

## **Environment Agency permitting decisions**

### **Bespoke Variation**

We have decided to issue the variation for Theddlethorpe Gas Terminal operated by ConocoPhillips UK Limited.

The variation number is EPR/LP3933LX/V003

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.

### **Description of the changes introduced by the Variation**

This is a Substantial Variation. It is substantial due to the potential increase in accident risk from propane handling. The site is a top tier COMAH site.

The site uses a Freon based refrigeration system to control the dew point of gas. Freon use is restricted under EC regulation on hydrochlorofluorocarbons. The operator can only add new Freon to the system up to June 2016. This variation is for the replacement of the current Freon based refrigeration system with a propane system.

The new propane system requires the addition of a flare for use in case of an emergency release of propane. The flare is a new point source emission to air (A13).

## **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 operator's proposals.

## **Structure of this document**

- Key issues
- Annex 1 the decision checklist
- Annex 2 the consultation, web publicising and newspaper advertising

## Key issues of the decision

### Description of changes

The site uses a Freon based refrigeration system to control the dew point of gas. Freon use is restricted under EC regulation on hydro chlorofluorocarbons. The operator can only add new Freon to the system up to June 2016. This variation is for the replacement of the current Freon based refrigeration system with a propane system.

The new propane system requires the addition of a new ground flare for use in case of an emergency release of propane. The flare is a new point source emission to air. The flare will operate continually with six pilot lights. This will use site fuel gas as well as any propane leakage from the new system. Bottled propane will be available as a backup.

### 1. Air quality

#### Human Health assessment

The new flare (A13) is a new emission point to air. The operator carried out dispersion modelling using ADMS 5. Three scenarios were modelled:

Scenario 1 – existing sources

Scenario 2 – Existing sources plus the new flare during normal operation of 6 pilot flares burning fuel gas and propane leakage

Scenario 3 – Existing sources plus operation of the flare in an emergency situation

The results are summarised in the tables below:

*Table 1.1 Normal operation Scenario 2 – NO<sub>2</sub> maximum impact at a receptor*

Reference period	PC (µg/m <sup>3</sup> )	EQS (µg/m <sup>3</sup> )	%EAL	Background (µg/m <sup>3</sup> )	PEC (µg/m <sup>3</sup> )	%EAL
Long term	2.13	40	5.3	9.5	11.63	29.1
Short term	28.0	200	14.0	19.0	47.0	23.5

*Table 1.2 Increase in impacts due to new flare during normal operation*

Reference period	PC (µg/m <sup>3</sup> )	EQS (µg/m <sup>3</sup> )	%EAL
Long term	0.02	40	0.05
Short term	0	200	0

*Table 1.3 Emergency operation Scenario 3 – NO<sub>2</sub> maximum impact at a receptor*

Reference period	PC (µg/m <sup>3</sup> )	EQS (µg/m <sup>3</sup> )	%EAL	Background (µg/m <sup>3</sup> )	PEC (µg/m <sup>3</sup> )	%EAL
Short term	28.0	200	14.0	19.0	47.0	23.5

*Table 1.4 Increase in impacts above current operation due to new flare during emergency operation. Based on impacts at receptors*

Reference period	PC (µg/m <sup>3</sup> )	EQS (µg/m <sup>3</sup> )	%EAL
Short term	0	200	0

The above tables show that impacts at nearby receptors will not increase over current levels. This applies during normal and emergency operation. The maximum on site impact will increase but the level at receptors does not increase.

### **Ecological assessment**

There are two European Habitat sites within 10km of the Installation:

- Humber Estuary
- Saltfleetby–Theddlethorpe Dunes and Gibraltar point

There is one SSSI within 2km

- Saltfleetby–Theddlethorpe Dunes

Saltfleetby–Theddlethorpe Dunes is also a National Nature Reserve, there are no other conservation sites within 2km of the Installation

The Operator assessed impacts from air emissions at these sites for NO<sub>x</sub>, N deposition and acid deposition.

The Operator's results show almost no increase at the receptors due to the new flare. The table below summarises the results.

Site	Increase in NO <sub>x</sub> as % critical level	Increase in N deposition as % of critical load	Increase in acid deposition as % of critical load
Humber Estuary	0	0	0
Saltfleetby–Theddlethorpe	0.03	0	0

Dunes and Gibraltar point			
Saltfleetby– Theddlethorpe Dunes	0.03	0	0

We checked the Operator’s modelling and we are in agreement with their conclusion that the new flare will make very little difference to the current air quality.

## 2. Noise

The Operator provided a noise assessment to show the impact from the installation after the proposed changes. The assessment considered normal operation and emergency use of the flare.

The Operator concluded that operation of the flare would not result in an increase over the current background levels during normal operation. Emergency use of the flare would result in higher levels but as this is emergency use operation in this mode would be very infrequent.

We checked the assessment and agree with the operator’s conclusions.

### 3. BAT assessment

#### 3.1 Choice of refrigerant system

The Operator considered options for replacement of the current refrigerant system.

The new system had to meet the following requirements:

- The boiling point at compressor suction pressure must be less than -9.5°C
- The dewpoint at compressor discharge pressure must be greater than 15.6°C
- There must be no temperature glide in the refrigerant

Propane was the only replacement option that met all of these criteria.

Sector guidance note EPR 1.02 states that hydrocarbons such as propane or butane are considered the best available technique.

The Operator also considered the non refrigerant techniques of molecular sieves, silica gel or a Jule -Thomson (JT) system. Molecular sieves or silica gel. These were considered not suitable due to the presence of methanol that would be difficult to separate out in preference to the desirable hydrocarbon gases. A JT system was not suitable due to increase noise and high energy use.

### 4. Accident risk

The existing site is a top tier COMAH site. The COMAH safety case will be reviewed and submitted for assessment for changes linked to this variation.

### 5. Drainage

Surface water run-off from new hardstanding areas will be routed into the existing drainage system. The increase in surface water run-off from the new area will be very small compared to the overall site and ELVs (including flow) from the current permit will still apply.

The existing drainage system will be extended to cover the propane plant area.

A closed drain system will be designed to collect fluids drained from process equipment during de-oiling operations prior to maintenance. Fluids drained into the system will be routed a the closed drain drum.

An open drain system will be designed to collect and contain any leakages or spills to prevent release to the environment. A sloping paved area will prevent any propane spillage from pooling on the surface to reduce the risk of pool fire. Drainage trenches will have water seals to prevent ingress of propane into the drainage system.

## Annex 1: decision checklist

This document should be read in conjunction with the application, supporting information and permit/notice.

Aspect considered	Justification / Detail	Criteria met
		Yes
<b>Receipt of submission</b>		
Confidential information	A claim for commercial or industrial confidentiality has not been made.	✓
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 commercial confidentiality.	✓
<b>Consultation</b>		
Scope of consultation	The consultation requirements were identified and implemented. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements. For this application we consulted the following bodies: <ul style="list-style-type: none"> <li>• East Lindsey District Council</li> <li>• Health and Safety Executive</li> <li>• Food Standards Agency</li> <li>• Public Health England</li> <li>• Director of Public Health</li> </ul>	✓
Responses to consultation and web publicising	The web publicising and consultation responses (Annex 2) were taken into account in the decision.  The decision was taken in accordance with our guidance.	✓
<b>European Directives</b>		
Applicable directives	All applicable European directives have been considered in the determination of the application.	✓
<b>The site</b>		
Biodiversity, Heritage, Landscape	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat	✓



Aspect considered	Justification / Detail	Criteria met
		Yes
and Nature Conservation	<p>A full assessment of the application and its potential to affect the sites has been carried out as part of the permitting process. We consider that the application will not affect the features of the sites.</p> <p>See key issues section for more details</p> <p>Formal consultation has been carried out with Natural England who agreed with our conclusion of no likely significant effect.</p>	
<b>Environmental Risk Assessment and operating techniques</b>		
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>The operator's risk assessment is satisfactory. The increase in emissions from this variation are insignificant.</p> <p>See key issues section</p>	✓
Operating techniques	<p>We have reviewed the techniques used by the operator and compared these with the relevant guidance notes.</p> <p>See key issues section</p> <p>Emissions of NOx have been previously screened out as insignificant, and so the Environment Agency agrees that the Operator's proposed technique are BAT for the installation.</p>	✓
<b>The permit conditions</b>		
Updating permit conditions during consolidation.	<p>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(s).</p> <p>This was done at the request of the operator and the operator has agreed that the new conditions are acceptable.</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
Incorporating the application	<p>We have specified that the operator must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process.</p> <p>These descriptions are specified in the Operating Techniques table in the permit.</p>	✓
Emission limits	No emission limits have been added, amended or deleted as a result of this variation.	✓
Monitoring	Monitoring has not changed as a result of this variation	✓
<b>Operator Competence</b>		
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.	✓

## Annex 2: External Consultation and web publicising

Summary of responses to the consultation and web publication and the way in which we have taken these into account in the determination process.

Response received from Public Health England received on 30/07/15
<b>Brief summary of issues raised</b>
Based on the information contained in the application, Public Health England has no significant concerns regarding the risk to the health of the local population from the installation.
<b>Summary of actions taken or show how this has been covered</b>
No action required

Response received from Director of Public Health received on 19/08/15
<b>Brief summary of issues raised</b>
No significant adverse effects on health an wellbeing can be foreseen
<b>Summary of actions taken or show how this has been covered</b>
No action required

Response received from Health and Safety Executive received on 12/08/15
<b>Brief summary of issues raised</b>
No issues raised
<b>Summary of actions taken or show how this has been covered</b>
No action required