

Natural Resources Wales permitting decisions

Purolite Limited, Unit C

Decision document

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Variation

The variation number is: [EPR/AB3894ZF/V002](#)

The operator is: [Purolite Limited](#)

The Installation is located at: [Unit C, Llantrisant Business Park, Llantrisant, CF72 8LF](#)

We have decided to issue the variation of Unit C operated by Purolite Limited.

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

Purolite Limited have applied to vary their environmental permit [EPR/AB3894ZF](#) to allow the introduction of a new production line at their site Unit C, located in Llantrisant. The new production line is for the bromination of alkenes in a batch process. Unreacted bromine is treated through a bromine abatement plant with residual amounts being discharge through a stack (listed as a new emission point A6).

Among the proposed changes to the permit as a result of the introduction of the new bromination production line include:

- Introduction of a second steam boiler (510 KWth input) and associated emission point A5 which will have emissions of carbon monoxide and oxides of nitrogen (NO_x)
- Introduction of a new emission point A6 for the bromine abatement plant which would introduce emissions of bromine to air.

Purpose of this document

This decision document:

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

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

Key issues of the decision

Receipt of application

The application was submitted to Natural Resources Wales on the 16th May 2022 and was picked up for duly making on the 28th July 2022. The application was duly made on 18th August 2022 after recipient of the air quality assessment.

Confidential information

A claim for commercial or industrial confidentiality has been made.

We have accepted part of the claim for confidentiality. We consider that the inclusion of the relevant information on the public register would prejudice the applicant's interests to an unreasonable degree. The reasons for this are given in the notice of determination for the claim. The decision was taken in accordance with our guidance on commercial confidentiality.

The information not excluded is information relating to emissions of substances to air. Within the guidance and regulation (environmental permitting regulation 2016 regulation 51 (3)) we cannot exclude this information from the public register.

Identifying confidential information

We have not identified additional information provided as part of the application that we consider to be confidential. The decision was taken in accordance with our guidance on commercial confidentiality.

Consultation

No consultation was required for this variation. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements.

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

Operator

We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator.

The facility

The regulated facility is an installation which comprises the following activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations and the following directly associated activities.

Schedule 1 EPR activity:

- S4.1 A1 (a)(viii) (Producing organic chemicals such as –plastic materials (for example polymers, synthetic fibres and cellulose based fibres)) - Manufacture of agarose based resins for pharmaceutical use.

Directly associated activities

- Tank Farms- Storage of raw materials and waste tanks
- Steam Boilers and Steam supply - 2x 510 KWth natural gas powered steam boilers

Legislation

NRW is satisfied that this decision is compatible with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources

All applicable European directives have been considered in the determination of the application.

The site

The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility including emission points to air and discharge points to surface water and sewer.

A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.

Site condition report

There is no change to the site boundary as part of this variation therefore there was no requirements for a revised site condition report.

Biodiversity, Heritage, Landscape and Nature Conservation

The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat .

SAC, SPA and Ramsar sites

No Habitats regulatory assessment was required. The only emissions from the site are bromine gas which does not have an environmental standard for ecological sites and NOx from the 510 KWth steam boilers which are screen to 5 km for medium combustion plants. As there are no special areas of conservation (SAC) special protection areas (SPA) or Ramsar sites within 5 km, a HRA was not required.

SSSI

The following SSSI were identified within 2 km of the installation boundary

- Rhos Tonyrefail
- Llantrisant common and Pastures

An Appendix 4 assessment was done for the SSSI Rhos Tonyrefail and Llantrisant Common and Pastures. The assessment was not sent to the environment team for consultation but has been filed for audit on our public register. The conclusions are as follow:

i) The proposed permission is **not likely to damage** any of the flora, fauna or geological or physiological features which are of special interest

Llantrisant Common and Pastures – not likely to damage the features for the following reasons;

- Impacts from atmospheric NOx have screened out as insignificant emissions (both long term and short term).
- Acidity from nitrogen deposition was less than 1% of the maximum acid critical load therefore we can conclude that there are no likely adverse impacts.
- Nutrient nitrogen deposition did not screen out as insignificant as the process contribution was more than 1% and the predicted environmental concentration was above 100%, due to the exceedance in background.

However, while the deposition of nutrient nitrogen did not screen out as insignificant, it is unlikely to cause damage to the SSSI for the following reasons:

- The process contribution only exceeded in a small area of the SSSI closet to the installation. The majority of the SSSI has a process contribution of less than 1% (therefore insignificant emissions for the majority of the SSSI).
- The applicant has modelled on the boilers being run at full capacity all year (8,760 hours) to give the most conservative, worst case scenario against the minimum/ lower critical load. In reality the boilers will not be running for the whole year with the applicant stating that the new boiler would only operate for 404 hour or 4.6% of the time they have modelled for. Therefore, it is unlikely that the actual operation would lead to the long term exceedance in nitrogen deposition predicted by the modelling.

Rhos Tonyrefail –The process contribution from emissions of NO_x towards atmospheric NO_x and deposition of nutrient nitrogen and acidity all screen out as insignificant and therefore there is no pathway that would cause damage to the feature of this SSSI.

Local Wildlife Sites and Ancient Woodland

The following sites were identified with 2 km risk screening distance of the installation

- Y Graig
- Llantrisant Common
- Garth Grabben Slopes
- Careau'r-Ilan Slopes
- Rhiwfelin Fawr
- Nant Muchudd
- Coedcae-mawr
- Pant-y-ddraenen
- Crofft-yr-haidd Marshy Grassland
- Llantrisant Forest and Craig Melyn Woodland
- River Ely
- Pant Marsh

There were also 41 areas designated as either ancient woodland, plantation on ancient woodland Site or restored ancient Woodland site within 2 km of the site.

The process contribution for NO_x for all local wildlife sites and ancient woodland were below 100% of the environmental standard, therefore within current guidance screen

out as insignificant. Nitrogen deposition and acid deposition for local wildlife sites and ancient woodland all screen out as insignificant.

Environmental Risk Assessment

Air

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the stack and its impact on local air quality.

The Applicant has assessed the Installation's potential emissions to air against the relevant air quality standards, and the potential impact upon human health. These assessments predict the potential effects on local air quality from the Installation's stack emission.

The air impact assessments, and the dispersion modelling has been based on the Installation operating continuously at the relevant long-term or short-term emission limit values, i.e. the maximum permitted emission rate.

We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably precautionary. The way in which the Applicant used dispersion models, its selection of input data, use of background data and the assumptions it made have been reviewed by Natural Resources Wales modelling specialists to establish the robustness of the Applicant's air impact assessment. The output from the model has then been used to inform further assessment of health impacts.

Impacts on Human Health

Bromine

The applicant assessed the impacts of emissions of bromine from the proposal using the H1. Bromine was assessed at BAT level for the impact of human health against the short term environmental assessment level (EAL) of 70 mg/m³ as outlined in the Environment agencies guidance¹. There is no long term assessment level for bromine.

The H1 tool calculated that the short term process contribution (PC) of bromine would be less than 10% of the short term EAL and as such the emissions of bromine screen out as insignificant and no further assessment was required

¹[Air emissions risk assessment for your environmental permit - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit)

Carbon Monoxide

The H1 Tool supplied by the applicant assessed the carbon monoxide emissions against the short term (1 hour) EAL of 10000 $\mu\text{g}/\text{m}^3$ (10 mg/m^3). The process contribution (from both existing and new boiler) was calculated as 650 $\mu\text{g}/\text{m}^3$, which is 6.5% of the EAL. As such the impact of emissions of carbon monoxide can be screened out as insignificant and no further assessment was required.

Oxide of nitrogen (expressed as NO_2)

The H1 assessment of nitrogen for human health done against a EAL of 40 $\mu\text{g}/\text{m}^3$ long term and 200 $\mu\text{g}/\text{m}^3$ for short term. The H1 calculated that the process contribution of NO_x for long term impacts from the proposal would be more than 1% of the long term EAL but the predicted environmental concentration (PEC), using a background of 13.1 $\mu\text{g}/\text{m}^3$ was below 70% of the EAL. As such the long term impacts of NO_x on human health screened out as insignificant and the applicant was not required to carry out detailed modelling for long term impacts. The short term NO_x did not screen out at either the process contribution (than 10 % of the EAL) or the short term PEC stage (more than 20% of the EAL- 2x background concentration). Therefore the applicant was required to supplied modelling to assess the impacts of the proposal.

The detailed modelling supplied by the applicant for short term impact of NO_x on the nearest human receptors showed that the highest process contribution was 4.7 $\mu\text{g}/\text{m}^3$ which comes out as 2% of the short term EAL (200 $\mu\text{g}/\text{m}^3$), which means that the emission screens out as not significant at the nearest receptor. The PEC came also screened out as less than 20% of the headroom.

The modelling was reviewed by our air quality and noise technical specialist department who agreed that the model assumed a worst case scenario.

Emission limits

We have not set emissions limits for the steam boiler A5. The steam boiler (emission point A5) has a thermal input of 510 KWth. As this is below the 1 MWth input, the site is not considered an medium combustion plant and is also not considered a specified generator, therefore the medium combustion plant directive and specified generator regulations do not apply.

We have set a limit for bromine. The limit is the emission benchmark set out in the guidance; 'How to comply with your environmental permit' Additional guidance for: Speciality Organic Chemicals Sector (EPR 4.02). The operator has shown that they will meet this limit.

Water

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

The only discharge to surface water is from uncontaminated surface run off.

Emission limits

There are no changes to emission to surface water as a result of this variation.

Sewer

All discharge to sewer is done under a Dŵr Cymru (Welsh Water) trade effluent consent. There is no change to sewer discharge as a result of this variation. The operator has stated that any effluent that does not comply with the trade effluent consent is held in a bunded tank and sent off site for disposal by an authorised waste contractor.

Soil

There is no change to the site condition report as a result of this variation.

The waste liquids are currently stored on a tank farm that has containment that has been built in accordance with CIRIA C736 guidance. We are satisfied that this will prevent pollution to ground soil and surface water.

Odour

The applicant has addressed emissions of bromine as a possible sources of odour and had supplied modelling and impact assessment for odour as part of their application. The modelling and impact assessment was assessed by NRW's air quality specialist team.

The odour from the bromine stack A6 is not likely to cause any significant issues.

We are satisfied that emissions of bromine from the bromination process will not lead to any impact on local receptors.

Noise

There is no expected significant change to noise coming from the site as a result of this variation.

Fugitive emissions

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

Monitoring

We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.

Reporting

We have specified reporting in the permit . We have specified annual reporting for emissions of bromine to air introduced as a result of this variation.

Operating techniques

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

The proposed techniques/ emission levels for priorities for control are in line with the benchmark levels contained in the TGN (EPR 4.02) and we consider them to represent appropriate techniques for the facility.

We have incorporated the applicant's BAT assessment and emissions management plan (EMP) into the operating techniques table (Table S1.2) in the permit.

The permit conditions

Updating permit conditions during consolidation

We have updated previous permit conditions to those in the new generic permit template as part of permit consolidation. The new conditions have the same meaning as those in the previous permit.

The operator has agreed that the new conditions are acceptable.

Incorporating the application

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

These descriptions are specified in the Operating Techniques table (table S1.2) in the permit.

Operator Competence

Environment management system

There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.

As part of the application the applicant has sent in their sections of their environment management system (EMS) that will be incorporated following the variation. We are satisfied that appropriate management systems and management structures will be in place for this Installation, and that sufficient resources are available to the Applicant to ensure compliance with all the permit conditions.

OPRA

The OPRA score at permit issue is 57

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