Royston Environmental Permit Variation Application

Non-Technical Summary

Johnson Matthey PLC

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Basis of Report

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Appendices

1.0 Introduction

SLR Consulting Ltd (SLR) has been instructed by Johnson Matthey PLC (JM) to prepare an application for a variation to the Environmental Permit (Ref: EPR/BT7086IJ) (the Permit) for their Royston Site located at Orchard Road, Royston, Hertfordshire, SG8 5HE (the Site).

This Non-Technical Summary (NTS) provides a summary of the regulated facility, an explanation of the changes being applied for in the variation and a summary of key technical standards and control measures associated with the proposed changes that will be implemented at the Site.

1.1 The Site

The Royston Site operates under a multi-activity installation environmental permit. The Site is currently permitted to operate a variety of diverse and complex activities mainly involving the refining of precious metals, development of speciality chemicals and subsequent processing into a diverse range of products. The existing operations include autocatalyst and process catalyst manufacture, precious metal refining and fabrication, chemical production and engine/auto catalyst test facilities.

The main production activities consist of the following business units: Emission Control Technologies (ECT), Refining & Chemicals Europe (R&CE), Noble Metals and Silver Coating Technologies (SCT) (fomerly Advanced Glass Technologies (AGT)).

Smaller-scale activities at the site include the Research and Development, Autocatalyst Testing and Metal Joining operational units.

There are also a number of ancillary operations which are generally operated on a site-wide basis and shared by more than one operational unit. These include Site Effluent Treatment Plant, Values Recovery Plant, Dispensing and Packing, Boiler House, Analytical Laboratories, Engineering, Main Stores, and Combined Heat and Power plant.

The site is located in the north-western part of Royston, within the A505 Royston bypass. A number of residential, commercial and agricultural receptors are located in close proximity to the site. In addition, two SSSIs and several other conservation sites lie within 2km of the site boundary.

2.0 Proposed Changes to the Permit

The variation application is to authorise a number of developments at the site and to regularise previous changes agreed in writing with the Environment Agency (EA). The changes are summarised below:

1	3CR	Installation of a new Third Century Refinery (3CR) to replace the existing Platinum Group Metals Refinery (PMGR)
2	HomCat	Expansion of the existing homogeneous catalyst (HomCat) plant to replace the decommissioned Zeocat line.
3	Apollo	Addition of an iridium-based product to the platinum-based catalyst coated membrane process (currently under determination as part of Variation 16)

4	Waste Codes	Addition of EWC codes for five waste metals, previously agreed in writing with the EA
5	HomCat scrubbed draught	Re-direction of HomCat acid scrubbing from decommissioned A1 scrubbing tower to A97 PU12 scrubber, previously agreed in writing with the EA.
6	Administrative changes	Changes to update names of site processes

2.1 3CR

The Third Century Refinery (3CR) is a new up to date refinery which will replace the existing Platinum Group Metals refinery on site. It will be located in two newly constructed interconnected buildings.

The process will result in emissions of Cl_2, VOCs, NOx, NH3 and HCl abated by 2 new packed tower wet scrubbing systems and released via two new emission points to air. No new chemicals will be introduced. Some effluent will be tankered off site for treatment and some treated in the existing site effluent treatment plant.

The existing refinery will not be decommissioned until the new facility is commissioned and operational; therefore, a new listed activity will need to be added to the permit. Removal of the PGMR listed activity from the permit following future decommissioning is not included within the scope of this variation.

The addition of the 3CR activity will require a small piece of additional land to be incorporated into the permit to accommodate the 3CR annex. Drawing 002 shows the revised boundary and an addendum to the existing Site Condition Report is submitted with the application.

2.2 HomCat Expansion

It is proposed that an expansion to the homogenous catalyst (HomCat) plant will replace the Zeocat line which has already been decommissioned. The new plant will produce organo-metallic catalysts, on a campaign basis. The process will result in emissions of VOCs to air which will be released via the existing A197 stack.

There will be no change to the release points and the range of pollutants emitted. The existing VOC emission limit for the Zeocat line has been modelled as the worst case and demonstrated to be satisfactory; hence it is proposed that this limit will be retained for the expanded HomCat line.

It is proposed that the HomCat expansion will be authorised by a variation to the existing listed activity AR1.

It is also proposed that the decommissioned Zeocat line is removed from the EP as part of this variation.

2.3 Apollo Iridium Product

Project Apollo – a new Catalyst Coated Membrane process – has been recently authorised as part of Variation 16 to the EP. This authorisation was for a platinum-based product, however JM now intends to use the same line to produce an additional iridium-based product.

The process, which is described within the BAT-OT submitted for the Variation 16 application, involves production of a Catalyst Coated Membrane consisting of the coating of membrane film from the ionomer dispersion supported on a backing film. After a heat treatment annealing step, the membrane is then coated with ink that contains the selected metal (platinum group or iridium) onto each side as a separate pass. The coating technique used throughout is a slot die process. The process results in emissions of VOCs, NOx and CO to air and uses existing abatement and emission point A286, which will be the same regardless of whether platinum or iridium is used. The only change in this variation application is that an iridium-based chemical would be used in the coating process to produce a new product.

The manufacture of chemical products using iridium is not a listed activity. However, it is proposed that the iridium process is authorised as a Directly Associated Activity (DAA).

2.4 Additional Waste Codes

Several EWC codes for metal wastes have been previously authorised for acceptance at the site in 2013 by written correspondence with the local EA site inspector. JM wish to regularise these within the permit.

All waste types are non-hazardous and the annual quantity to be accepted is 5,000kg.

The wastes metals are recovered in the Noble Metals process at the site where they are melted and cleaned using chlorine. The wastes are already authorised for use (in writing) and there are no other changes to be included in the variation as the Noble Metals process is already authorised. The use of the wastes within the Noble Metals process is described within the BAT-OT submitted with this application.

2.5 Re-routing of HomCat Scrubbed Draught

Approval has been gained previously through local agreement, to reroute the Homcat scrubbed draft to the A97 stack, via a new scrubbing system built in in 2017 to serve the PU12 fine chemicals building. The existing scrubber system and release point A1 had reached the end of its life and has been decommissioned. The release point A1 is to be removed from the permit.

A description of how the scrubbed draught is abated is provided in the BAT-OT submitted with this application.

JM have confirmed that the addition of the HomCat scrubbed draught to PU12 does not cause any of the existing emission limits at that release point to be exceeded and that the combined emissions from the A97 stack have already been incorporated into recent site Air Emissions Risk Assessments which confirm that the emissions to air from the site as a whole are satisfactory.

3.0 Pre-application Advice

Enhanced pre-application discussions were held with the EA on 6 June 2024 and written advice was received on 14 June 2024. The key advice points are as follows:

- Confirmation that 3CR would be authorised as a new listed activity.
- The Air Emissions Risk Assessment, Surface Water Risk Assessment and Noise Impact Assessment should consider the interim worst case scenario where both plants are operating, and the 3CR only scenario.
- Existing compliance limits for PGMR would be retained for a specified period where both plants are operating.

- The HomCat expansion will be authorised by variation to the existing AR1 production of organometallics listed activity.
- The existing VOC emissions limit for HomCat would not be reassessed provided that air dispersion modelling does not show an increased risk from the proposed changes.
- The proposed production of an iridium product using the Apollo process would be regulated as a Directly Associated Activity.

A copy of the Pre-Application Advice is provided in Appendix A.

4.0 Regulation of the Proposed Activities

4.1 Prescribed Activities

1	3CR	The existing refinery will not be decommissioned until the new facility is commissioned and operational; therefore, a new listed activity will need to be added to the permit. The new 3CR would be regulated in the same way as the PGMR, namely: *Schedule 1 Section 4.2 Inorganic Chemicals Part A(1)(a) Producing inorganic chemicals such as - (iv) salts (for example ammonium chloride, potassium chlorate, potassium carbonate, sodium carbonate, perborate, silver nitrate, cupric acetate, ammonium phosphomolybdate).*
2	HomCat	It is considered that the activity would continue to be regulated under the existing listed activity for the Zeocat line which it is replacing, namely: *Schedule 1 Section 4.1 Organic Chemicals Part A(1) (a) Producing organic chemicals such as - (vii) organometallic compounds (for example lead alkyls, Grignard reagents and lithium alkyls).*

4.2 Directly Associated Activities

The recently issued variation 16 authorises the platinum-based Apollo activity under Schedule 1 Section 4.2 Part A(1)(c) of the Environmental Permitting Regulations (EPR). However, iridium is not listed as a substance within this activity description. Therefore, this activity will be regulated as a Directly Associated Activity.

The following activities associated with the proposed changes are already listed as directly associated activities to the installation:

- The operation of storage and handling facilities for all raw materials, wastes and products; and
- Operation of site utilities including quality assurance, effluent treatment, site drainage, refrigeration, air compression, cooling, heating and fire protection systems.

4.3 Updates to Incorporate Local Agreements

4.3.1 Addition of Authorised Waste Codes into the Permit

The application proposes the formal addition of EWC codes for five waste metals into the permit, previously agreed in writing with the EA. The new EWC codes are listed in Table 4-1 below and it is proposed that these would be added to Table S2.2 Permitted waste types and quantities for Noble Metals process. No changes to listed activities are required.

Table 4-1 Additional Waste Codes

Waste Code	Description
10	**WASTES FROM THERMAL PROCESSES**
10 07	**wastes from silver, gold and platinum thermal metallurgy**
10 07 04	other particulates and dust
10 07 99	wastes not otherwise specified
10 11	**wastes from manufacture of glass and glass products**
10 11 99	wastes not otherwise specified
12	**WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS**
12 01	**wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01 04	non-ferrous metal dust and particles
16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**
16 08	**spent catalysts**
16 08 01	spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)

4.3.2 Re-routing HomCat Scrubbed Draught

The re-routing of the scrubbed draught does not require any changes to listed activities. The operation of the PU12 facility, including abatement, is already authorised by the permit.

4.4 Administrative Changes

It is requested that the descriptions of the activities in Schedule 1 of the permit are updated to reflect the current nomenclature. The proposed changes are set out in Appendix B to this Non Technical Summary.

4.5 Application Fees

In accordance with the EA's pre-application advice, the application fees include the following:

3CR	1.4.5	Section 4.2 – production of more than one inorganic chemical.	Substantial Variation	£14,819

HomCat	1.4.2	Section 4.1 - production of more than one organic chemical.	Normal Variation	£8,233
Iridium product	1.4.6	Section 4.2 – any Section 4.2 activity not falling in references 1.4.4 or 1.4.5 in Table 1.4.	Minor Variation	£3,916
Waste Codes	1.4.5	Section 4.2 – production of more than one inorganic chemical.	Minor Variation	£4,940

The total application fees are £31,908.

5.0 Application Contents

To support this application, the following documentation is submitted in addition to this NTS:

Section 2: Application Forms Parts A, C2, C3, F1 and relevant appendices;

Section 3: Drawings;

Section 4: Environmental Risk Assessment

Section 5: Air Emissions Risk Assessment

Section 6: Noise Risk Assessment

Section 7: Best Available Techniques and Operating Techniques (BATOT)

Section 8: Site Condition & Baseline Report Addendum

6.0 Key Technical Standards

In accordance with the EA's pre-application advice, reference to the following guidance and technical standards has been made in preparing the application:

- Production of Speciality Inorganic Chemicals Best Available Techniques Reference document (Bref), published August 2007, European IPPC Bureau;
- Common Waste Gas Management and Treatment Systems in the Chemical Sector Bref, final draft published March 2022, European IPPC Bureau; and
- Additional Guidance for the Inorganic Chemicals Sector EPR 4.03, published March 2009, Environment Agency.

In addition, the following guidance has been considered in preparing the application:

- Risk assessments for your environmental permit, last updated 1 April 2022, Environment Agency, gov.uk;
- Control and monitor emissions for your environmental permit, last updated 17 May 2021, Environment Agency, gov.uk; and
- Develop a management system: environmental permits, last updated 4 August 2021, Environment Agency, gov.uk.
- The pollution control measures relevant to the proposed activities are described in the BATOT and ERA documents submitted with the application.

The proposals have been assessed against and meet the technical standards described above.

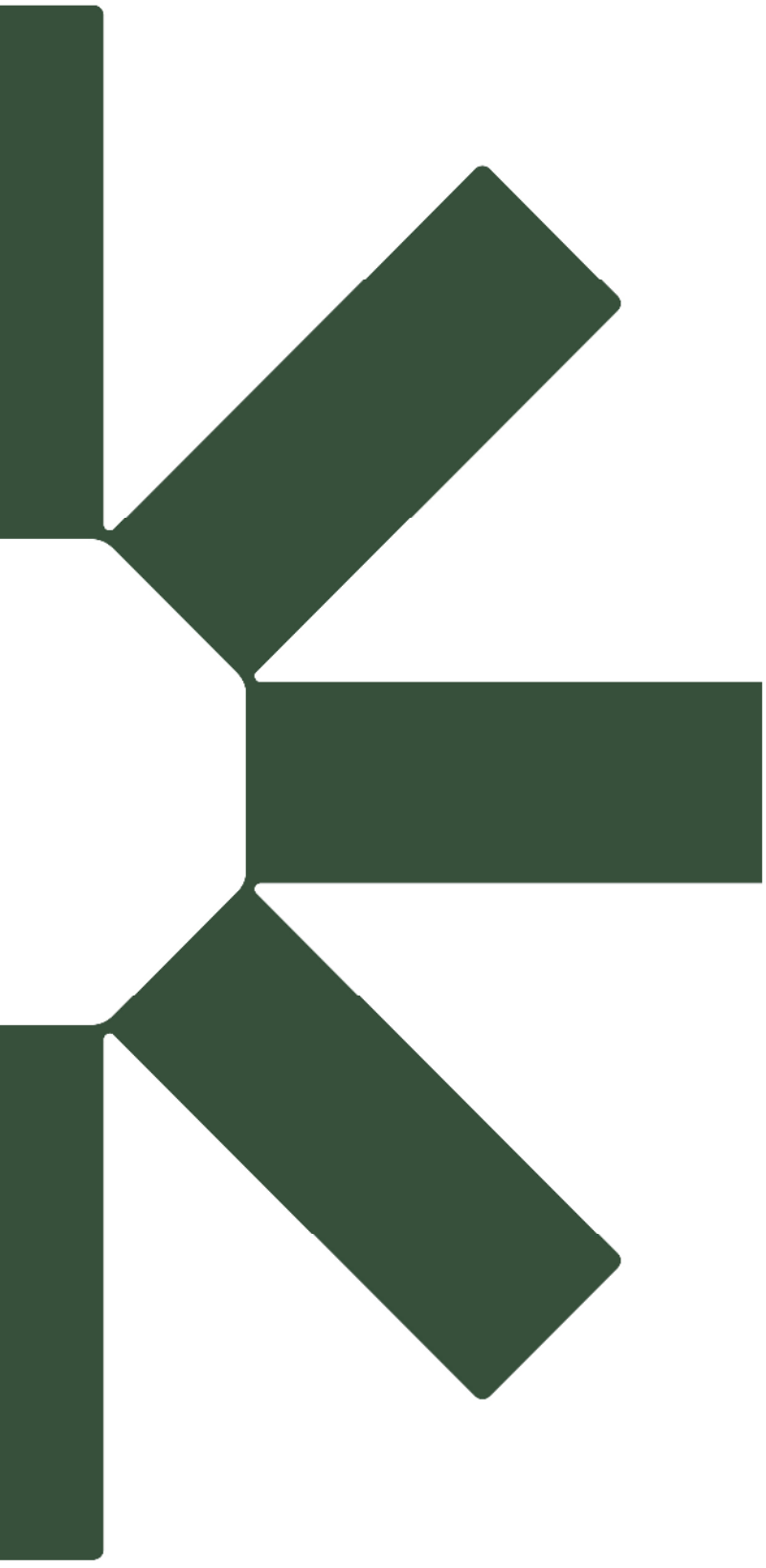
7.0 Conclusion

The overall conclusion from the technical and environmental risk assessments undertaken as part of this EP application is that there is unlikely to be a significant environmental impact as a result of the proposed changes to site operations.

The site will operate in accordance with its environmental management system which will continue to ensure that risks are assessed and appropriate control measures are in place.

Appendix A Pre-Application Advice – Enhanced Service

Appendix B Proposed Changes to Schedule 1 Process Descriptions



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