

Petroineos Manufacturing Scotland Limited Grangemouth

Operator Initiated Variation

Variation Number PPC/A/1013141/CP02/VAR01

Draft for Consultation

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1 NON TECHNICAL SUMMARY OF DETERMINATION**Extension to Sulphur Derogation Timeline of Eight Months**

The delayed installation of a Sulphur scrubber on the fuel gas system will result in the emission of an estimated additional 41.4 Tonnes of Sulphur.

SEPA has assessed the request and is minded to approve it due to the technical reasons presented and the context of a much-reduced site-wide Sulphur emission since the original derogation was determined. The additional emission over an eight month period equates to roughly five days of daily emissions in 2019 prior to Site restructuring. The daily emission is at around 25% of this level today.

An additional request for a higher Sulphur Emission Limit Value (ELV) than 35mg/m³ during periods of planned maintenance has been accepted for certain scenarios when agreed in writing in advance. The ELV during these periods has been set based upon recent unabated performance at 70mg/m³. The current ELV is 500mg/m³ so this is still regarded as protective of the environment during these limited periods.

Glossary of terms

BAT	-	Best Available Techniques
CO	-	Coordinating Officer
ELV	-	Emission Limit Value

2 EXTERNAL CONSULTATION AND SEPA'S RESPONSE

Is Public Consultation Required - No

Is PPC Statutory Consultation Required – No

Discretionary Consultation –

Enhanced SEPA public consultation – Yes, this document was placed on the PPD website as it involves the extension of the previously agreed timeline for a derogation on Sulphur emissions from the Site.

'Off-site' Consultation – N/A

Transboundary Consultation – N/A

Public Participation Consultation – Yes

3 ADMINISTRATIVE DETERMINATIONS
Determination of the Schedule 1 activity:
No change
Determination of the stationary technical unit to be permitted:
Removal of the FCCU unit.
Determination of directly associated activities:
No change
Determination of 'site boundary'
No change

4 INTRODUCTION AND BACKGROUND

4.1 Historical Background to the activity and variation

Petroineos has completed a number of upgrades over the last three years to remove the use of fuel oil and also reconfigured the site to remove two significant units equating to around a third of its former capacity. This variation has been requested to extend the time limit for a final upgrade to the Site fuel gas system to remove Sulphur and to make several additional minor changes to account for unusual operating conditions.

4.2 Description of activity

Oil refinery with a capacity of 150,000 barrels per day.

4.3 Outline details of the Variation applied for

See non-technical summary.

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

None.

4.5 Identification of important and sensitive receptors

See Derogation application 2018.

5 KEY ENVIRONMENTAL ISSUES

5.1 Summary of significant environmental impacts

All of the changes requested will affect air emissions only. Sulphur emission improvements will be delayed, but this is within the context of the Site already exceeding BAT requirements as determined in the 2018 BREF Review.

Other changes to the permit will not result in additional emissions than occur at present, reflecting actual practice.

5.2 Implications of the Variation on - Point Sources to Air

Extension to Sulphur Derogation Timeline of Eight Months

The delayed installation of a Sulphur scrubber on the fuel gas system will result in the emission of an estimated additional 41.4 Tonnes of Sulphur delaying full compliance with the Sulphur Derogation in Annex I of the Permit. Considerations include:

1. Upgrades and changes on the Site since the BAT Review in 2018 mean that overall SO_x emissions have fallen from ~4500 Tonnes per year to ~1000 Tonnes per year. This improvement far exceeds the previous BAT estimate of 1798 Tonnes per year for the Site.
2. Two out of the three Sulphur derogations have been complied with / no longer apply due to unit closure. The original Cost Benefit Assessment (CBA) combined all three and the delayed scrubber was the smallest element of the work. This CBA concluded that costs exceeded benefits by £310 million.
3. The extension will lead to an additional 41.4 Tonnes of Sulphur being released over the period (for context Site emissions have fallen from ~12 Tonnes per day to ~3 Tonnes per day).
4. The 2018 CBA spreadsheet is now using outdated cost data.
5. A simplistic assessment using current Sulphur central damage costs comprises:

Sulphur Damage Cost £13,026 / tonne x 42 = £547,092

Installation Costs are £1 million.

Disruption costs to bring the project forward for the Site as a whole are ~ £1 million / day. Realistically a full shutdown would not be required, so a figure of £250,000/day has been used.

Installation will take approximately one month so 30 x 250,000 equates to costs of £7.5 million.

Therefore, costs exceed benefits by ~£7 million.

SEPA is minded to approve the request due to the technical reasons presented and the context of a much-reduced site-wide Sulphur emission since the original derogation was determined. The additional emission over an eight month period equates to roughly five days of daily emissions in 2019 prior to Site restructuring. The daily emission is at around 25% of this level today.

An additional request for a higher Sulphur Emission Limit Value (ELV) during periods of planned maintenance has been accepted for certain scenarios when agreed in writing in advance. The ELV during these periods has been set based upon recent unabated performance at 70mg/m³. The current ELV is 500mg/m³ so this is still regarded as protective of the environment.

5.3 Implications of the Variation on - Point Source Emissions to Surface Water and Sewer
None.

5.4 Implications of the Variation on - Point Source Emissions to Groundwater
None.

5.5 Implications of the Variation on - Fugitive Emissions to Air
None.

5.6 Implications of the Variation on - Fugitive Emissions to Water
None.

5.7 Implications of the Variation on – Odour
None.

5.8 Implications of the Variation on – Management
None.

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
None.

5.18 Implications of the Variation for – Monitoring

There will be a one-month period when the CEMS units on site will not be operational as they are replaced to enable accurate readings of S levels going forward. Adequate proxy and extractive monitoring have been proposed during this period and accepted by 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

Extension to Sulphur Derogation Timeline of Eight Months

The upgrade will bring the Site's Sulphur emissions down to the BAT AEL of 35mg/m³. Site BAT was fully described for Sulphur during the BREF Review in 2018 and this has already been exceeded on an annual mass basis as described in Section 5.2 above.

The requirement for a higher ELV during certain maintenance activities is accepted and allowable under the BREF. The ELV for these periods has been set at double the BATAEL (which equates to a Minor Incident under SEPA Guidance) based upon recent performance. Other work is ongoing to look at management of Sulphur across the Site (Appraise Study) to ensure that compliance is maintained at all other times.

6 OTHER LEGISLATION CONSIDERED
<i>Nature Conservation (Scotland) Act 2004 & Conservation (Natural Habitats &c.) Regulations 1994</i>
Is there any possibility that the proposal will have any impact on site designated under the above legislation? No
Justification: Emissions have fallen considerably from the Site over the past three years and will not increase as a result of the proposed changes.

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
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? N/A

8 DETAILS OF PERMIT

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

Changes made to existing Conditions and Tables only.

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

Outline of change: See VAR01 Schedule.

Details including justification: See Application paperwork and above.

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: SO₂ ELV increased during pre-agreed periods of planned maintenance when fuel gas scrubbing would be offline. This is permissible under the BREF and has been limited to 70mg/m³.

10 PEER REVIEW

Has the determination and draft permit been Peer Reviewed? Yes

Comments on draft documents have been made and changes have been actioned.

11 FINAL DETERMINATION**Issue variation to Permit PPC/A/1013141 VAR01**

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.
- The applicant will ensure that the installation plant is operated so as to comply with the conditions of the Permit.

12 REFERENCES AND GUIDANCE

Refining of Mineral Oil and Gas BAT Conclusions – October 2014

Original Derogation Documents: [1013141 | SCOTTISH ENVIRONMENT PROTECTION AGENCY \(SEPA\)](#)

UK Damage Costs: [AIR QUALITY APPRAISAL: DAMAGE COST GUIDANCE - GOV.UK \(WWW.GOV.UK\)](#)