ExxonMobil Chemical Limited
Fife Ethylene Plant (FEP)

SEPA Initiated Variation
Application Number PPC/A/1013494 VAR02

CONTENTS

1 NON TECHNICAL SUMMARY OF DETERMINATION

The Fife Ethylene Plant was first permitted under the Pollution Prevention and Control (Scotland) Regulations in October 2007.

The Operator has applied to vary the permit to bring the new Enclosed Ground Flare (EGF) into the permit.

This variation (VAR02) also amends the definition of Major Flaring to a rate of 15 Tonnes/hour over 60 minutes to align with and replace the existing Enforcement Position. This sets the Major Flaring Definition at a level that is considered reasonable given current knowledge on the performance of the new elevated flare tip and EGF.

The application also includes a request to amend the completion date for the EGF from 01 April 2023 to 30 June 2023, due to delays with the completion of the construction work. This has been robustly assessed by SEPA and found to be reasonable.

There are also a number of administrative changes to remove out of date conditions relating to one-off reports, the use of temporary boilers and to update and clarify monitoring standards for air emissions.

Glossary of terms

BAT	-	Best Available Techniques
CO	-	Coordinating Officer
ELV	-	Emission Limit Value
FEP	-	Fife Ethylene Plant

2 EXTERNAL CONSULTATION AND SEPA'S RESPONSE

Is Public Consultation Required? No
Rest of table deleted

Officer: David Fisher

3 ADMINISTRATIVE DETERMINATIONS

Determination of the Schedule 1 activity:

No change – The production of ethylene through the cracking of ethane and propane – 4.1(a)

Determination of the stationary technical unit to be permitted:

Addition of ground flare.

Determination of directly associated activities:

No change

Determination of 'site boundary'

No change

Officer: David Fisher

4 INTRODUCTION AND BACKGROUND

4.1 Historical Background to the activity and variation

The Fife Ethylene Plant was first permitted under the Pollution Prevention and Control (Scotland) Regulations in October 2007.

Following a number of elevated flaring events and a subsequent BAT Review FEP are installing a new 130 tonne per hour capacity Enclosed Ground Flare (EGF). This variation will bring this equipment into the permit and also remove some redundant Conditions, update and clarify some monitoring conditions and update the definition of Major Flaring in line with an existing Enforcement Position.

4.2 Description of activity

The Fife Natural Gas Liquids (FNGL) Plant operated by Shell UK Limited and the Fife Ethylene Plant (FEP) operated by ExxonMobil Chemical Limited are permitted as a single PPC installation. As the two plants are operated by separate operators, they have separate permits.

Natural Gas Liquids (gasoline, ethane, propane and butane) are pumped along a pipeline to the FNGL plant from the St Fergus Gas Plant at Peterhead (also operated by Shell UK Limited). At the FNGL plant three separate modules carry out identical processes to separate the ethane, propane and butane.

Ethane is forwarded to the adjacent FEP, were it is converted to ethylene by steam cracking.

The products from the installation are transported by pipeline or road tanker, predominantly to the Braefoot Bay marine terminal operated by Shell UK Limited and ExxonMobil Chemical Limited near Aberdour in Fife, from where it is shipped to other locations. Some of the ethylene produced is distributed via the UK ethylene pipeline to other manufacturing plants in the UK. Some of the propane and butane produced is forwarded to the adjacent Avanti Gas facility who supply gas for heating. The Avanti Gas facility is not part of the PPC installation and does not carry out any PPC activities.

4.3 Outline details of the Variation applied for

See section 4.1 for the areas covered by the application.

4.4 Guidance/directions issued to SEPA by the Scottish Ministers under Reg.60 or 61.

No Directions from Scottish Ministers under Reg. 60 or 61 apply to the ExxonMobil Chemical Limited FEP.

4.5 Identification of important and sensitive receptors

The Mossmorran Installation (FNGL and FEP) is located in Fife close to a number of communities including Cowdenbeath, Lochgelly, Auchtertool and Crossgates. Closer to the site there are a number of houses, farms and businesses.

The closest watercourse to the site is the Dronachy Burn which runs along the north side of the installation and receives emissions from both plants. The Dronachy Burn flows into the Raith Lake, which is used as a trout fishery, and then onto the Firth of Forth in the area of Kirkcaldy Sands. The Dronachy Burn also flows through the Auchtertool Linn wildlife site, a wooded gorge containing swamp areas. There are a number of other woodland areas in the vicinity, for example, Calais Muir, Humble Wood, Moss Easy and Townhill Muir.

5 KEY ENVIRONMENTAL ISSUES

5.1 Summary of significant environmental impacts

There are no significant environmental impacts associated with this variation.

The installation of the EGF will lead to improvements in noise and visibility during flaring events, combined with an expected improvement in air emissions, particularly unburned hydrocarbons. The key improvement will be a much reduced requirement to use the elevated flare.

5.2 Implications of the Variation on - Point Sources to Air

Reduced use of the elevated flare and use of modern combustion technology will lead to reduced air emissions from flaring activities.

A detailed modelling study has been completed (Wood, April 2021), which concluded that:

"The principal conclusion of this assessment is that, as there are no predicted exceedances of any air quality AQS, AQO or EAL during normal operation of FEP and during both PGC trip flare event scenarios for the current and proposed site operation, the risk of adverse impacts on human health or ecological sites due to emissions to air from FEP would appear to be negligible. Due to the improved combustion efficiency and lower radiative loss associated with the EGF compared to the elevated flare, maximum ground level impacts are generally found to reduce in the proposed site scenario. These effects compete against, and mitigate, the reduction in release height".

The model comprised two emission scenarios for the current and proposed operation of the flare system at FEP:

- Assessment of impacts during normal operation of FEP; and
- Assessment of conservative flaring event emissions scenario, considering the impacts on air quality during a Process Gas Compressor (PGC) trip.

During normal operation of FEP, based on actual flaring data during the period 2013-2020, base-load flaring rates averaged 0.11 T h^{-1} for the elevated flare and 0.67 T h-1 for the ground flares. For the first five minutes of a PGC trip, peak instantaneous flaring rates can increase to 200 T h^{-1}, although a more typical rate until the plant can be re-configured in 'Safepark' mode is 130 T h^{-1}.

For the purposes of the assessment, two sub-scenarios were considered for the flaring event scenario:

- An assessment of impact during a PGC trip assuming flaring occurs at the instantaneous peak rate of 200 T h^{-1} continuously over the course of the year; and
- An assessment of impact during a PGC trip assuming flaring occurs at the more typical peak rate of 130 T h^{-1} continuously over the course of the year.

In actual operation, flaring would not occur at this rate continuously throughout the year. This is a conservative assumption introduced to the modelling to address potential model uncertainty, ensuring that the model prediction is robust, particularly for long-term, annual mean impacts.

Owing to the interlinked nature of the FEP and FNGL plant, and to allow a more accurate prediction of the total predicted environmental concentration (PEC), in addition to FEP emission sources, the FNGL plant furnace stacks and flares were also included within the model with their emissions modelled under a normal operational scenario.

The assessment considers emissions of the following pollutants:

- Oxides of nitrogen as nitrogen dioxide (NOx as NO_2);
- Sulphur dioxide (SO_2);
- Carbon monoxide (CO);
- Particulate matter with an aerodynamic diameter < 10 µm (PM_{10});
- Particulate matter with an aerodynamic diameter < 2.5 µm ($PM_{2.5}$);
- Unburnt hydrocarbons (UHCs); and
- Benzene, toluene, ethyl benzene and xylene (BTEX).

Findings

Tables 5.1 through 5.3 in the Wood Report indicate that there are no predicted exceedances of any AQS, AQO or EAL during normal operation of FEP and during both PGC trip scenarios with the proposed changes to the flare system. On this basis, the risk of adverse impacts on human health would appear to be negligible.

Comparison of impacts with the existing flare system

The impacts are summarised in Table 5.7 of the Wood Report and indicate that most parameters decrease slightly or remain unchanged. There are slight increases reported for NOx Daily Mean under both flaring scenarios, reported as being very minor and considered to be within the variance of the model.

Despite diverting the flare gas streams from the elevated flare to the EGF, for the majority of pollutants there would be a reduction in maximum ground level impacts at human receptor locations with the EGF in operation. Although the EGF has a lower release height than the elevated flare, due to its enclosed nature, it is easier to control and optimise combustion conditions, resulting in an increase in the combustion efficiency, whilst the fraction of heat radiated also reduces considerably. The combined effect of these factors is to increase the plume buoyancy, which increases buoyancy driven plume rise above that which occurs from the elevated flare. Additionally, the improved combustion efficiency significantly reduces the formation of particulate matter and reduces unburnt hydrocarbon emissions. Thus, for PM_{10}, $PM_{2.5}$ and Unburned Hydrocarbons (UHC), there is a dual effect of increasing plume buoyancy and reduced emission rate which drives the reduction in ground level impacts.

SEPA has reviewed the Technical Report and no issues with the methodology for modelling the flare source have been identified. The methodology includes sensitivity tests to ensure a worst-case approach for assessing risk. There are a number of areas which could lead to increased uncertainty in the model outputs:

- It is noted that the flare source itself is challenging to model and this will increase model uncertainties.
- The background concentrations used are based on Defra gridded background concentrations, these are lower than those measured at the nearest council-run continuous monitor on Appin Crescent, although this is a roadside monitor and likely to be high due to being close to traffic emissions. Similarly, SEPA monitoring in the vicinity of the Mossmorran complex found a higher NO_2 background concentration between Aug 2019 and Mar 2020, but it is unknown how representative this is of the background concentration at the sensitive receptors. Based on this, it is possible that the gridded concentrations, which are based on modelling, and thus also have uncertainties, are on the low side.

Taking into account higher than normal uncertainties due to modelling a flare, the model would still need to be underestimating by a large amount for an air quality exceedance, and therefore the overall risk of an exceedance is low.

5.3 Implications of the Variation on - Point Source Emissions to Surface Water and Sewer

None identified.

5.4 Implications of the Variation on - Point Source Emissions to Groundwater

None identified.

5.5 Implications of the Variation on - Fugitive Emissions to Air

None identified.

5.6 Implications of the Variation on - Fugitive Emissions to Water

None identified.

5.7 Implications of the Variation on – Odour

None identified.

5.8 Implications of the Variation on – Management

Flaring events will be handled differently going forward as FEP will have sole use of a dedicated 130 tonne/hour EGF, which will allow all process and most incident flaring to be handled through this route. The Management of Change is being instigated on the Site to update all relevant procedures appropriately.

5.9 Implications of the Variation on - Raw Materials

None.

5.10 Implications of the Variation on - Raw Materials Selection

None.

5.11 Implications of the Variation on - Waste Minimisation Requirements

None.

5.12 Implications of the Variation on - Water Use

None.

5.13 Implications of the Variation on - Waste Handling

None.

5.14 Implications of the Variation on - Waste Recovery or Disposal

None.

5.15 Implications of the Variation on – Energy

None.

5.16 Implications of the Variation for - Accidents and their Consequences

None.

5.17 Implications of the Variation for – Noise

A noise study was carried out by RMP as a part of the planning application for the EGF looking in detail at low frequency and total sound expected to arise from the new equipment under normal and worst case conditions.

It should be noted that in the event of a significant flaring incident the elevated flare will continue to be used for a short period, estimated at ten minutes and no longer than one hour. Data is not yet available for noise from the elevated flare tip since it was replaced with a low noise version in 2021, but it is designed to use less steam and therefore generate less noise.

The Report assessed a significant flaring event in 2020 where the elevated flare (prior to tip replacement) was used at a rate of 100 Tonnes/hour and produced predictions for the use of the new EGF at full capacity (130 Tonnes / hour) using a model. An additional Report was created for the use of the control valve, which is not expected to be needed regularly, but represents worst case sound emissions. Additionally, SEPA requested that a penalty of 3dB be applied to the EGF emissions, given their distinctive nature.

The Results are presented as a BS4142 Assessment using measured background data and using the NANR45 Low Frequency Assessment method. Maps showing the predicted sound levels were also presented in Appendix A of the Report.

In Summary:

- The BS 4142:2014+A1:2019 assessment when considered in context predicts a 'low noise impact' from the proposed new enclosed ground flares at the surrounding residential properties unless the control valve is in use, when adverse impacts are expected at Little Raith Farm, Dorloch Cottage and the Poultry Farm, although significant pollution is not expected to be caused. No impact is expected in Lochgelly or Cowdenbeath under this scenario.

- The low frequency NANR 45 assessment has indicated a very significant reduction in low frequency noise energy between the elevated and new proposed enclosed ground flare within the Noise Sensitive Receptors during the normal scenario. With the control valve in use the decrease is less pronounced but still present. The predicted level in both scenarios is well below the NANR 45 limit.

SEPA has assessed the Report and is satisfied that the new EGF will bring major benefits to the noise environment over the use of elevated flaring.

The variation amends the definition of a "Major" flaring event (currently defined as "Major used with reference to flaring means any emission of hydrocarbon equal to or greater than 5 tonnes/hour for a period of 30 minutes or more"), to:

"*Major used with reference to flaring means any emission of hydrocarbon equal to or greater than 15 tonnes/hour for a period of 60 minutes or more*".

This is to reflect the use of the new elevated flare tip and EGF in combination. Changes have also been made to the Environmental Monitoring Plan Conditions to require BS:4142 Assessments of major elevated flaring events only. The requirement to Report use of the EGF above 15 Tonnes/hour for a period of 60 minutes or more is also included. Conditions requiring notification of significant planned events also remain in the permit.

While a higher definition of flaring was requested in the application, SEPA are unable to move to a higher definition at this time given the limited availability of real world data on the performance of the new elevated flare tip and the EGF. Once this is available consideration will be given again to the Definition of Major Flaring.

As a result of this change the existing Enforcement Position in relation to Conditions 6.1.3 and 6.1.5, which defines 'Major' in the same way, will be removed.

5.18 Implications of the Variation for – Monitoring

Due to the changes made on Site an update to the Environmental Monitoring Plan will be triggered by new Condition 6.1.6. This is due to be submitted by 31 December 2023. It is not expected that monitoring will change before this time.

Table 4.2 has been amended to update stack monitoring requirements to current standards for the Furnaces and Gas Turbine.

A footnote has also been added to Table 5.1 regarding monitoring of the boiler stacks on site. This clarifies that in the event of venting via the boilers from the Feed Treatment Unit, a methodology for quantifying these emissions and separating them from the Large Combustion Plant (boiler) emissions must be agreed in advance with SEPA.

5.19 Implications of the Variation for – Closure

None

5.20 Implications of the Variation for - Site Condition Report (and where relevant the baseline report)

None

5.21 Implications of the Variation for - Consideration of BAT

Following the submission of a BAT assessment for flaring from the FEP in April 2019, the permit for ExxonMobil Chemical Limited's Fife Ethylene Plant (FEP) was varied (VN07) in August 2019 to specify BAT for flaring at the site. One of the requirements on ExxonMobil Chemical Limited was to produce a project plan for bringing into operation a totally enclosed ground flare system. SEPA have been regularly reviewing progress towards bringing the ground flare into operation with the Operator, including frequent Site visits.

The application includes a request to amend the Operational Date for the EGF back from 01 April 2023 to 31 June 2023. This has been thoroughly assessed by SEPA and is deemed reasonable due to construction delays, weather conditions and progress to date. The remaining construction programme is considered to be achievable within this timescale and the extension will give the Operator time to properly construct and test the equipment prior to use.

The completion of the EGF will complete the update of the Site to BAT for flaring with a modern low noise elevated flare tip and a modern, appropriately sized ground flare that meets the requirements set out in Condition 4.3.16, namely:

The totally enclosed ground flare system design basis shall have, as a minimum:

i. A minimum operational capacity of 100 tph for the gas compositions at the permitted installation;
ii. Continuous monitoring and recording of gas flows to the ground flare system;
iii. Continuous monitoring and recording of the composition of flare gas to the ground flare system;
iv. A maximum ground flare noise of 85 dB(A) at 1 metre from the wind/noise barrier of the ground flare;
v. A smokeless capacity of 100%;
vi. Availability of 99%;
vii. A minimum combustion efficiency of 99%.

The changes detailed below bring the EGF into the permit.

6 OTHER LEGISLATION CONSIDERED

Nature Conservation (Scotland) Act 2004* & *Conservation (Natural Habitats &c.) Regulations 1994

Is there any possibility that the proposal will have any impact on site designated under the above legislation?
No

Justification: Site emissions will decrease as a result of the proposed changes and air emission modelling has confirmed that there are no expected impacts on designated sites.

Officer: David Fisher

7 ENVIRONMENTAL IMPACT ASSESSMENT AND COMAH

How has any relevant information obtained or conclusion arrived at pursuant to Articles 5, 6 and 7 of Council Directive 85/337/EEC on the assessment of the effects certain public and private projects on the environment been taken into account?
N/A – Fife Council determined that an EIA was not required for the EGF Project.

How has any information contained within a safety report within the meaning of Regulation 7 (safety report) of the Control of Major Accident Hazards Regulations 1999 been taken into account?
No – an update to the Safety Report will be submitted and assessed separately.

Officer: David Fisher

8 DETAILS OF PERMIT

Do you propose placing any non standard conditions in the Permit? No

Do you propose making changes to existing text, tables or diagrams within the permit? Yes

Outline of change:

1. In the Interpretation of Terms, the following are deleted to remove reference to A18 (Shell Ground Flare) and revise the definition of Major Flaring (see 5.21 BAT above):

"Flaring" means any emission of hydrocarbon from emission point numbers A16, A17, A18 and A19, where the flare is lit, as described in Table 4.1;

"Venting" means any emission of hydrocarbon from emission point numbers A16, A17, A18 and A19, where the flare is unlit and from emission point numbers A12, A13, A14 and A15, as described in Table 4.1;

"Major" used with reference to flaring means any emission of hydrocarbon equal to or greater than 15 tonnes/hour for a period of 60 minutes or more; and

"Major" used with reference to venting means any emission of hydrocarbon from emission point numbers A16, A17, A18 and A19, where the flare is unlit.

2. In the Interpretation of Terms, the following have been added to remove reference to A18 (Shell Ground Flare) and revise the definition of Major Flaring (see 5.21 BAT above). A17 has been redesignated as the EGF:

"Flaring" means any emission of hydrocarbon from emission point numbers A16, A17 and A19, where the flare is lit, as described in Table 4.1;

"Venting" means any emission of hydrocarbon from emission point numbers A16, A17 and A19, where the flare is unlit and from emission point numbers A12, A13, A14 and A15, as described in Table 4.1;

"Major" used with reference to flaring means any emission of hydrocarbon equal to or greater than 15 tonnes/hour for a period of 60 minutes or more; and

"Major" used with reference to venting means any emission of hydrocarbon from emission point numbers A16, A17 and A19, where the flare is unlit.

3. In Schedule 1, Conditions 1.1.4.1(e) and (g) are deleted and a new Condition 1.1.4.1(e) has been added as follows to remove the existing ground flares and temporary boilers and incorporate the EGF:

e. an enclosed ground flare with a capacity of 130 Tonnes per hour;

4. In Schedule 1, Condition 1.1.6 is deleted, and a new Condition 1.1.6 has been added as follows to update the Site name:

1.1.6 The adjacent Avanti Gas tanker loading facility for the loading and odorising of propane and butane, located to the north of the installation, does not form part of the installation.

5. In Table 2.1 – Reporting and Notification Requirements, rows 19, 20, 27, 28, 29 and 38, relating to completed one-off Reports and temporary boilers have been deleted and new rows have been added to reflect additions to the permit, as follows:

Summary of Information to be Reported or Notified	Condition	Date/Within period/ Frequency to be Reported	Date First Report Due
Assessment of all measures used to prevent emissions to soil and groundwater	2.7.4	At least once every four years	31 October 2026
Periodic Monitoring	4.1.4	Quarterly, within six weeks of completion of the monitoring	31 May 2023
Updated Environmental Monitoring Programme	6.1.6	At least every two years or following a change in operation	31 December 2023

6. In Schedule 4, Conditions 4.1.7, 4.1.8 and 4.1.9, relating to temporary boilers are deleted.

7. In Schedule 4, Conditions 4.3.10 and 4.3.11 are deleted and new conditions 4.3.10 and 4.3.11 have been added as follows to update the references from the old ground flares to the EGF:

4.3.10 Flaring from the installation shall take place preferentially on the Enclosed Ground Flare.

4.3.11 Where the Enclosed Ground Flare is not employed the reason for this should be included within the report required by Condition 4.3.1.

8. In Schedule 4, Conditions 4.3.13 i. is deleted and new Condition 4.3.13 i. to reflect the installation of the EGF has been added as follows:

i. The gas flow and composition to the enclosed ground flare (emission point A17);

9. In Schedule 4, Condition 4.3.15 relating to the submitted EGF Project Plan is deleted.

10. In Schedule 4, Condition 4.3.17 is deleted and new Condition 4.3.17 is inserted to reflect the updated project Schedule as follows:

4.3.17 From 30 June 2023 a new totally enclosed ground flare shall be operational and maintained to meet the requirements in Condition 4.3.16.

11. In Table 4.1, columns 14 (A17), 15 (A18), 17 to 25 (A20 to A28) are deleted to remove reference to the former ground flares and the temporary boilers.

12. In Table 4.1 a new column is inserted as follows to bring the EGF into the permit:

A17	Enclosed Ground Flare	31/18.3	A17	NT 188 901	SS	Flare Exhaust	-	-	-	-	Ringelmann Shade 1 > 15 mins

13. In Table 4.2 rows 1 to 3 and 9 to 12 are deleted and following rows are inserted to remove reference to A18 and to bring modern testing standards into use on the Furnaces and Gas Turbine:

Parameter	Emission point number	Spot Sampling (SS)		
		Standard	Frequency	Operational Mode
Oxides of Nitrogen	A01 to A07 and A11	BS EN 14792	Quarterly	Operational
Oxides of Sulphur	A11	BS EN 14791	Quarterly	Operational
Smoke		BS 2742:1969	Start Up/ Shut Down	Start Up/ Shut Down

	A01 to A07 inclusive, A16, A17 & A19		Daily	Operational

14. In Table 4.3 row 3 is deleted to remove reference to the temporary boilers.

15. Table 4.4 is deleted to remove reference to the former ground flares and a new Table 4.4 is inserted as follows:

Parameter	Combined Emissions (Number)	Method (Summary)	Mass Emissions Result to be recorded as
Oxides of Nitrogen (expressed as nitrogen dioxide)	A01 to A07 inclusive, A11, A16, A17 & A19	As agreed in writing with SEPA	Tonnes per month
Oxides of Sulphur	A11		Tonnes per month
Carbon Dioxide	A01 to A07 inclusive, A11, A14, A16, A17 & A19		Tonnes per month
H_2S	A14		Tonnes per month
Total Organic Carbon	A11, A13, A16, A17 & A19		Tonnes per month

16. In Table 5.1 row 7 (Type of Monitoring) is deleted and a new row is inserted to clarify arrangements for monitoring of the boilers as follows:

Monitoring Details	**Type of Monitoring[1]**	SS	SS	SS

Note 1: ELVs apply to LCP Combustion emissions only. If Feed Treatment Unit offgas is routing through A08, A09 or A10 during monitoring, appropriate sampling methodology must be agreed in advance with SEPA.

17. In Schedule 6 Conditions 6.1.3, 6.1.4 and 6.1.5 are deleted and the following Conditions are inserted to specify that the assessments are only required for Major Elevated Flaring events and that a regular review of the EMP is carried out:

6.1.3 By 01 April 2022 the Operator shall submit to SEPA an updated Environmental Monitoring Programme, as required by Condition 6.1.1, which shall include:

(a) a programme for the communication of existing air quality monitoring data; and

(b) a methodology for carrying out sound level noise monitoring and noise impact assessments during Major Elevated Flaring Events, which shall include proposals for:

(i) the measurement of sound at identified monitoring locations, and the assessment of noise impact, if any, at identified locations of monitoring

representative of residential receptors using the methodology described by BS 4142;

(ii) the measurement of low frequency sound at identified monitoring locations, and the assessment of low frequency noise impact, if any, at identified locations of monitoring using (to the extent practicable) a modified approach to the methodology described by NANR45; and

(iii) clearly identifying the locations of monitoring (by map and location photo).

6.1.4 From 01 April 2022 whenever a Major Elevated Flaring Event occurs, the operator shall implement the methodology specified in the Environmental Monitoring Programme required by Condition 6.1.3(b).

6.1.5 Unless otherwise agreed in writing with SEPA, following a Major Elevated Flaring Event:

(a) the following shall be included as part of the incident report required by Condition 2.4.6; the total flaring rate of hydrocarbon in tonnes per hour, the elevated flaring rate of hydrocarbon in tonnes per hour, associated steam rate in tonnes per hour, and the ground flare loading rate of hydrocarbon in tonnes per hour during the entire event period; and

(b) within six weeks of cessation of the Major Elevated Flaring Event, a report covering the methodology implemented, as required by Condition 6.1.4, and any assessments undertaken, shall be submitted to SEPA. The report shall include as a minimum:

(i) information required to be reported by the relevant standard; and

(ii) a justification for the location(s) at which monitoring, and the assessment was undertaken.

6.1.6 At least every two years, or following a change in operation, the operator shall carry out a review of the Environmental Monitoring Programme as required by Conditions 6.1.1, 6.1.2 and 6.1.3, and update as necessary. The reviewed plan must be reported to SEPA.

Note:

The application included a request to remove Condition 4.3.14 (requirement to operate low noise flare tip) and Condition 4.3.16 (design basis for EGF), but these have been left in place at this time as they are considered to still be required in the permit.

9 EMISSION LIMIT VALUES OR EQUIVALENT TECHNICAL PARAMETERS/ MEASURES

Are you are dealing with either a permit application, or a permit variation which would involve a review of existing ELVs or equivalent technical parameters? Yes

Justification: In Table 4.1, Emission Point A17 (the new EGF) Smoke has been moved from Ringelmann Shade 2 to Ringelmann Shade 1 to reflect the smokeless operation expected from the EGF.

10 PEER REVIEW

Has the determination and draft permit been Peer Reviewed? Yes

Name of Peer Reviewer and comments made: Ian Brocklebank
Document reviewed and minor comments made to assist with clarity.

11 FINAL DETERMINATION

Issue a Permit – Based on the information available at the time of the determination SEPA is satisfied that

- The applicant will be the person who will have control over the operation of the installation/mobile plant,
- The applicant will ensure that the installation/mobile plant is operated so as to comply with the conditions of the Permit,
- The applicant is a fit and proper person (specified waste management activities only),
- Planning permission for the activity is in force (specified waste management activities only),
- That the operator is in a position to use all appropriate preventative measures against pollution, in particular through the application of best available techniques.
- That no significant pollution should be caused.

Officer: David Fisher

12 REFERENCES AND GUIDANCE

Assessment of Air Quality Impacts from the Operation of a New Enclosed Ground Flare at Fife Ethylene Plant, Technical Report, Wood, April 2021, Ref: 190711-WOOD-XX-XX-RP-OA-00001_A_C1.0_2021

Can be downloaded from Fife Council Planning Portal Ref: **21/01696/FULL**

Noise Impact Assessment, New Enclosed Ground Flare, ExxonMobil Fife Ethylene Plant, Mossmorran, KY4 8EP, RMP, Technical Report No. R-8130Q-ST1-RGM, 20th May 2021

Can be downloaded from Fife Council Planning Portal Ref: **21/01696/FULL**