Permitting Decisions- Variation

We have decided to grant the variation for Tranmere Oil Terminal operated by Essar Oil (UK) Limited.

The variation number is EPR/TP3301MD/V004.

The permit was issued on 19/08/2025

The variation is to introduce the marine loading of gasoline and gasoline components at the Tranmere Oil Terminal. Prior to this variation, Essar exported gasoline and gasoline components from the Stanlow Refinery (Permit Reference EPR/FP3139FN) through the White Oil Docks berth on the Manchester Ship Canal (MSC). In this process configuration, the throughput at the White Oil Docks berth was above the BAT threshold of 1 million m^3 per year.

In the future configuration, implemented by this variation, gasoline and gasoline components are routed from Stanlow Refinery to Tranmere Oil Terminal via an existing pipeline previously used for the import of fuel oil, and is then loaded directly onto ships via a new marine loading arm. There is no storage of gasoline and gasoline components at Tranmere Oil Terminal. In order to comply with BAT requirements a vapour recovery unit (VRU) will be installed at Tranmere Oil Terminal to prevent and reduce volatile organic compound (VOC) emissions during loading and unloading operations.

The throughput at the White Oil Docks will be reduced below the BAT threshold of 1 million m^3 per year, after the activities permitted by this variation are implemented.

The variation also has removed the water emission point W2 (the South Interceptor), rerouting drainage from the area previously served by W2 to the North Interceptor (W1), to implement a change previously agreed by the Environment Agency, but not reflected in the permit. In addition, the relevant Medium Combustion Plant Directive (MCPD) conditions and monitoring requirements for the existing boilers have been added at the operator’s request. As the MCPs are existing and <5 MWth we have stipulated future compliance requirements for 2030.

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

Air emissions from proposed Vapour Recovery Unit

As a result of the proposed changes, the applicant submitted a detailed air dispersion modelling and impact assessment to assess the predicted impacts on relevant receptors, in line with the Environment Agency's guidance.

A methodology for risk assessment of point source emissions to air is set out in our guidance - Air emissions risk assessment for your environmental permit, and has the following steps:

- Describe emissions and receptors
- Calculate process contributions
- Calculate predicted environmental concentrations.
- Screen out insignificant emissions that do not warrant further investigation.
- Decide if detailed air modelling is needed
- Assess emissions against relevant standards
- Summarise the effects of emissions.

We use this methodology to assess the impacts on air quality in the determination of applications.

The methodology uses a concept of "process contribution (PC)", which is the estimated concentration of emitted substances after dispersion into the receiving environmental media at the point where the magnitude of the concentration is greatest. The methodology provides a simple method of calculating PC, primarily for screening purposes, and for estimating process contributions where environmental consequences are relatively low. It is based on using dispersion factors. These factors assume worst case dispersion conditions with no allowance made for thermal or momentum plume rise and so the process contributions calculated are likely to be an overestimate of the actual maximum concentrations. More accurate calculation of process contributions can be achieved by mathematical dispersion models, which take into account relevant parameters of the release and surrounding conditions, including local meteorology.

Air dispersion modelling enables the PC to be predicted at any environmental receptor that might be impacted by the emissions from a plant. Once short-term

and long-term PCs have been calculated in this way, they are compared with Environmental Standards (ES).

PCs are considered insignificant if:

- the long-term process contribution is less than 1% of the relevant ES; and
- the short-term process contribution is less than 10% of the relevant ES.

The long term 1% process contribution insignificance threshold is based on the judgements that:

- It is unlikely that an emission at this level will make a significant contribution to air quality; and
- the threshold provides a substantial safety margin to protect health and the environment.

The short term 10% process contribution insignificance threshold is based on the judgements that:

- spatial and temporal conditions mean that short term process contributions are transient and limited in comparison with long term process contributions; and
- the threshold provides a substantial safety margin to protect health and the environment.

Where an emission is screened out in this way, we would normally consider that the applicant's proposals for the prevention and control of the emission to be acceptable. However, where an emission cannot be screened out as insignificant, it does not mean it will necessarily be significant.

For those pollutants which do not screen out as insignificant, we determine whether exceedances of the relevant ES are likely. This is done through detailed audit and review of the applicant's air dispersion modelling, taking background concentrations and modelling uncertainties into account.

Where the PC is greater than these thresholds, the assessment must continue to determine the impact by considering the predicted environmental concentration (PEC). The PEC is the combination of the PC substance to air and the background concentration of the substance which is already present in the

environment. The PECs can be considered ‘not significant’ if the assessment has shown that both the following apply:

- proposed emissions comply with associated emission levels (AELs) or the equivalent requirements where there is no AEL; and

- the resulting PECs won’t exceed 100% of the environmental standards.

The variation adds a vapour recovery unit (VRU) to the existing operations. The vapour recovery unit recovers volatile organic compounds (VOCs) from displaced tanker ullage with the remaining VOCs emitted to air via a dedicated stack. There are no other point sources of VOCs on site.

The applicant provided the following air quality assessment (AQA) report and associated addenda to assess the impact of the VOC emissions on the relevant receptors:

- ‘Dispersion modelling assessment of emissions of VOCs’ received on 14/10/24 (Attachment C2_6),
- ‘Clarification of flow rates for dispersion modelling, received on 14/10/24 (Attachment C2_22)
- ‘Air Dispersion Modelling Results at VOC Emissions of 10mg/Nm3’, received on 14/10/24 (Attachment C2_23)
- ‘VRU gas emissions Aereon data’, received on 14/10/24 (Attachment C2_24)
- ‘Dispersion Modelling – Basis of EAL’, received on 29/10/24 (Attachment C2_32)
- ‘Addendum to Variation Application EPR/TP3301MD/V003 (Air Dispersion Model)’, received 05/12/24

We have reviewed the assessment and are satisfied that it has taken into account all relevant ecological and human health receptors, that the model and its inputs are appropriate and that the assessment has been carried out in accordance with our guidance.

The applicant considered two different vent gas compositions when undertaking the modelling, referred to as E10 Base Oil Blend (E10) and MoGas. E10 is based on samples taken of gasoline prior to export and MoGas is based on a typical vent stream composition from the Operator's REACH Chemical Safety Report.

The applicant has assessed the following parameters:

Butane, butene, pentane, pentene, propane, and benzene.

There are no published EALs for butene, pentane, pentene or propane. In the assessment, the applicant has:

- Assessed butane against the butane EALs of 14,500 µg/m^3 for long-term and 181,000 µg/m^3 for short-term.
- Assessed butene against the butane EALs.
- Assessed pentane against a proposed pentane EAL of 180,000 µg/m^3 This has been derived as 10% of the workplace exposure limit of 1,800 mg/m^3 (8-hour time-weighted average). Whilst we no longer support this methodology to derive EALs, the applicant also provided the long-term Derived No Effect Level (DNEL) for inhalation exposure for the general population from the Reach registration dossier (643 mg/m^3, i.e. 643,000 µg/m^3), which we note is higher than the proposed EAL used in the assessment for pentane.
- Assessed pentene against the proposed pentane EAL.
- Assessed propane against the proposed pentane EAL. The assessment explains that there are no standards for propane, but that it is considered less toxic than the other assessed pollutants.

The VRU emissions will release from a stack with a 45-degree angle. The applicant's modelling reflects this by using a calculated reduced efflux velocity to account for the non-vertical release. When auditing the assessment, we have assumed a worst-case scenario of a fully horizontal release.

Based on the emitted pollutants, in line with our guidance we consider that there is no mechanism for the changes included in this variation to impact any site of nature conservation, landscape and heritage, and/or protected species or habitats. Therefore, human health receptors are the only receptors which could potentially be impacted by the variation.

For all pollutants, the process contributions (PC) are insignificant (less than 1% for long-term and less than 10% for short-term), when:

- Emission limits are set for the following levels for the VRU emission source A2:
    - Non Methane Volatile Organic Compounds (NMVOCs) – 10 g/Nm^3
    - Benzene – 1 mg/Nm^3

  These emission limits are consistent with the BAT associated emission levels (BAT-AELs) specified by the BAT conclusions for Refining of Mineral Oil and Gas (BAT 52), see section below on Operating Techniques.

- Operating hours are unrestricted, although the VRU will be operated intermittently during the loading operations only.

As per our guidance, given the proposed derivation of EALs for substances that don't have EALs, we consulted the UK Health Security Agency (UKHSA) on the application. The UKHSA acknowledged the use of EALs and DNELs in the assessment and concluded that they have no significant concerns regarding the risk to the health of the local population from the installation. Refer to the consultation section of this Decision Document.

According to the outcomes of our audit and our consultations, although we don't necessarily agree with all the details of the assessment submitted by the applicant, we have concluded that that the emissions to air from the proposed activities will not cause significant pollution and that their environmental impacts will not be significant.

Operating Techniques

We are satisfied that the proposed use and design of the Vapour Recovery Unit (VRU) is best available technique (BAT) for the installation to recover volatile organic compounds from the new gasoline marine ship loading operation

permitted by this variation. The emission levels proposed to be attained by the new VRU are:

- Non Methane Volatile Organic Compounds (NMVOCs) – 10 g/Nm^3
- Benzene – 1 mg/Nm^3

These emission levels are consistent with the BAT associated emission levels (BAT-AELs) specified for this operation by the Mineral Oil and Gas Refineries BAT conclusions (in particular BAT conclusion 52 and associated BAT-AELs). Although this set of BAT conclusions is not directly applicable to standalone terminals which are not part of refineries, we consider them to be relevant to the activities in the scope of the application, having had regard of the technical characteristics of these activities and their similarity to the same activity carried out at refineries.

The application also provided a description of the operating techniques implemented for the gasoline loading operations, in summary these include:

- Use of marine loading arm designed to industry standards for the maximum process conditions (temperature and pressure) that could be seen

- The loading arm has been designed to ensure no emissions of gasoline following cessation of gasoline loading. The design of the loading arm is such that following loading the ‘arm’ will drain into the ship before the connection is broken. Any remaining liquid will then be removed from the loading equipment using a purge system.

- Use of emergency release coupler: the system is provided with two stages of shut-down to mitigate the hazards arising from ship pull away and manifold disconnection. The first stage is to close an Emergency Shutdown (ESD) valve at the loading arm base and the second stage initiates an emergency release coupler.

- Installation of a new leak detection system to the gasoline pipeline connected to the Distributed Control System (DCS).

- A new Fire and Gas Detection System for the new activities, compatible an integrated within the existing system.

- Overpressure and surge protection.

- Emergency Shutdown System, allowing for remote and rapid isolation of inventories, with two levels of shutdown, designed to shut down activities and isolate the inventories in a range of scenarios including: ship tank

overfill, ship tanks high pressure and low pressure, inadvertent ship sailing or excessive movement, loss of containment and fire.

The pigging station and VRU are located within the South Interceptor bund, which provides secondary containment.

We have reviewed these operating techniques and we are satisfied that these are BAT for the installation.

The Tranmere Terminal is also an upper tier COMAH site, therefore the environmental risks associated with the proposed changes to the marine loading activities which have a potential to cause major accidents to the environment, such as major loss of containment of gasoline, are assessed as part of updating the Safety Report for the site.

Emissions Monitoring

We have set a requirement for continuous monitoring of NMVOC and benzene emissions from the VRU, in line with the operator's proposals.

As there are no MCERTS standard or suitable analyser available for NMVOC or benzene monitoring, an MCERTS VOC analyser will be used, along with a gas chromatograph for the benzene. The operator has described how the results will be normalised and how the equipment will be designed and operated. We have included this as an operating technique.

We have included two improvement conditions requiring the operator to demonstrate that the proposed monitoring arrangements provide comparable monitoring results to approved MCERTS methodologies.

Decision considerations

Confidential information

A claim for commercial or industrial confidentiality has been made.

We have accepted the claim for confidentiality.

We have excluded specific information relating to volumes of material imported and exported from the terminal from the public register at the request of the operator. Import and export volumes are commercially sensitive information in relation to refinery strategy.

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

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

Identifying confidential information

We have not identified any additional 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 comments and our responses are summarised in the consultation responses section.

The application was publicised on the GOV.UK website.

We consulted the following organisations:

- Local Authority Environmental Health Department – Wirral Council
- Local Authority Planning Department – Wirral Council
- Health and Safety Executive
- UK Health and Security Agency
- Harbour Authority
- Marine Management Organisation
- Fire Service

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 operator has provided the grid reference for the emission points from the medium combustion plants.

The extent of the facility is defined in the site plan 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.

These show the extent of the site of 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.

The plan is 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 not 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 there is no mechanism for the changes included in this variation to impact any site of nature conservation, landscape and heritage, and/or protected species or habitats identified.

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. Refer to the key issues section.

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

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.

Operating techniques for combustion plant

We have specified the operating techniques and the operator must use the operating techniques specified in table S1.2 of the permit.

Operating techniques for emissions that screen out as insignificant

Emissions of NMVOCs and benzene 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.

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.

Raw materials

We have specified limits and controls on the use of raw materials and fuels.

Gas oil with a maximum sulphur content of 0.1% w/w is permitted for combustion in the MCPs. An equivalent substitute to gas oil (for example, hydrotreated vegetable oil – HVO) may be used with agreement in writing from the Environment Agency.

Improvement programme

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

We have included an improvement programme to ensure that the proposed continuous emissions monitoring system (CEMS) which is to be installed to monitor NMVOC and benzene emissions from the VRU is capable of providing accurate results.

As there is not an approved MCERTS certified CEMS available to monitor the specific parameters / concentrations we have permitted, we need to ensure that the proposed solution performs adequately.

We have included a requirement that the Operator shall provide a report to the Environment Agency for assessment and approval with a proposal to demonstrate the adequate functioning of the CEMS by comparing the results to manual extractive samples for NMVOCs and benzene. The Operator shall then undertake the comparison exercise and submit a report to the Environment Agency for approval which demonstrates the adequate functioning of the CEMS.

Emission limits

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

- Emission point A1:
    - Oxides of Nitrogen (NO and NO_2 expressed as NO_2) – 200 mg/m^3 (applies from 01/01/2030)
- Emission point A2:
    - Non-Methane Volatile Organic Compounds (NMVOCs) – 10 g/Nm^3
    - Benzene – 1 mg/Nm^3

The ELV for oxides of nitrogen is in line with the Medium Combustion Plant Directive requirements for existing MCPs which are boilers fired on gas oil. As the boilers are individually less than 5 MWth, the ELV does not apply until 01/01/2030. We have included the ELV early at the operators' request to prevent the need for a future variation.

The BAT AELs for NMVOCs and benzene specified by the Mineral Oil and Gas Refining BAT conclusions do not directly apply to the activity, however, we have set emission limits in line with BAT 52 of the Refining of Mineral Oil and Gas BREF on the basis that these limits are achievable and are considered protective of the environment and human health. Refer to the key issue section for additional details.

The emissions limit for hydrocarbon oil at the former emission point W2 have been deleted as a result of this variation. Point W2 has been removed as an authorised surface discharge emission point, with all drainage rerouted to W1.

Monitoring

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

- Emission point A1:
    - Oxides of Nitrogen (NO and NO_2 expressed as NO_2) – every three years (applies from 01/01/2030)
    - Carbon monoxide – every three years (applies from 01/01/2030)
- Emission point A2:
    - NMVOCs – continuous
    - Benzene – continuous

We made these decisions in accordance with the MCPD and BAT 52 of the Refining of Mineral Oil and Gas BREF.

Based on the information in the application we are not fully satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate. The CEMS for NMVOCs and benzene is not MCERTS accredited as there is no approved system available for NMVOCs, or for benzene at the concentrations permitted. As such, we have permitted the CEMS based on the operators' proposed design, which we believe provides an equivalent standard of monitoring and have included an Improvement Condition to confirm this. See **Key Issues** for further information.

Reporting

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

- Emission point A1:
    - Oxides of Nitrogen (NO and NO_2 expressed as NO_2) – every three years (applies from 01/01/2030)
    - Carbon monoxide – every three years (applies from 01/01/2030)
- Emission point A2:
    - NMVOCs – every 12 months
    - Benzene – every 12 months

We made these decisions in accordance with the MCPD and the perceived level of risk of emissions from the installation.

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, 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 and Security Agency (UKHSA).

Brief summary of issues raised: the UKHSA responded that emissions are not deemed to be significant and are not expected to contribute to air quality exceedances. They noted that the modelling shows that for all long and short-term emission scenarios, the predicted process contributions at sensitive receptors are below the EAL (environment assessment levels) or DNEL (Derived No Effect Level) levels. They concluded that they have no significant concerns regarding the risk to the health of the local population from the installation.

Summary of actions taken: No additional actions required.

Response received from Marine Management Organisation.

Brief summary of issues raised: No comments specifically related to the proposed variation or the installation.

Summary of actions taken: No additional actions required.

We did not receive a response to our consultation from the following organisations:

- Local Authority Environmental Health Department – Wirral Council
- Local Authority Planning Department – Wirral Council
- Health and Safety Executive
- Harbour Authority
- Fire Service

Representations from community and other organisations

No responses received

Representations from individual members of the public

No responses received