from the three new emission points and the low levels of each parameter within those emissions. For example, emission point A32 will emit Hydrogen bromide (HBr) at a concentration of 10 mg/Nm^3. However the emission rate is very low at 0.48 Nm^3/s, the emission point is through a vertical stack at a height of 16 metres and the emission speed is 10.1 m/s. The dispersion created by this discharge would reduce concentrations in the surrounding environment substantially lower than the levels that would cause any concern.

Similarly emission point A33 will emit Hydrogen chloride (HCl) at a concentration of 10 mg/Nm^3. However the emission rate is very low at 0.92 Nm^3/s, the emission point is through a vertical stack at a height of 14.9 metres and the emission speed is 19.7 m/s.

Emission point A34 will emit dust/particulates at a concentration of 5 mg/Nm^3. This concentration is the standard set when using the best available techniques, which for particulates is a fabric filter. However the emission volume is low at 13.2 Nm^3/s, the emission point is through a vertical stack at a height of 13.2 metres and the emission speed is 14.1 m/s.

We accept the assessment provided by the operator that the assessment of the risk of an impact on air quality provided by the operator shows the risk to be very low.

5.2 Assessment of impact to surface and ground water

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

5.3 Fugitive emissions

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

5.4 Assessment of odour impact

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where not practicable to minimise the effects of odour.

5.5 Noise Assessment

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise the effects of noise.

5.6 Impact on Habitats sites, SSSIs, non-statutory conservation sites etc

Following the modelling, the report concluded that “There are no emissions from the new sources that have the potential to have a significant detrimental impact on habitat sites. Therefore, the assessment has focussed on the impact of emissions on human health”.

This is consistent with the low emission rate and use of best available techniques.

5.6.1 European Sites

Habitats Regulations Assessment (HRA) is not required because there is no conceivable impact pathway to any Natura 2000/Ramsar site. The only site within 10 kilometres of the installation is the Cardiff Beech Woods SAC (UK0030109), which is located approximately 7.3 km east of the Royal Mint. The emission rates are so low, and the composition of the emissions is also so low that at that distance, there is no conceivable impact pathway to this or any other any Natura 2000/Ramsar site.

5.6.2 SSSI Assessment

The edge of the installation is located approximately 100 metres from the Rhos Tonyrefail SSSI and approximately 300 metres from Llantrisant Common and Pasture SSSI. Though the three new emission points lie slightly further away. However, the emission rates are so low and the composition of the emissions is also so low that the process contribution is not likely to damage any interest features.

5.6.3 Non-statutory Sites Assessment

As with the SSSI sites above the Process Contribution at the non-statutory sites will screen out as insignificant. and no significant pollution of these sites will occur.

6 Setting ELVs and other Permit conditions

We have decided that emission limits values should be set for the three new emission points. These are outlined in the permit.

6.1 Translating Best Available Techniques (BAT) into Permit conditions

Article 14(3) of IED states that BAT conclusions shall be the reference for permit conditions. Article 15(3) further requires that under normal operating conditions, emissions do not exceed the emission levels associated with the best available techniques as laid down in the decisions on BAT conclusions.

The operator carried out a review of the variation with reference to the relevant BAT conclusions, these being the BAT Conclusions for Waste Treatment which were published as Commission Implementing Decision EU 2018/1147 in the Official Journal of the EU on 17 August 2018. Also, in relation to the new de-soldering process, the relevant BAT conclusions for physico-chemical treatment were also reviewed. This is because that while the de-soldering processes does heat the waste material to temperatures of 230 to 250 degrees Celsius, no thermal combustion type process takes place, and therefore, the process is best described as physico-chemical.

The variation adds three new emission points. In all three cases the emissions abatement technology proposed for use by the operator represents BAT for that activity.

6.1.1 BAT Associated Emission Levels (AELs) which are required to meet Best available techniques.

BAT conclusions set out specific emission limits that the operator must comply with.

The Operator has confirmed that the printed circuit boards are coated in bromine flame retardants.

For brominated flame retardants, the BAT monitoring requirement is for shredders of metal waste and is dependent on the presence of these brominated flame retardants

in the waste gas stream. In Table 3.2 of the application support document, the operator has not identified Brominated flame retardants as being present in the waste gas stream. Note: the Operator has identified HBr as being present in the waste gas for emission point A32 (the de-soldering scrubbing plant), however, best available techniques does not set a monitoring requirement for HBr in such cases.

The BAT document does not set a monitoring standard or AEL for HBr from physico-chemical treatment (such as de-soldering), or for shredding.

In view of the prevalence of Brominated flame retardants in the waste input, annual monitoring has been set for both emission point A32 and A34.

The monitoring for chlorofluorocarbons (CFCs) is only required for the treatment of WEEE containing Volatile (hydro)fluorocarbons (VFCs) and/or Volatile hydrocarbons (VHCs). These have not been identified in the waste stream for any of the treatment processes and therefore no monitoring has been required in the permit.

The monitoring for Dioxin-like PCBs are only required for the mechanical treatment in shredders of metal waste dependent on its presence in the waste gas stream. This has not been identified as being present in the waste gas stream and therefore no monitoring has been required in the permit.

The monitoring for particulates is required for both the mechanical treatment of waste and the physico-chemical treatment of solid waste. In the case of mechanical treatment, the BAT sets an AEL of 5 mg/Nm^3 and a monitoring frequency of once every six months. In the case of physico-chemical treatment BAT also sets an AEL of 5 mg/Nm^3 and a monitoring frequency of once every six months.

Therefore this permit sets a limit of 5 mg/Nm^3 and a monitoring frequency of once every six months for emission points A32, A33 and A34.

The operator has identified Hydrogen chloride (HCl) in the emissions from point A33 (Surface gold reactor scrubbing plant). The BAT document does not set a monitoring standard or AEL for HCl from physico-chemical treatment (such as the Surface gold

reactor scrubbing plant). However, given the expected presence, and the operator expected emission concentration of 10 mg/Nm^3, this permit variation includes annual monitoring for emission point A33.

6.2 Monitoring

We have decided that monitoring should be carried out for the parameters listed in Schedule 3 of the permit using the methods and to the frequencies specified in those tables. These monitoring requirements have been imposed in order to demonstrate compliance with the emissions limits in the permit.

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

6.3 Reporting

We have specified the reporting requirements in Schedule 4 of the Permit to ensure data is reported to enable timely review by Natural Resources Wales to ensure compliance with permit conditions and to monitor the efficiency of material use and waste recovery at the installation.

6.4 OPRA

The agreed OPRA score at the installation is increased to 75 by this variation through the addition of the hazardous waste processing and additional emissions to air. This will form the basis for ongoing subsistence fees.

ANNEX 1: Consultation Reponses

A) Advertising and Consultation on the Application

The Application has been advertised and consulted upon in accordance with Natural Resources Wales Public Participation Statement. The way in which this has been carried out along with the results of our consultation and how we have taken consultation responses into account in reaching our draft decision is summarised in this Annex. Copies of all consultation responses have been placed on Natural Resources Wales public register.

1) Consultation Responses from Statutory and Non-Statutory Bodies

Response Received from – None received	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**

2) Consultation Responses from Members of the Public and Community Organisations

a) Representations from Local MP, Members of the Senedd (MS), Councillors and Parish / Town / Community Councils

Response Received from - None received	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**

b) Representations from Community and Other Organisations

Response Received from - none received	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**

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c) Representations from Individual Members of the Public

Response Received from – none received	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**

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