

# **Permitting Decisions- Variation**

We have decided to grant the variation for Runcorn Manufacturing Site operated by Vynova Runcorn Limited.

The variation number is EPR/GP3536AC/V004.

The permit was issued on 12/06/2025.

The variation is to implement a major site technology upgrade (Project Summer). Ethylene dichloride manufacture has ceased on EDC1/2 Plant. DC3 plant has been modified with new reactor technology (now known as HPE Plant) and a new effluent treatment plant. There has also been some rationalisation and improvement changes across the Vynova site including closure of the VDC Plant road-loading and conversion of the 6<sup>th</sup> Avenue road-loading facility to dual-bay operation.

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 <u>decision considerations</u> 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

#### Major modification of permit Introduction (not part of permit)

The permit introduction has been updated including:

- Deletion of the activity references and requirement to meet BAT that are described in the permit conditions.
- Minor change to site National Grid Reference, better to reflect the centre of actual operations on the site.
- The references to capacity have been reworded to make it clearer that the purification limits the overall production capacity, but the reaction stage can be operated at a greater rate for temporary buffer storage before the purification stage.
- Hydrochloric acid by-product manufacture description repeated in the incineration detail section, and ability to import hydrochloric acid from road tanker added.
- Clarification that there are no steam or power raising combustion plants within the installation boundary.

#### Table S2.2 Permitted waste types and quantities

The hazardous waste code 07 01 07\* was the same for all six rows in the previous version of this table. There is no change to this code.

The first two rows described the "lights" and "heavies" fraction of residues from the DC3 plant that is now replaced by the HPE plant. However, these residues are produced in the permitted process and are always sent to the residues incinerator without leaving the installation. Although these residues are not exported from the installation they are included in this table as their combustion is subject to the conditions in the Operating Techniques section of the permit Currently, by agreement with the Environment Agency, the operator does not pay a subsistence charge element for waste incineration of these residues (as no waste is imported).

The third row described residues from the former EDC Plants so this has been deleted.

Rows 4 to 6 described potential import of similar process wastes from other plants in Europe. This is not done. There is no equipment currently to facilitate the import and the operator has agreed to inform the Environment Agency in advance of it becoming necessary. However, the operator has asked to retain these rows in the table in case of future need.

The Quantity description text in the Table S2.2 header has been amended to clarify that the 30,000 tonnes per annum total includes on site generated residues. A note has also been added to clarify that the reporting condition 4.2.5 does not apply to residues from the HPE Plant provided they are not exported and reimported to the installation.

#### Rerouting of vents

As part of this substantial variation, in normal operation all process vents have been redirected to the vents incinerator abatement. The common vent from this, DC-1, has been renamed as HPE-1. As a result, references to emission points DC-13, DC-14a, DC-14b, DC-15, DC-16, DC-17, DC-20, PT-01, PT-04, PT-09, PT-23, PT-37, PT-38 and VDC-09 have been deleted from Table S3.1 Point source emissions to air.

This is expected to reduce the annual emissions of EDC from several hundred tpa to considerably lower than 1tpa, a significant betterment. Therefore, modelling of emissions to air has not been required for this variation.

#### Monitoring and limits for HPE-1

The monitoring and limits for HPE-1 in normal plant operation have been reviewed. Confidence in the use and reliability of Continuous Emission Monitoring System (CEMS) for incinerators is now sufficient that the bi-annual monitoring, in addition to CEMS, has been deleted for Particulates from Combustion Activity, Total Organic Carbon, Hydrogen Chloride, Carbon Monoxide and Oxides of Nitrogen. It is retained for all other parameters where there are no CEMs.

Former condition 2.3.17 requiring biannual monitoring of these now deleted parameters if the period since a CEMS failure exceeded 6 months has also now been deleted. The operator is required to submitted quarterly monitoring returns so the Environment Agency will be aware if the CEMS is offline for any period of time.

The CEMS can only measure the total particulates concentration in the vent flow. Under an agreement with the Environment Agency in 2017 the required reporting of particulate concentrations from combustion activity is inferred as 50% of total particulates concentration from CEM. This has been added as a note to Table S3.1. The bi-annual periodic monitoring can differentiate between the combustion and non-combustion particulates. Reported values since 2017 support the combustion derived fraction being less than 50%, so the inferred value is a worst case. However, the process reactors have been replaced under this variation, so an Improvement Condition has been added (IC18) to carry out confirmatory modelling biannually for a period of at least two years of normal operation to confirm the inferred fraction value is still acceptable.

Although VCM emissions are expected to reduce after Project Summer the monitoring of the sum of EDC and VCM with a limit of 1mg/m<sup>3</sup> is retained in Table S3.1 until at least the completion of Improvement Condition IC11.

#### Other than Normal Operating Conditions (OTNOC)

Table S3.1a Point source emissions to air during abnormal operation of incineration plant has also been amended. The DC-1 standard incinerator abnormal operation monitoring and limits for Particulates, Total Organic Carbon and Carbon Monoxide are retained for HPE-1. The other rows relate to redirection of vents during longer term vents incinerator outage. This abnormal operation venting has been redesigned in this variation.

Three of these vents are abated by redesigned caustic (sodium hydroxide) scrubbers:

HPE-21 Dry vents caustic scrubber;

HPE-22 Wet vents caustic scrubber; and

HPE-23 Effluent treatment plant caustic scrubber

There is also HPE-15 venting stock tanks T201 and T703 plus other dry nonchloring containing vents, which is expected to be a minor emission in OTNOC compared to vents HPE-21/22/23.

The vinyl chloride monomer (VCM) containing vents from the neighbouring installation have been removed. The new EDC process is also expected to produce significantly less VCM so the separate limit for VCM has been removed from Table S3.1a and this will become part of the total other VOC limit. Vinyl Chloride Monomer monitoring is retained for ambient air monitoring in Table S3.5 at Weston Hill Brine Reservoir but a note has been added that this may cease if concentrations from Vynova operations after Project Summer are accepted as consistently insignificant. The monitoring frequency has also been changed from annually to daily with reporting of an annual average and maximum of daily averages to reflect current practice.

The variation submission contained an updated design estimate of EDC emissions during abnormal operation without vent incineration of 5278kg/day. This is higher than the 2650kg/day limit in the previous version of table S3.1a. However, the former EDC plants 1 and 2 emitted direct to atmosphere (PT vents) rather than through the incineration abatement with an annual limit of 500 tpa in Table S3.4 of the LVOC variation V003. This is an average emission of 1370kg/day but reportedly could be as high as 19200 kg/day (Other than Normal Operating Conditions (OTNOC) for Process Vents p8). The EDC plant is decommissioned but the new HPE Plant has the same capacity as the former DC3 and EDC plants combined. All the plant now vents through the incinerators with a much reduced normal operation emission and an OTNOC estimate less than the former worst case 2650 + 19200 = 21850 kg/day for DC3 + EDC plants. It is therefore considered an overall betterment. The EDC limit in Table S3.1a is increased to 5300kg/day.

A similar reasoning has also been submitted (as an updated VRL\_PartC3\_3b document) for an increase in the OTNOC releases of ethene and total VOCs from 1500 to 3000kg/day and 500 to 1000 kg/day respectively to allow for the increased size of the HPE reactors compared to DC3 but representing an overall betterment when the continuous releases from EDC1/2 are taken into account.

The vent description in Table S3.4 Annual limits is also now outdated. This has been updated to HPE-1 and the four monitored OTNOC vents.

The operator has requested that the annual target of <300 hours of OTNOC vent redirection in Table S4.3 Performance parameters be replaced by a revised total EDC mass emission limit in Table S3.4. This will allow longer periods of diversion if required providing the emissions are low. The operator suggested different limits for years including an incinerator turnaround/overhaul (TAR) event (250tpa) and for those years without (100tpa) in the submitted document Other than Normal Operating Conditions (OTNOC) for Process Vents p11.

We have reviewed the supporting evidence and have removed the time target from Table S4.3 (but retained the reporting and added separate reporting of duration of TAR events) and amended Table S3.4 to an annual EDC limit of 100tpa (excluding the duration of a TAR events) and 150 tonnes during a TAR event to ensure the specific limit only applies during the TAR event, not for the whole year. This is always a significant betterment over the previous Table S3.4 limit for EDC of 500 tpa so no further emissions modelling has been required. Similarly the annual limit for Total VOCs (other than EDC), which will include ethene, has been changed to 80 tpa (excluding the duration of TAR events) and 120 tonnes during a TAR event. This is also always a significant betterment over the previous Table S3.4 limit of 575 tpa so now further modelling has been required.

#### Monitoring and Limits for W49 and W56

Although the discharge to surface water will no longer contain any water from any process or process support sources, except for the cooling tower purge to W56, the areas that will be drained extend beyond the installation boundary so the full range of monitoring parameters and limits has been retained in Table S3.2. Flow measurement of both outfalls has also been added.

However, none of these sources are directly from EDC production so the yearly average limit of 0.05g/t EDC purified (from LVOC BAT Conclusion 80 Table 10.5) has been removed. The concentration of EDC is expected to be low and will be included in the total chlorinated hydrocarbons monitoring 1mg/l limit.

The reference in note 4 to Table S3.2 to excluding mercury and those metals contained in the incoming water abstracted water contribution from the Mersey Ship Canal and the brinefields has been deleted as this water is no longer used.

#### Monitoring and limits for E1

The variation describes the addition of a new Effluent Treatment Plant (ETP) to treat all process area aqueous streams (both effluent and surface water around the production equipment). This will discharge to the neighbouring Ineos/Inovyn effluent treatment plant (EIP) as before, with eventual discharge to the Weaver Canal. However, the EIP can now only treat suspended solids to the required standard so, in the absence of any sewage treatment reduction factors (STRF), all the other parameters in the ETP discharge are considered as a direct discharge to surface water with only dilution in the EIP.

Therefore, a full range of sampling is required at the ETP discharge point E1 (now identified on the site plan in Schedule 7) including limits to ensure compliance with CWW BAT-AELs or benchmark standards where appropriate. Subsequent dilution in the EIP is not considered when setting limits at the installation boundary. Total suspended solids must be monitored and reported but there is no limit set for this parameter.

As the ETP includes neutralisation and distillation stripping of organics, then the BAT-AEPL of 0.4 mg/l for EDC and 0.05 mg/l for VCM from BAT Conclusion 80 for Production of Large Volume Organic Chemicals (LVOC) must be applied at the minimum sampling frequency of daily and reporting as a monthly average. This has been added to Table S3.3 Reporting of E1 in Table S4.1 and has been increased to quarterly from six-monthly to reflect the increased level of monitoring. The description of the emissions to offsite transfer to EIP for clarity. This is in addition to the 0.05g/t EDC purified annual limit that is applied to E1, unlike W49 and W56, because the sources are from EDC production.

# **Decision considerations**

## **Confidential information**

A claim for commercial or industrial confidentiality has not been made.

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

# Identifying confidential information

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

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

# 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.

No responses from the community organisations or individual members of the public were received.

We consulted the following organisations:

Local Authority (Halton) – Environmental Protection Department Local Director of Public Health (Halton) United Kingdom Health Security Agency Health and Safety Executive

The comments and our responses are summarised in the <u>consultation responses</u> 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'

There is no change to the substance produced, scheduled activity or capacity of the installation, although there is significant change to the production equipment and process detail.

This permit applies to only one part of the multi-operator installation – ethylene dichloride production. The names and permit numbers of the operators of other parts of the installation are detailed in the permit's introductory note.

## The site

The operator has provided plans which we consider to be satisfactory.

These show the extent of the site and the facility including the discharge points.

The plans show the location of the part of the installation to which this permit applies on that site.

There is no change to the installation boundary, only to equipment layout.

The updated plans are included in the permit.

# 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.

Mersey Estuary SPA/Ramsar/SSSI Midland Meres & Mosses Ramsar Runcorn Hill LNR and several LWS

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.

The variation implements collection of all previous vents into a single vent through the incinerator abatement and containment and collection of surface water around the production plant which will be directed for treatment, with process effluent, in the new effluent treatment plant. We therefore consider the changes to be a significant betterment when compared to the previous emissions to air and water.

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.

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

## **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.

#### Noise and vibration management

We do not consider that the changes to operation of the installation are likely to lead to a significant increase in noise. The compliance with narrative BAT was assessed as part of the Large Volume Organic Chemicals Permit Review. An Improvement Condition (IC17) has been added to conduct a confirmatory noise survey following startup of the HPE Plant and to update the Noise management Plan if necessary.

## Updating permit conditions during consolidation

We have updated permit conditions to those in the current generic permit template as part of permit consolidation. The conditions will provide the same level of protection as those in the previous permit.

Condition 2.3.18 in the LVOC consolidated permit variation V003 was exactly the same as condition 2.3.7 so it has been deleted.

Standard Condition 4.3.6 in the LVOC consolidated permit variation V003 required the operator to give the Environment Agency at least 14 days notice before implementation of any part of the site closure plan has been deleted as it

was in conflict with bespoke condition 3.6.4 requiring at least 30 days written notice before implementing the site closure plan.

## Use of conditions other than those from the template

The permit contains conditions other than those in our permit template, but none are changed or added as a result of this variation.

## 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.

#### Improvement programme

Based on the information on the application, we consider that we need to include/update an improvement programme:

#### IC9: Completed

As part of this variation the operator submitted an assessment of the varied installation against the BAT conclusions for Large Volume Organic Chemicals (LVOC) and BAT Conclusions for Common Waste Water and Waste Gas Treatment/management Systems in the Chemical Sector (CWW) including all those specifically mentioned in IC9.

NB Reference within the IC to LVOC BAT90 for reducing load of chlorinated compounds discharged to water should be LVOC BAT80.

Where relevant, an assessment against BAT-AELs based on past performance and proposed design has been included.

The response to CWWBAT5 states that various techniques from CWWBAT19 have been applied to reduce the potential for diffuse emissions as far as possible. The monitoring system is being replaced and upgraded for the new HPE Plant with new sample locations. A new Improvement Condition (IC15) has been raised to report on commissioning of the monitoring of diffuse VOC emissions to air for the new/redesigned plants.

References to commissioning an improved waste water treatment plant and a waste water management system are addressed in new commissioning IC16.

IC10: Extended to 30/09/25 for initial report submission and a date to be agreed with the Environment Agency to confirm implementation of the proposed procedures.

The variation application BAT assessment stated that the requirements of CWW BAT1 and BAT2 have been addressed but a formal response to the Improvement Condition will be submitted once they are confirmed to be working in practice.

IC11-14: Extended to 31/10/25 for initial report submission and a date to be agreed with the Environment Agency to complete and report on the proposed monitoring

These Improvement Conditions require submission of proposals to monitor emissions of Ethylene Dichloride (EDC) Vinyl Chloride Monomer (VCM) to air; and adsorbable organically bound halogens (AOX), metals and VCM to water - in some cases to investigate the correlation with other monitored emissions. The submission of the proposals has been extended to 31/10/25 to include any commissioning changes but there will then be need of a period of monitoring of typical operation to implement any agreed plan.

#### IC15: 31/10/25

The application states the Hygiene Monitoring system to monitor diffuse/fugitive emissions will be upgraded with new sample locations (shown in submitted document VRL\_HPELowLevelDetectors). This Improvement Condition requires submission of a report on the commissioning of this system and how it meets CWW BAT Conclusion 5.

IC16: 4 months after start of chemical process commissioning, or otherwise as agreed with the Environment Agency.

This Improvement Condition requires submission of a report on commissioning of the new plant/processes to include any changes to operational techniques and to assess performance of the Effluent Treatment Plant.

#### IC17: 31/12/25

The operator has described compliance with narrative BAT (CWW BAT22) as part of the LVOC permit review. This Improvement Condition requires the operator to conduct and submit a noise survey once the HPE Plant is operational and to update the Noise Management Plan accordingly.

#### IC18 31/12/27

This Improvement Condition requires submission of a report on additional periodic monitoring to confirm that the derivation of the concentration of particulates in the HPE-1 vent from 50% of the continuous monitoring total particulates concentration is still a valid worst-case estimate after commissioning the new EDC reactors.

## **Emission limits**

See Key Issues above

## Monitoring

See Key Issues above

## Reporting

Reporting forms relating solely to the former EDC plants have been removed from Table S4.4. References to DC3 have been amended to HPE. A note has been added 'or otherwise agreed in writing with the Environment Agency' to allow the remaining forms to be adapted as necessary

#### 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.

The applicant submitted a summary and index of operating instruction titles for their environmental management system. We only review a summary of the management system during determination. This summary was satisfactory.

A full review of the management system is undertaken during compliance checks.

## **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 noncompliance 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, our notice on GOV.UK for the public and the way in which we have considered these in the determination process.

No responses were received from community organisations or individual members of the public in response to our notice on GOV.UK.

# Responses from organisations listed in the consultation section

Response received from United Kingdom Health Security Agency:

"The main emissions of potential concern are those associated with combustion products from the incinerator; and any point source or fugitive emissions associated with the ethylene dichloride manufacturing process. These will include particulate matter, total organic carbon, carbon monoxide, hydrogen chloride, hydrogen fluoride, oxides of nitrogen, heavy metals, furans/dioxins, chlorine and sulphur dioxide; and, hydrogen chloride, chlorine, ethylene dichloride, vinyl chloride and other volatile organic compounds, respectively. However, we note that the inclusion of mitigation measures and management plans in the application, and the conclusion that the residual off-site risks are generally anticipated to be insignificant.

Reducing public exposures to non-threshold pollutants (such as particulate matter and nitrogen dioxide) below air quality standards has potential public health benefits. We support approaches which minimise or mitigate public exposure to non-threshold air pollutants and address inequalities (in exposure) and encourage their consideration during site design, operational management, and regulation.

Based on the information contained in the application supplied to us, UKHSA has no significant concerns regarding the risk to the health of the local population from the installation. This consultation response is based on the assumption that the permit holder shall take all appropriate measures to prevent or control pollution, in accordance with the relevant sector guidance and industry best practice."

Summary of actions taken:

The Permit requires the operator to take all appropriate measures to prevent or control pollution. No further action required.