

Our Ref: PPC/A/1013494
BAT for flaring

Your Ref:

If telephoning ask for:
Ian Brocklebank

16 August 2019

ExxonMobil Chemical Limited
ExxonMobil House
Ermyrn Way
Leatherhead
KT22 8UX

FAO: Company Secretary

Dear Sir/Madam,

**POLLUTION PREVENTION AND CONTROL (SCOTLAND) REGULATIONS 2012 (“the Regulations”)
BEST AVAILABLE TECHNIQUES ASSESSMENT FOR FLARING
PERMIT REFERENCE NUMBER: PPC/A/1013494
SITE: Fife Ethylene Plant (FEP), Cowdenbeath, Fife**

In April 2018, SEPA served ExxonMobil Chemical Limited and Shell U.K. Limited with Final Warning Letters regarding flaring which was found to be “preventable and unacceptable”. Following SEPA and Health and Safety Executive investigations in 2018/2019 and a tightening of permit conditions, SEPA instructed ExxonMobil Chemical Limited and Shell U.K. Limited to conduct ‘Best Available Techniques’ (BAT) assessments on 13 June 2018. BAT Assessments were received from both operators on 30 April 2019 which were subject to a rigorous review by technical specialists. BAT Assessments were published by SEPA on www.sepa.org.uk/mossmorran

Following submission of your assessment of Best Available Techniques (BAT) for flaring:

- We find that the Fife Ethylene Plant is not currently using all Best Available Techniques for flaring.
- We acknowledge your recognition of the requirement to upgrade the plant and agree with your principles and approach to achieving BAT;
- We find the proposed timescales to increase capacity and accessibility to ground flares unacceptable;
- We will move within seven days to vary your operating permit to include required timescales for the implementation of BAT, and the provision of further detail required.

Review of an Assessment of Best Available Techniques for flaring for Fife Ethylene Plant

Following ExxonMobil Chemical Limited’s submission of an assessment of Best Available Techniques (BAT) for flaring on 30 April 2019, as required by condition 4.3.12 in your permit, this letter summarises SEPA’s review of that document under the Regulations and in respect of the BAT conclusions for Common waste water and waste gas treatment/management systems in the chemical sector, in particular the BAT conclusions for flaring (BAT 17 and 18).

SEPA agrees that BAT for ExxonMobil Chemical Limited at the Fife Ethylene Plant (FEP) can be achieved by a combination of:

- a) Prevention, and where that is not possible, minimisation of, flaring events;
- b) Use of ground flares; and
- c) Use of elevated flares when required to supplement the ground flare capacity.

Reviewing each of these in turn:

a) Prevention, and where that is not possible, minimisation of, flaring events

The BAT assessment submitted by ExxonMobil Chemical Limited identifies a range of opportunities for reducing the amount of gas routed to the flare and in doing so minimising the amount of, and in many cases preventing, gas going to the elevated flare. The importance of these measures is acknowledged in the assessment and SEPA is pleased to see that they have been included in the improvement plan.

b) Use of ground flares

SEPA has concluded that BAT for ground flares is:

- A design operational capacity that covers all routine and planned flaring events, including where practicable unplanned shutdown cases.
- A totally enclosed design.
- Monitoring of the flow and composition of flare gas.
- Installation of acoustic insulation.
- A smokeless capacity of 100%.
- Maximum ground flare noise of 85 decibels at 1 metre from the wind/noise barrier of the ground flare.
- Availability of 99%.
- Minimum combustion efficiency of 99%.

The BAT assessment acknowledges that ExxonMobil Chemical Limited's use of the ground flares, located on the Fife Natural Gas Liquids (FNGL) Plant operated by Shell U.K. Limited, is not BAT for the FEP and therefore the improvement plan commits to an, "increase capacity of, and accessibility to, ground flare technology that minimises amenity impact" by 31-Dec 2024.

Whilst SEPA agrees with the action to increase capacity and accessibility to ground flares, the timescale is unacceptable.

SEPA notes that the joint-plant BAT study commissioned from AECOM by Shell U.K. Limited and ExxonMobil Chemical Limited identifies that ground flares with a capacity of 140 tonnes per hour (tph) are available and, in combination with the targeted reductions in flare rate in (a), would accommodate a large number of design flare scenarios.

c) Use of elevated flares when required to supplement the ground flare capacity

SEPA has concluded that BAT for ground flares is:

- Use of a low sound flare burner (or tip) designed with internal steam tubes.
- Monitoring of the flow and composition of flare gas.
- Monitoring of steam flow and ratio control of steam to flare gas to the flare.

- Installation of acoustic insulation (or mufflers).
- A smokeless capacity of 10-15%.

SEPA acknowledges that a number of aspects of BAT are already in place such as steam monitoring and control and flare gas monitoring at FEP and that your improvement plan includes replacement of the flare tip with one of the latest designs, for BAT to be achieved.

SEPA intends to meet with you as a matter of urgency next week, to discuss the contents of this letter. In the meantime, if you have any queries about the contents of this letter please let me know as soon as possible, as SEPA intends to vary your permit, by the 23 August 2019, to include conditions requiring BAT to be implemented. In this event please contact Ian Brocklebank either at our Stirling office or by telephone, 0131 273 7250.

Yours Sincerely,

Chris Dailly
Acting Chief Officer Compliance and Beyond

Cc:
Jacob McAlister, ExxonMobil Chemical Limited, Fife Ethylene Plant.
Gillian Doel, ExxonMobil Chemical Limited, Fife Ethylene Plant.
Kylie Bishop, ExxonMobil Chemical Limited, Fife Ethylene Plant.