Permitting Decisions- Variation

We have decided to grant the variation for Royston Site operated by Johnson Matthey PLC.

The variation number is EPR/BT7086IJ/V017.

The permit was issued on 30/07/2025.

The variation is for:

- Adding the Third Century Refinery (3CR), a precious metals refinery which is replacing the existing Platinum Group Metals Refinery (PGMR). This involves extending the installation boundary and adding two diesel generators for emergency use only.
- Expanding the homogeneous catalysts (HomCat) plant to include the batch production of two new catalysts.
- Adding the iridium-based manufacture of catalyst coated membrane (CCM) for use in hydrogen fuel cells.
- Authorising the Noble Metals process to accept waste classified under a further five European Waste Catalogue (EWC) codes.
- Removal of emission point A1 and the ZeoCat process, which have been decommissioned.
- Updating the monitoring standard used for emissions of volatile organic compounds (VOCs) from the Silver Coating Technologies.
- Reducing the emission limits for oxides of nitrogen from the Combined Heat & Power (CHP) engines.
- Making administrative updates including updating the registered office address.

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

Purpose of this document

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

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

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

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

Key issues of the decision

Addition of the 3CR

The 3CR is to be added to the permit as a new Section 4.2 Part A(1) (a) (iv) activity (producing inorganic chemicals such as salts). The 3CR will be a precious metals refinery producing the same products as the existing PGMR but via more efficient processes so that the raw material usage is less per unit of production. Although the 3CR is to replace the PGMR, the removal of the PGMR activity from the permit does not form part of this application.

Air quality

Emissions to air of hydrogen chloride, chlorine, ammonia, non-methane volatile organic compounds (NMVOCs) and oxides of nitrogen (NO_x) will be discharged via two separate stacks, with one stack having an acid scrubber (A101) and the other an ammonia scrubber (A102). The operator has stated that discharging through two separate stacks allows the scrubbing efficiency to be optimised and reduces the likelihood of benign but visible plumes.

The operator has assessed the impacts of emissions to air of the above substances from all sources on the site using the ADMS 6 modelling software and submitted a dispersion modelling report dated 05/08/2024. Two scenarios have been considered:

- Scenario 1 assumes the operation of both the PGMR and the 3CR, in other words the operation of all existing stacks plus the two new stacks associated with the 3CR. This scenario is highly conservative since the operator has clarified that the PGMR and 3CR will not be operational at the same time at any point.
- Scenario 2 assumes the PGMR has been decommissioned, in other words it does not include emissions from the five stacks associated with the PGMR. While the decommissioning of the PGMR and the removal of the PGMR activity is not part of this variation, the PGMR and 3CR activities will be limited in the permit so that only one can be operational at any one time, hence this scenario captures the future operation of the site.

The operator's assessment has concluded that at human health receptors:

- Under both scenarios, hydrogen chloride, ammonia and NMVOCs Process Contributions (PCs) are insignificant (less than 1% of Environmental Assessment Level (EAL) for long-term, less than 10% for short-term).
- Under Scenario 2, chlorine PCs are insignificant. Under Scenario 1, PCs are not insignificant but Predicted Environmental Concentrations (PECs) are below the EAL (up to 39%).
- Under both scenarios, nitrogen dioxide process contributions (PCs) are not insignificant (maximum of 10% for long-term and 24% for short-term),

but PECs are below the relevant Environmental Standards (maximum of 40% for long-term and 36% for short-term).

At nearby designated habitats sites, PCs are insignificant (less than 1% for long-term, less than 10% for short-term), except for the annual ammonia PC (1.6% to 2.8%) at the Therfield Heath Site of Special Scientific Interest (SSSI) and the nutrient nitrogen PCs (1.0% to 2.8% for Scenario 1 and 1.0% to 2.7% for Scenario 2) for the Therfield Heath and Holland Hall (Melbourne) railway cutting SSSIs. The background level/loads already exceed the critical level/loads.

Excluding ethanal (acetaldehyde), which has been assessed separately, the NMVOCs in emissions have been modelled as all dimethylformamide (DMF), since the operator has identified DMF as having the most stringent Environmental Assessment Levels (EALs) of all identified NMVOCs with EALs.

We have reviewed the operator's modelling report, and we note that toluene has been identified in the breakdown of NMVOC emissions. When auditing the modelling, we have therefore instead assessed against the toluene long-term EAL as its lower value represents a more conservative approach. We consider that DMF and toluene are reasonable worst-case proxies for the NMVOCs because they have the most stringent EALs of any of the identified NMVOCs in the air emissions that have EALs and they have risk phrases similar to, and as serious, or more serious than compounds without EALs. We have also included three additional human health receptor locations where short-term standards apply and one additional Local Wildlife Site (Melbourne) within 2km of the site.

Our checks confirm the operator's conclusions that emissions to air of the above substances from the site following the changes proposed by this variation are not likely to cause any impact to human health receptors.

Our checks also confirm the operator's conclusions with regards to PCs at ecological receptors, however we have identified modifying factors for the Therfield Heath and Holland Hall (Melbourne) railway cutting SSSIs, such as hydraulic gradient, soil makeup and geology, which reduce the potential impacts to insignificant levels. In addition, the air dispersion modelling is based on conservative scenarios that assume the continuous operation of all assets, whereas the site operates several batch and semi-batch processes and hence not all emission points are continuously discharging. In summary, we are satisfied that the proposed changes are not likely to cause any impact to ecological receptors. Further detail is recorded in the publicly available Appendix 4 assessment.

We note that two diesel powered emergency generators are to be added as part of the proposed changes, which have not been included in the dispersion modelling. The operator has clarified that these each have a net rated input of less than 1MWth, hence the Medium Combustion Plant Directive does not apply. Given that there are existing and proposed new emissions of NO_x, we have considered whether there is the possibility of short-term impacts from emissions

to air of NO_x if emissions from these generators are included. We consider that the PECs for nitrogen dioxide are sufficiently below the short-term Environmental Standard (ES) for human health receptors to conclude that this is unlikely to be the case, with the highest being 36% of the ES, and similarly daily NO_x PCs are sufficiently below the relevant critical levels for the habitats sites, with the highest being 40%.

We have set an improvement condition (IC25) for the operator to assess actual emissions of the above substances once the 3CR is operational, with further action to be taken if actual emissions are found to be higher than those assessed in the dispersion modelling.

Water quality

Effluent produced by the 3CR will be treated in the same way as effluent from the PGMR. It will first be sent to the Values Recovery Plant (VRP), along with effluent from other processes on-site. The VRP separates precious metals and other pollutants into a concentrated waste stream that is tankered off-site for further treatment. After the VRP, the remaining effluent receives further treatment in the Site Effluent Treatment Plant, before being released to sewer under a trade effluent discharge consent.

Due to the 3CR replacing the PGMR and no overlapping period when both refineries will be operational, the operator has advised that there will be no overall impact on the effluent volume or pollutant load of the site's effluent discharge to sewer. We therefore consider that the proposed addition of the 3CR does not require an updated risk assessment for the discharge to sewer.

Permit boundary extension

The 3CR will be served by an Annex building which is outside of the existing installation boundary, hence this application proposes to increase the boundary to include the additional land required for the 3CR Annex. The operator has concluded that there is no risk of potential pollution impacting soil and/or groundwater from relevant hazardous substances stored or used inside the 3CR Annex building area, due to the mitigation measures in place. For example, the 3CR Annex building will have a sealed floor with materials stored inside being on palletised bunding, whilst outside of the building secondary containment will be in place for the emergency diesel generators and materials suitable for storage outside, with bunded areas located on impermeable surfacing and capable of containing at least 110% of the volume of the largest container within the bund or 25% of the total tank volume within the bund, whichever is the greater. We consider that sufficient information has been provided to describe the condition of the land being added as part of the installation boundary extension and that pollution of land and water from activities in this area is unlikely.

Noise

The operator has submitted a noise impact assessment (NIA) which assesses the risk of existing noise plus additional noise because of the proposed changes. The operator has identified that the main noise risk introduced by the proposed changes will be air handling units situated on top of the 3CR buildings, and there will also be a new vacuum shed housing liquid ring vacuum pumps. The NIA concludes that the proposed changes will not significantly increase noise impacts at the receptors considered.

We have reviewed the operator's NIA and we consider that the impacts from existing operations have been underestimated at some receptors, and it is likely that existing operations are currently causing a numerical significant adverse impact at several locations. We note however that there have been no complaints regarding noise and existing operations are outside the scope of the variation application. We further consider that the proposed changes will result in cumulative adverse impacts at some receptors and, whilst we do not consider that impacts will increase to the extent that additional mitigation measures are required, we do consider that best available techniques must be implemented to reduce impacts from existing operations and minimise those associated with the proposed changes. We have therefore included pre-operational condition PO1 for the operator to submit a Noise Management Plan demonstrating best available techniques to reduce operational sound emissions from existing and proposed operations.

HomCat plant expansion

As a result of decommissioning the ZeoCat line for supported metal catalysts production, the HomCat plant is to be expanded to include the batch production of two organometallic catalysts. The reactor vessels will be closed tanks with temperature, pressure and liquid level monitoring.

The operator has described the appropriate storage and handling of raw materials with consideration to properties such as flammability and pyrophoricity. The products themselves are formulated as powders within a booth that has an extraction system with a HEPA filter.

Air quality

The HomCat plant expansion has associated emissions to air of non-methane volatile organic compounds (NMVOCs), which are relevant for human health receptors. These will be discharged through the existing A197 stack which currently serves the HomCat plant, via a new scrubber and carbon bed absorption system. The scrubber liquor pH and temperature will be monitored, and the production process will be paused in the event of the scrubber failing, to avoid the release of unabated emissions to air. The carbon bed will be fitted with a pressure transmitter to monitor its performance and will be replaced as required.

The operator has assessed the impacts of emissions of NMVOCs from all sources on the site using the ADMS 6 modelling software and submitted a dispersion modelling report dated 05/08/2024.

Expected emissions from the A197 stack serving the HomCat plant (and its expansion) have been derived as follows:

- Typical emissions from the existing HomCat plant have been derived using historic monitoring data.
- As a worst-case scenario, future typical emissions from the HomCat plant expansion have been estimated using the upper limit of the BAT Associated Emission Levels (20 mg/m^3) for total volatile organic carbon that is expected to be in the UK Common Waste Gas Management and Treatment Systems in the Chemical Sector (WGC) BAT Conclusions (BATc), once published.
- As a worst-case scenario, future peak emissions from the HomCat plant, after its expansion, have been estimated based on the existing limit in the permit of 5 tonnes per annum (as acetone), given that the HomCat plant expansion is not expected to lead to an exceedance of this limit.

We have reviewed the operator's modelling report, and our checks confirm that emissions of NMVOCs from the site following the changes proposed by this variation are not likely to cause any impact to human health receptors. See 'Air quality' paragraphs above in the 'Addition of the 3CR' section for further details.

We have set an improvement condition (IC24) for the operator to assess actual emissions of NMVOCs once the HomCat plant expansion is operational, with further action to be taken if actual emissions are found to be higher than those assessed in the dispersion modelling.

Water quality

Waste effluent from the HomCat plant expansion is either sent for offsite disposal or, in the case of non-hazardous effluent mainly from washings and similar to other existing effluent streams on-site, pumped to the existing aqueous waste plant for recovery and from there to the existing effluent treatment plant, with treated effluent discharged via sewer under a trade effluent discharge consent. The operator has confirmed that the HomCat plant expansion will not add any new substances to or increase the concentration of any existing substances in the effluent stream from the HomCat plant area, nor is the volume of treated effluent being discharged to sewer anticipated to increase, due to the decommissioning of the ZeoCat line with its associated effluent stream. We therefore consider that the proposed HomCat expansion does not require an updated risk assessment for the discharge to sewer to be carried out.

Addition of iridium-based CCM production

The existing permit authorises the platinum-based manufacture of catalyst coated membrane within the Hydrogen Technology business sector. This application seeks to also allow iridium-based manufacture.

The operator has confirmed that the process will be the same, other than using iridium in place of platinum, and that the use of iridium will not change the environmental risk of the process. Emissions will remain the same whether platinum or iridium are used and have been previously assessed as part of application EPR/BT7086IJ/V016, when the platinum-based process was added.

Since the solvent usage associated with this process may exceed 5 tonnes per annum (but not 200 tonnes per annum), we have varied the existing Section 6.4 Part B (a) activity for coating operations to include the iridium-based manufacture of catalyst coated membrane.

Addition of new waste codes

The existing permit allows the Noble Metals process to accept waste classified under European Waste catalogue (EWC) codes 12 01 99 and 16 09 07*. This application seeks to also allow the acceptance of non-hazardous waste classified under the following EWC codes:

- 10 07 04 (wastes from silver, gold and platinum thermal metallurgy; other particulates and dust)
- 10 07 99 (wastes from silver, gold and platinum thermal metallurgy; wastes not otherwise specified and for this site comprising spent or damaged precious metal components used for chemical, mechanical or thermal properties)
- 10 11 99 (wastes from manufacture of glass and glass products; wastes not otherwise specified and for this site comprising wastes containing precious metals)
- 12 01 04 (wastes from shaping and physical and mechanical surface treatment of metals and plastics; non-ferrous metal dust and particles)
- 16 08 01 (spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum)

The total amount of waste accepted under these additional waste codes will not exceed 5000kg per year, and the waste relates to spent or unused precious metal products manufactured at the Royston site and returned by customers. The waste has already been historically accepted on site, in line with the written agreement of the Environment Agency and due to factors including its small volume and limited environmental risk.

Upon arrival at the site, waste is visually inspected and analysed to ensure it meets the on-site processing specifications (typically less than 1% impurities). Waste that does not meet the required specification is quarantined in a

designated, segregated area until transfer to the Johnson Matthey Brimsdown site for processing as a waste.

Whilst the operator has stated that no local exhaust ventilation or particulate abatement is used when opening packages and inspecting the waste because the materials are not expected to be dusty, we note that waste classified under the EWC codes 10 07 04 and 12 01 04 is described as dust and particulates. Given the small volume and nature of waste received under these waste codes, we consider however that no further assessment is required.

There is no change to the existing Noble Metals processes from accepting waste classified under these additional waste codes. The main processes are the chlorination and pickling of platinum group metals, with abatement of emissions to air in the form of a wet scrubbing system. Melting straight into grain may take place without the chlorination step depending on the purity of the material, in which case a local exhaust ventilation system routes the melting off-gases to a cyclone filtration system prior to discharge to atmosphere.

Removal of emission point A1

Written approval has previously been given (in the form of email correspondence dated 17/08/2018, as referred to in Compliance Assessment Report ID BT7086IJ/0314146 dated 23/08/2018) allowing the rerouting of the HomCat plant scrubber draught from stack A1 to stack A97, which serves the PU12 facility. The operation of the PU12 facility, including its abatement, is already permitted.

The A1 emission point has now been decommissioned and is therefore removed from the permit as part of this variation. The A1 emission point had an emission limit value for hydrogen chloride of 10 mg/m^3 and the A97 emission point has a lower emission limit value for hydrogen chloride of 3 mg/m^3 which is not changing.

The operator has also assessed emissions of hydrogen chloride from the site in their dispersion modelling report, and we agree that these are not likely to cause any impact to human health receptors. See ‘Air quality’ paragraphs above in the ‘Addition of the 3CR’ section for further details.

Decision considerations

Confidential information

A claim for commercial or industrial confidentiality has been made.

We have accepted the claim for confidentiality.

We have excluded the following information:

- The detailed process descriptions for the 3CR, the HomCat plant expansion, and the iridium-based manufacture of CCM.
- The full list of raw materials used with the 3CR and the HomCat plant expansion.
- The typical usage per annum of raw materials used on-site.

We consider that the inclusion of the relevant information on the public register would prejudice the applicant's interests to an unreasonable degree.

While there is information concerning emissions and abatement within the information for which confidentiality has been requested, this information is also included within other documents which are available on the public register.

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

Identifying confidential information

We have not identified any further information provided as part of the application that we consider to be confidential.

Consultation

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

The application was publicised on the GOV.UK website.

We consulted the following organisations:

- Environmental Protection Department – North Hertfordshire Local Authority
- Director of Public Health – Hertfordshire County Council
- UK Health Security Agency
- Health and Safety Executive

The comments and our responses are summarised in the consultation responses section.

The regulated facility

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

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

The site

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

This shows the extent of the site of the facility.

The plan is included in the permit.

Site condition report

The operator has provided a description of the condition of the land forming an extension to the installation boundary, which we consider is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under the Industrial Emissions Directive.

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

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

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

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

The following sites were considered relevant:

- Therfield Heath (SSSI)

- Holland Hall (Melbourn) railway cutting (SSSI)
- Therfield Heath (Local Nature Reserve)
- Therfield, South of Tumulus (Local Wildlife Site)
- Royston Chalk Pit (Local Wildlife Site)
- Shaftesbury Green (Local Wildlife Site)
- Green Lane South of Royston (Local Wildlife Site)
- Icknield Way, A505 North of Gallows Hill (Local Wildlife Site)
- Therfield Green Lane (Local Wildlife Site)
- Melbourn (Local Wildlife Site)

See 'Key issues of the decision' section above.

We have not consulted Natural England.

The decision was taken in accordance with our guidance.

Environmental risk

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

The operator's risk assessment is satisfactory.

The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment**,** all emissions may be screened out as environmentally insignificant.

See 'Key issues of the decision' section above.

General operating techniques

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

The relevant guidance notes are:

- Best Available Techniques Reference Document for Production of Speciality Inorganic Chemicals (2007)
- Best Available Techniques Reference Document for Manufacture of Organic Fine Chemicals (2006)
- Best Available Techniques Conclusions Document for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector (2016)
- Sector Guidance Note for Speciality Organic Chemicals (EPR 4.02)
- Sector Guidance Note for Inorganic Chemicals (EPR 4.03)

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

Operating techniques for emissions that do not screen out as insignificant

Emissions of chlorine (for human health receptors), nitrogen dioxide (for human health receptors), ammonia (for ecological receptors) and sources of nitrogen in relation to nutrient nitrogen deposition (for ecological receptors) cannot be screened out as insignificant. These are relevant to emission points A101 and A102, which will be added as part of the 3CR. We have assessed whether the proposed techniques are Best Available Techniques (BAT).

The operator has carried out detailed air dispersion modelling of proposed emissions to air which shows that the PECs of chlorine and nitrogen dioxide will not exceed the relevant Environmental Standards at human health receptors. We have audited the modelling and agree with this conclusion (see 'Key issues of the decision' section above for further details). The proposed emissions of chlorine and sources of nitrogen from the 3CR will also comply with the relevant Sector Guidance Note (SGN) emission benchmarks. Furthermore, the 3CR has been designed to meet the future requirements of the UK WGC BATc, once published, and hence the operator has proposed to meet a lower emission limit for chlorine (from the 3CR emission points) than the SGN emission benchmark. In summary and in line with our guidance, we therefore consider that the operator is not required to take further action in relation to their assessment of emissions of chlorine and nitrogen dioxide.

The operator's air dispersion modelling shows that the PECs for ammonia exceed the critical level at the Therfield Heath SSSI and the PECs for nutrient nitrogen deposition and acid deposition exceed the critical loads at both the Therfield Heath SSSI and the Holland Hall SSSI. Due to modifying factors and the conservative nature of the operator's assessment, we have concluded that the proposed changes are not likely to lead to exceedances of any relevant critical levels/loads at ecological receptors (see 'Key issues of the decision' section above for further details). The proposed emissions of ammonia and NO_x from the 3CR will also comply with the relevant SGN emission benchmarks. In summary and in line with our guidance, we therefore consider that the operator is not required to take further action in relation to their assessment of emissions of ammonia and sources of nitrogen.

In addition to the conclusions from assessing the operator's air dispersion modelling, the operator has proposed appropriate operational and management techniques. These include an acid scrubber to abate emissions from emission point A101, an ammonia scrubber to abate emissions from emission point A102, a small local NO_x scrubber to abate emissions from one unit operation (which will be routed to the ammonia scrubber), and suitable monitoring of emissions of chlorine and sources of nitrogen.

In conclusion, the proposed techniques/emission levels for emissions that do not screen out as insignificant are in line with the techniques and benchmark levels contained in the technical guidance and we consider them to represent appropriate techniques for the facility. The permit conditions enable compliance with relevant BAT reference documents (BREFs).

Operating techniques for emissions that screen out as insignificant

Emissions of hydrogen chloride (for human health receptors), ammonia (for human health receptors), NMVOCs (for human health receptors) and sources of nitrogen in relation to acid deposition (for ecological receptors) have been screened out as insignificant, and so we agree that the applicant's proposed techniques are Best Available Techniques (BAT) for the installation.

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

National Air Pollution Control Programme

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

Waste types

We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility.

We are satisfied that the operator can accept these wastes for the following reasons:

- they are suitable for the proposed activities
- the proposed infrastructure is appropriate; and
- the environmental risk assessment is acceptable.

We have restricted the following wastes for the following reasons**:**

- Wastes from silver, gold and platinum thermal metallurgy not otherwise specified (EWC code 19 07 99) have been restricted to spent or damaged components used for chemical, mechanical or thermal properties, based on the operator's description of wastes received under this waste code.

- Wastes from the manufacture of glass and glass products not otherwise specified (EWC code 10 11 99) have been restricted to wastes containing precious metals, based on the operator's description of wastes received under this waste code.
- The total amount of waste received by the Noble Metals process has been restricted to 5000 kg per annum, since the operator has stated this maximum amount in their application and we have considered this when assessing the environmental risk of the wastes.

See 'Key issues of the decision' section above.

Pre-operational conditions

Based on the information in the application, we consider that we need to include pre-operational conditions.

See 'Key issues of the decision' section above.

Improvement programme

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

See 'Key issues of the decision' section above.

Emission limits

Emission Limit Values (ELVs) have been added for the following substances:

- Hydrogen chloride emissions to air from emission points A101 and A102.
- Chlorine emissions to air from emission points A101 and A102.
- Ammonia emissions to air from emission points A101 and A102.
- Oxides of nitrogen emissions to air from emission points A101 and A102.
- Total volatile organic carbon emissions to air from emission points A101 and A102.

The ELVs have been added to ensure that emissions remain within the risk envelope that has been assessed as unlikely to have any impact on human health and ecological receptors, and relevant SGN emission benchmarks are met.

Emission Limit Values (ELVs) have been amended for the following substances:

- Oxides of nitrogen emissions to air from emission points A8a and A8b.

The ELVs have been reduced from 200 mg/m^3 to 190 mg/m^3 as requested by the operator and in line with the requirements of the Medium Combustion Plant Directive.

Emission Limit Values (ELVs) have been deleted for the following substances:

- Hydrogen chloride emissions to air from emission point A1.

This ELV has been deleted due to the decommissioning of emission point A1. See 'Key issues of the decision' section above.

Monitoring

We have decided that monitoring should be added for the following parameters, using the methods detailed and to the frequencies specified:

- Hydrogen chloride emissions to air from emission points A101 and A102.
- Chlorine emissions to air from emission points A101 and A102.
- Ammonia emissions to air from emission points A101 and A102.
- Oxides of nitrogen emissions to air from emission points A101 and A102.
- Total volatile organic carbon emissions to air from emission points A101 and A102.
- Process monitoring of pH, liquor flow rate and level for the scrubbers serving emission points A101 and A102.

These monitoring requirements have been included to ensure that emissions remain within the risk envelope that has been assessed as being unlikely to have any impact on human health and ecological receptors. The operator has proposed monitoring that is expected to be in line with the future UK WGC BATc.

We have decided that monitoring should be amended for the following parameters, using the methods detailed and to the frequencies specified:

- VOCs emissions to air from emission points A57, A109, A117 and A228.

The monitoring standards have been updated to BS EN 12619 as requested by the operator and in line with our guidance on monitoring stack emissions.

We have decided that monitoring should be deleted for the following parameters, using the methods detailed and to the frequencies specified:

- Hydrogen chloride emissions to air from emission point A1

This monitoring has been deleted due to the decommissioning of emission point A1. See 'Key issues of the decision' section above.

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

Reporting

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

- Gaseous chlorides as hydrogen chloride emissions to air from emission points A101 and A102.
- Chlorine emissions to air from emission points A101 and A102.
- Ammonia emissions to air from emission points A101 and A102.
- Oxides of nitrogen emissions to air from emission points A101 and A102.
- Total volatile organic compounds (as carbon) emissions to air from emission points A101 and A102.
- Performance parameters of energy per unit of production (UoP) and tonne chlorine per tonne platinum for the inputs to the 3CR.
- Performance parameters of tonne chlorine (air) per UoP, tonne HCl (air) per UoP, tonne waste (for disposal) per UoP and tonne waste (for recovery) per UoP for the 3CR waste.

These reporting requirements have been included to ensure that emissions remain within the risk envelope that has been assessed as being unlikely to have any impact on human health and ecological receptors and so that reporting requirements for the 3CR are consistent with those for the PGMR.

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

- Gaseous chlorides as hydrogen chloride emissions to air from emission point A1.
- Process monitoring of pressure drop for emission point A265 (ZeoCat plant).
- Process monitoring of liquor flow rate and pH for emission point A1.
- Performance parameters of energy per UoP for the Fine Chemicals Divisional Products (FCDP) inputs.

These reporting requirements have been deleted due to the decommissioning of emission point A1 and the ZeoCat plant, and the FCDP not being part of the site anymore.

Management system

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

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

Growth duty

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

Paragraph 1.3 of the guidance says:

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

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

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

Consultation Responses

The following summarises the responses to consultation with other organisations and our notice on GOV.UK for the public, and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from:

UK Health Security Agency (UKHSA)

Brief summary of issues raised:

Based on the air dispersion modelling, the UKHSA has no significant concerns regarding the risk to the health of the local population from the installation, however suggests that we consider the following aspects:

1. Whether or not fugitive emissions to atmosphere will be adequately controlled based on the design of the 3CR refinery workstream.

2. Whether an odour management plan or assessment would be prudent; at some human health receptor locations, chlorine emissions are below the human health threshold, but may at points exceed a perceptible odour threshold when the new facility is built but the previous workstream has yet to be decommissioned.

3. How the stack heights for the newly built facility have been determined.

Summary of actions taken:

1. The operator has stated that welded connections, seal-less pumps, bellow valves and high performance sealing systems will be used and daily checks carried out to minimise fugitive emissions, in line with the requirements of best available techniques. In addition, sources of fugitive emissions have been identified and will be suitably connected to the scrubber abatement systems.

We note that the operator included an assessment against the EU WGC BATc, since the UK WGC BATc are anticipated to be similar and may have been published during this application's determination. The UK WGC BATc are expected to include requirements around fugitive emissions, such as establishing a leak detection and repair programme for fugitive VOC emissions, and the site's operating techniques will be reviewed against these requirements once the UK WGC BATc is published, as part of a permit review.

2. The operator has confirmed that the PGMR and the 3CR will not be operational at the same time, and we have limited their operation in the permit so

that their respective activities cannot be carried out at the same time. We therefore consider that an odour management plan or assessment is not required.

3. We note that the Industrial Emissions Directive requires the height of stacks from combustion plant and waste incineration plants to be calculated in such a way as to safeguard human health and the environment, however the 3CR does not fall into either category since it is a precious metals refinery. We have therefore assessed whether emissions from the proposed stacks will cause any impacts to human health and ecological receptors but do not require the operator to explain how stack heights have been calculated to achieve this.

In relation to the proposed stacks, we are satisfied that emissions are unlikely to cause impacts to human health and ecological receptors (see 'Key issues of the decision' section above). Each stack has associated abatement and emission concentrations will meet the relevant SGN emission benchmarks.