

Permitting decisions

Bespoke permit

We have decided to grant the permit for Tricoya Ventures UK Limited operated by Tricoya Ventures UK Limited.

The permit number is EPR/FP3432JH.

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 checklist to show how all relevant factors have been taken into account.

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

Read the permitting decisions in conjunction with the environmental permit. The introductory note summarises what the permit covers.

Key issues of the decision

1. Choice of Regulator

The application is to operate an A2 process under the Environmental Permitting Regulations 2016 Section 6.6A(2) 'Preservation of wood and wood products with chemicals with a production capacity exceeding 75m³ per day other than exclusively treating against sapstain'. Usually this would be regulated by the Local Authority but the operator applied for a Secretary of State direction to the Environment Agency to be the regulator. The initial direction contained an incorrect activity reference but this was subsequently corrected in an updated direction submitted in response to the Not Duly Made request for further information.

2. Emissions to Air

The applicant carried out an initial H1 screening for likely emissions from the process of Acetic Acid, Acetic Anhydride, Formaldehyde and Volatile Organic Compounds (VOCs monoterpenes – using benzene as a worst case proxy for which there is an Environmental Quality Standard). Only Acetic Anhydride process contributions could be screened out as insignificant against both long term and short term limits.

The applicant therefore submitted computer modelling of these four parameters, where relevant, from the emission points A1 – A5, that are the expected sources. The submitted report concluded that based on a worst case scenario of the facility constantly emitting the maximum anticipated concentration of each pollutant throughout the whole year; the predicted concentrations at the five modelled locations (including the nearest residential property and the nearest point of the Humber Estuary habitat site) would be below the relevant Environmental Assessment Levels (estimated from Occupational Exposure Levels in the case of the monoterpene VOCs). It also concluded that the maximum ground level concentrations (within the installation boundary) would be below the relevant EALs and that any odour impacts would also be at an anticipated acceptable level.

However, in Section 2.12 of the report the assumption was made that all background concentrations are zero. We did not accept this as a reasonable assumption for this multi-operator installation especially since a neighbouring plant uses acetic acid to produce the acetic anhydride raw material for the installation and is permitted to release these compounds to air.

In response to Schedule 5 notice question 11 (received 13 June 2018) the applicant assessed available emissions reporting data for acetic acid and acetic anhydride from the Environment Agency's public register relating to BP Chemicals permit EPR/BJ89621R before and after the closure of the DF3 plant (on whose site the new applicant's installation is to be located). The post closure 2006 values were considered more representative of the current background concentration. The applicant used the estimated background concentrations to carry out an H1 methodology screening exercise for insignificant impact for acetic acid and acetic anhydride using the maximum predicted process contributions from the original modelling. This is not a valid approach, as the H1 screening methodology includes a number of conservative modelling assumptions; a fully modelled result comparison against the relevant environmental standard is all that is required.

We have accepted that assuming the background concentration of formaldehyde and monoterpene VOCs as zero is reasonable in this case as there are no other known emitters of these substances in the locale.

Using maximum predicted pollutant concentrations – any point on assessment grid	Acetic Acid	Acetic Anhydride	Formaldehyde	VOCs 1. Pinene 2. Limonene 3. Terpinene
<u>Long Term Impact</u>				
Long term Environmental Standard (ES) $\mu\text{g}/\text{m}^3$	250	1	5	5660 ¹ 280 ¹ 1130 ¹
Process Contribution (PC) from Tricoya Ventures UK Limited $\mu\text{g}/\text{m}^3$	21.45	0.27	2.07	46.85 46.85 46.85
Estimated background concentration $\mu\text{g}/\text{m}^3$	2.7	0.4	0	0 0 0
Predicted Environmental Concentration (PEC) $\mu\text{g}/\text{m}^3$	24.15	0.67	2.07	46.85 46.85 46.85
PEC as % of ES	9.7	67	41.4	0.83 16.7

				4.1
Is the PEC less than the 100% of ES?	Yes	Yes	Yes	Yes
<u>Short Term Impact</u>				
Short term Environmental Standard (ES) $\mu\text{g}/\text{m}^3$	3700	40	100	85000 ² n/a n/a
Process Contribution (PC) from Tricoya Ventures UK Limited $\mu\text{g}/\text{m}^3$	682.34	2.81	43.56	986.62 n/a n/a
Estimated short term background concentration $\mu\text{g}/\text{m}^3$ (= twice long term)	5.4	0.8	0	0
Predicted Environmental Concentration (PEC) $\mu\text{g}/\text{m}^3$	677.74	3.61	43.56	986.62
PEC as % of ES	18.3	9.0	43.6	1.2
Is the PEC less than the 100% of ES?	Yes	Yes	Yes	Yes

Note 1: Estimated from 8-hour Occupational Exposure Standard

Note 2: Estimated from the 15 minute Occupational Exposure Standard

Based on a comparison between these values and those in the original report we conclude the adjusted pollutant concentrations at the modelled sensitive receptors will also be acceptable. We also accept the original odour impact conclusions are very unlikely to change with the consideration of background concentrations.

We have set emission limits in the permit based on Best Available Techniques with consideration of the modelled emission rates:

- Acetic Acid 187.5 mg/Nm³ and Acetic Anhydride 159 mg/Nm³ as speciated VOCs based on the 75 mg/Nm³ expressed as carbon Class B VOC benchmark emission rate for chemical processes. These limits are higher than the modelled emission rates but we are satisfied that the relative differences in the mass emission rates from the 5 modelled point sources and the headroom in the PEC as % of ES results will ensure there is not an unacceptable impact from the installation.
- Total VOCs 200 mg/Nm³. This is higher than the 75mg/Nm³ (as carbon) typically used for chemical processes but is only applied to vents from the wood drying first steps in the process. It is the top end of the <20 – 200mg/Nm³ in the Wood based panel production BAT conclusions document (for the most equivalent particle board case) and the application does not specifically address abatement of VOCs so we have imposed an Improvement Condition to measure and report on actual VOC emissions and, if necessary, to submit options and timescales for improvement.
- Formaldehyde 10 mg/Nm³ modelled, limit meets BAT and benchmark limit.
- Dust 5mg/m³ This was not modelled but after discussion with the applicant this was the limit that their equipment suppliers can guarantee and it is towards the lower end of the range in the Wood Based Panel Production BAT conclusions document.

3. Deposition to Land from Air

The process is not expected to emit nitrogen or sulphur containing materials but the applicant submitted a report considering the impact from acidity and toxicity for acetic acid (including acetic anhydride which can hydrolyse to acetic acid), formaldehyde and monoterpenes through deposition to land receptors representing part of the Heywoods Community forest (R3) and the Humber Estuary SAC,SPA,Ramsar,SSSI (R5).

Receptor	Residential property adjacent to Heywoods Community Forest	Humber Estuary Mudflats	Humber Estuary Marine water
Modelling receptor location reference	R3	R5	R5
<u>Acetic Acid Acidity</u>			
Predicted acid deposition rate kg/ha/yr	0.54	0.15	0.15
Assessment level kg/ha/yr	311.6	109.3	Very large dilution of weak acid in tidal estuary
Deposition as % of assessment level	0.17	0.14	Approximately 0
<u>Acetic Acid Toxicity</u>			
Predicted deposition level	0.0061 mg/kg soil (dry wgt)	0.0052 mg/kg sediment (dry wgt)	0.013 µg/l
Assessment level	0.47 mg/kg soil (dry wgt)	1.14 mg/kg sediment (dry wgt)	3060 µg/l
Deposition as % of assessment level	1.3	0.46	0.0004
<u>Formaldehyde toxicity</u>			
Predicted deposition level	2.6E-08 mg/kg soil (dry wgt)	1.1E-08 mg/kg sediment (dry wgt)	0.0007 µg/l
Assessment level	0.2 mg/kg soil (dry wgt)	2.3 mg/kg sediment (dry wgt)	440 µg/l
Deposition as % of assessment level	0.000013	0.0000005	0.00016
<u>Monoterpene toxicity</u>			
Predicted deposition level	2.7E-07 mg/kg soil (dry wgt)	1.7E-07 mg/kg sediment (dry wgt)	0.016 µg/l

Assessment level	3.22 mg/kg soil (dry wgt)	16.2 mg/kg sediment (dry wgt)	59 µg/l
Deposition as % of assessment level	0.000008	0.000001	0.027

All the predicted deposition as % of assessment levels are insignificant at the relevant thresholds.

4. Emissions to Water

The process waste water is directed through the base of the main acetic acid storage tank vent scrubber, which will ensure it adjusted to greater than pH4. The scrubber base is continuously pumped out to the off-site Aquarius effluent treatment facility on the larger Saltend Multi-operator installation via discharge point S1. Potentially contaminated site surface water is collected in two collection pits (one for each side of the culvert that splits the site) and is pumped out as required to the Aquarius facility via discharge point S2. The Aquarius facility further adjusts the pH to neutral before discharge to Yorkshire Water's Saltend Waste Water Treatment Works (WWTW) that discharges to the Humber Estuary. There are no point source discharges direct to surface waters.

The applicant submitted a document considering the likely composition of these effluent streams. We agree all potential components other than acetic acid/acetic anhydride (that are converted to sodium acetate) are insignificant. The installation is estimated to discharge an average 57.4 kg/hr sodium acetate via the sewer to the Aquarius facility that equates to an estimated eventual discharge of 502624 kg/yr to the Humber estuary from Saltend WWTW at a concentration of 7650 µg/l. Sodium acetate is not classed as hazardous to the environment and there is little data about its potential toxicity in aqueous solution. The applicant chose to compare the outfall concentration against an EC50 short term test result for Daphnia of 564 mg/l. The submitted H1 assessment for TraC waters passed test 1 but was incomplete for Test 5. We audited the submission, corrected the WWTW flow estimate and found that in Test 5 the estimated volume flux was much lower than the allowable volume flux for all reasonable background and water release depth values. We therefore agree that all discharges to sewer can be screened out as insignificant.

Having considered this assessment and the fact that all sewer discharges pass through the Aquarius facility and Saltend WWTW we have set monitoring and reporting requirements in the permit based on the proposal in the application for flow, pH, total organic carbon and temperature (all continuous) and total suspended solids (six-monthly). The only limit set is for the discharged process water from the scrubber overflow to be at least pH3.5 (control set point is 4) to ensure the scrubber is always operating effectively and pipe work is protected.

5. Pre-operational Conditions and Improvement Conditions

We have imposed one pre-operational condition:

PO1 for the operator to provide a written plan to ensure the environment is adequately protected during the process commission phase.

We have also imposed four improvement conditions:

IC1 for the operator to provide a definitive report, building on the application site report (written before the build was finished) to define the baseline condition of the installation soil and groundwater (as required by the Industrial Emissions Directive). The application data only provides ranges of potential pollutants from historical investigations and does not include definitive values for all potential pollutants from the permitted process, particularly acetic acid that was also present in the historical uses of the site.

IC2 for the operator to provide a Noise Management Plan for approval. Although noise and vibration are addressed in the application at several points the detail is deferred to a noise management plan to be written once the design and build is complete.

IC3 for the operator to provide evidence of consideration of the need, included as a possibility in the application, to suppress dust emissions using water sprinkling.

IC4 for the operator to measure and report on actual VOC emissions and, if necessary, to submit options and timescales for improvement.

IC5 for the operator to provide a report on the commissioning phase including any optimisation and changes from the original process design.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	<p>A claim for commercial or industrial confidentiality has been made.</p> <p>We have accepted the claim for confidentiality. We have excluded proprietary process details beyond the non-technical summary and not related to emissions. 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.</p> <p>The decision was taken in accordance with our guidance on confidentiality.</p>
Identifying confidential information	<p>We have not identified further information provided as part of the application that we consider to be confidential.</p> <p>The decision was taken in accordance with our guidance on confidentiality.</p>
Consultation	
Consultation	<p>The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement.</p> <p>The application was publicised on the GOV.UK website.</p> <p>We consulted the following organisations:</p> <p>Health and Safety Executive Local Environmental Health Department – East Riding of Yorkshire Council Local Planning Authority – East Riding of Yorkshire Council Local Director of Public Health – East Riding of Yorkshire Council Public Health England</p> <p>A reply was received from Public Health England</p> <p>The comments and our responses are summarised in the consultation section.</p>
Operator	
Control of the facility	<p>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 our guidance on legal operator for environmental permits.</p>
The facility	
The regulated facility	<p>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 RGN 2 'Defining the scope of the installation', Appendix 1 of RGN 2</p>

Aspect considered	Decision
	<p>'Interpretation of Schedule 1', guidance on waste recovery plans and permits.</p> <p>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.</p> <p>See Key Issues.</p>
The site	
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility including the discharge points to air and off-site third party effluent treatment plant. The plan is included in the permit.
Site condition report	<p>The operator has provided a description of the condition of the site, which we consider is not satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under the Industrial Emissions Directive.</p> <p>The Industrial Emissions Directive requires setting a baseline at the start of the permit. The application site report submitted as part of the application (TVUK-ENV-0010 Application Site Report Baseline Condition (before build finished) 28/03/18) did not fully address this need, particularly for the material associated with the permitted process such as acetic acid and reported ranges of historical investigation results rather than using them to set a baseline value. We imposed an Improvement Condition IC1 to address this requirement.</p>
Biodiversity, heritage, landscape and nature conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.</p> <p>Humber Estuary (closest point approximately 250m) is a Special Area of Conservation, Special Protected Area, Ramsar site and Site of Special Scientific Interest with notable features including coastal saltmarsh, mudflats migratory fish and eels. There are also 8 local wildlife sites within 2km.</p> <p>We have assessed the application and its potential to affect all known sites of nature conservation, landscape and heritage and/or protected species or habitats identified in the nature conservation screening report as part of the permitting process.</p> <p>We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified.</p> <p>We have not consulted Natural England on the application but have sent them a HRA Stage 1 assessment form for information. The decision was taken in accordance with our guidance.</p>
Environmental risk assessment	
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>The operator's revised risk assessment is satisfactory.</p> <p>See Key Issues.</p>

Aspect considered	Decision
Operating techniques	
General operating techniques	<p>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.</p> <p>The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.</p>
Operating techniques for emissions that screen out as insignificant	<p>Emissions of acetic acid, acetic anhydride, formaldehyde and monoterpenes have been screened out as insignificant, and so we agree that the applicant's proposed techniques are BAT for the installation.</p> <p>We consider that the emission limits included in the installation permit reflect the BAT for the sector.</p> <p>See Key Issues.</p>
Permit conditions	
Use of conditions other than those from the template	Based on the information in the application, we consider that we do not need to impose conditions other than those in our permit template.
Pre-operational conditions	<p>Based on the information in the application, we consider that we need to impose pre-operational conditions.</p> <p>See Key Issues.</p>
Improvement programme	<p>Based on the information on the application, we consider that we need to impose an improvement programme.</p> <p>See Key Issues.</p>
Emission limits	<p>ELVs based on BAT have been set for the following substances:</p> <p><u>Emissions to Air:</u> Acetic Acid Acetic Anhydride Formaldehyde Dust</p> <p><u>Emissions to off-site effluent treatment facility:</u> Process effluent pH</p>
Monitoring	<p>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.</p> <p>We made these decisions in accordance with our guidance M2 and Speciality organic chemicals sector: additional guidance EPR 4.02</p> <p>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.</p>
Reporting	We have specified reporting in the permit.

Aspect considered	Decision
	<p>We have specified 6 monthly reporting of emissions to air as this is the frequency of monitoring until the process is fully optimised.</p> <p>We have only specified annual reporting of emissions to the off-site Aquarius effluent treatment facility as this itself discharges to Yorkshire Water's Saltend Waste Water Treatment Facility for further treatment and dilution before it enters the Humber estuary.</p>
Operator competence	
Management system	<p>There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.</p> <p>The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.</p>
Relevant convictions	<p>The Case Management System been checked to ensure that all relevant convictions have been declared.</p> <p>No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.</p>
Financial competence	<p>There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.</p>
Growth Duty	
Section 108 Deregulation Act 2015 – Growth duty	<p>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.</p> <p>Paragraph 1.3 of the guidance says:</p> <p>“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.”</p> <p>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.</p> <p>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.</p>

Consultation

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
Public Health England (from Centre for Radiation, Chemical and Environmental Hazards)
Brief summary of issues raised
Provided the permit holder takes all appropriate measures to prevent or control pollution, in accordance with the relevant sector guidance and industry best practice, then Public Health England has no significant concerns regarding the risk to the health of the local population from the installation.
Summary of actions taken or show how this has been covered
We are satisfied that the conditions in the permit, including relevant commitments from the application referenced in the Operating Techniques table, will ensure that the permit holder takes all appropriate measures to prevent or control pollution, in accordance with the relevant sector guidance and industry best practice.