

Non-Technical Summary

Normal Variation December 2023

Introduction

The proposed changes to the environmental permit EPR/WP3633KH include the following aspects:

1. Changes to permit limits within emissions to air and water. Table 3.1 & 3.2 respectively.
2. Changes to the monitoring frequency of emission to air points. Table 3.2.
3. Minor changes to the permit correcting historical errors.

1. Permit Limit Changes

A8 – Fermenter scrubber via regenerative thermal oxidiser (RTO) stack. This change is increasing the limit of oxides of nitrogen from 50mg/m³ to 130mg/m³.

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 ^{Note 4}	Wheat mill tipping	Particulate matter	20 mg/m ³	Average over sample period	Once every year	EN 13284-1
A2 ^{Note 4}	Mill conveying and pre-clean vent via abatement plant bag filter stack on wheat milling building	Particulate matter	20 mg/m ³	Average over sample period	Once every year	EN 13284-1
A3 ^{Note 4}	De-stoners and conveyor A vent via abatement plant bag filter stack on wheat milling building	Particulate matter	20 mg/m ³	Average over sample period	Once every year	EN 13284-1
A4 ^{Note 4}	Cleaning A vent via abatement plant bag filter stack on wheat milling building	Particulate matter	20 mg/m ³	Average over sample period	Once every year	EN 13284-1
A5 ^{Note 4}	Discharge A and B vent via abatement plant bag filter stack on wheat milling building	Particulate matter	20 mg/m ³	Average over sample period	Once every year	EN 13284-1
A6 ^{Note 4}	Cleaning B vent via abatement plant bag filter stack on wheat milling building	Particulate matter	20 mg/m ³	Average over sample period	Once every year	EN 13284-1
A7 ^{Note 4}	De-stoners on conveyor B vent via abatement plant bag filter stack on wheat milling building	Particulate matter	20 mg/m ³	Average over sample period	Once every year	EN 13284-1
A8 ^{Note 4}	Fermenter scrubber via regenerative thermal oxidiser (RTO) stack	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	50 mg/m ³	Average over sample period	Once every year	EN 14792

The above requested change is based on the document below, table 1.4 NO_x from thermal oxidation:

COMMISSION IMPLEMENTING DECISION (EU) 2022/2427

of 6 December 2022

establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions, for common waste gas management and treatment systems in the chemical sector

(notified under document C(2022) 8788)

Table 1.4

BAT-associated emission levels (BAT-AELs) for channelled emissions to air of NO_x and indicative emission level for channelled emissions to air of CO from thermal treatment

Substance/Parameter	BAT-AEL (mg/Nm ³) (Daily average or average over the sampling period)
Nitrogen oxides (NO _x) from catalytic oxidation	5 -30 ⁽³⁶⁾
Nitrogen oxides (NO _x) from thermal oxidation	5 -130 ⁽³⁷⁾
Carbon monoxide (CO)	No BAT-AEL ⁽³⁸⁾

The associated monitoring is given in BAT 8.

A19 - Road tanker loading area Vapour Combustion Unit Stack. This change is increasing the limit of oxides of nitrogen from 50mg/m³ to 130mg/m³.

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A17 ^{Note 4}	Pellet cooler 4 via cyclone stack	Particulate matter	50 mg/m ³	Average over sample period	Once every year	EN 13284-1
A18 [OS grid ref 516490, 427750]	Biogas flare from purification of process condensate	No parameters set	No limit set	-	-	Permanent sampling access not required
A19 [Point A19 on the Continuous Emissions Locations plan Rev 3]	Road tanker loading area Vapour Combustion Unit stack	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	50 mg/m ³	Average over sample period	Once every year	EN 14792
		Carbon monoxide	100 mg/m ³	Average over sample period	Once every year	EN 15058
		TVOC (as carbon)	2 kg/hour ^{Note 3}	Average over sample period	Once every year	Mass Balance based on monitoring undertaken to EN 12319
		TVOC (as carbon)	75 mg/m ³ ^{Note 3}	Average over sample period	Once every year	EN 12319

The above requested change is based on the document below, table 1.4 NO_x from thermal oxidation:

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Substance/Parameter	BAT-AEL (mg/Nm ³)
	(Daily average or average over the sampling period)
Nitrogen oxides (NO _x) from catalytic oxidation	5 -30 ⁽³⁶⁾
Nitrogen oxides (NO _x) from thermal oxidation	5 -130 ⁽³⁷⁾
Carbon monoxide (CO)	No BAT-AEL ⁽³⁸⁾

The associated monitoring is given in BAT 8.

W1 - Total Phosphorus on the clean trade effluent emission to water limit change from 0.5mg/l to 3mg/l in line with document: **Best Available Techniques (BAT) Reference Document for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control)**

Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 ^{Note 1}	Blind sumps; cooling water blowdown; rainwater.	Total suspended solids (TSS)	30 mg/l ^{Note 3}	24 hour flow proportional composite sample	Daily ^{Note 2}	BS EN 872
		Total organic carbon (TOC)	33 mg/l ^{Note 3}	24 hour flow proportional composite sample	Daily ^{Note 2} 24 hour proportional flow composite sample	EN 1484
		Total organic carbon (TOC)	100 mg/l	Instantaneous	Continuous	EN 1484
		Chemical oxygen demand (COD)	200 kg/day	24 hour proportional flow composite sample (24 hour average)	Daily	BS ISO 15705
		Nickel	-	24 hour flow proportional composite sample	Weekly ^{Note 2}	EN ISO 11885
		Total phosphorus (TP)	0.5 mg/l ^{Note 3}	24 hour flow proportional composite sample	Daily ^{Notes 2 & 4}	EN ISO 15681-1

Table 4.2: BAT-AELs for direct emissions of nutrients to a receiving water body

Parameter	BAT-AEL (yearly average)	Conditions
Total nitrogen (TN) ⁽¹⁾	5.0–25 mg/l ⁽²⁾ ⁽³⁾	The BAT-AEL applies if the emission exceeds 2.5 t/yr.
Total inorganic nitrogen (N _{inorg}) ⁽¹⁾	5.0–20 mg/l ⁽²⁾ ⁽³⁾	The BAT-AEL applies if the emission exceeds 2.0 t/yr.
Total phosphorus (TP)	0.50–3.0 mg/l ⁽⁴⁾	The BAT-AEL applies if the emission exceeds 300 kg/yr.
<p>⁽¹⁾ Either the BAT-AEL for total nitrogen or the BAT-AEL for total inorganic nitrogen applies.</p> <p>⁽²⁾ The BAT-AELs for TN and N_{inorg} do not apply to installations without biological waste water treatment. The lower end of the range is typically achieved when the influent to the biological waste water treatment plant contains low levels of nitrogen and/or when nitrification/denitrification can be operated under optimum conditions.</p> <p>⁽³⁾ The upper end of the range may be higher and up to 40 mg/l for TN or 35 mg/l for N_{inorg}, both as yearly averages, if the abatement efficiency is ≥ 70 % as a yearly average (including both pretreatment and final treatment).</p> <p>⁽⁴⁾ The lower end of the range is typically achieved when phosphorus is added for the proper operation of the biological waste water treatment plant or when phosphorus mainly originates from heating or cooling systems. The upper end of the range is typically achieved when phosphorus-containing compounds are produced by the installation.</p>		

2. Monitoring Frequency Changes

A14 – Pellet Line 1 and chaff line via cyclone stack.

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A14 <small>Notes 4 & 5</small>	Pellet cooler 1 and chaff line via cyclone stack	Particulate matter	50 mg/m ³	Average over sample period	Quarterly for first 12 months. Every 6 months thereafter <small>Note 6</small>	EN 13284-1

We would like to request that the monitoring frequency for A14 emission point is reduced to once every year given the below data on emissions throughout 2022 & 2023 below.

29th June 2022 – Particulate Matter – 2.2mg/m³ (Limit of 50mg/m³)

1st September 2022 – Particulate Matter – 0.77mg/m³ (Limit of 50mg/m³)

30th November 2022 – Particulate Matter – 0.64mg/m³ (Limit of 50mg/m³)

3rd April 2023 – Particulate Matter – 0.92mg/m³ (Limit of 50mg/m³)

A20 – Wheat intake lane 1 hopper vent abatement plant bag filter stack

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A17 <small>Note 4</small>	Pellet cooler 4 via cyclone stack	Particulate matter	50 mg/m ³	Average over sample period	Once every year	EN 13284-1
A18 [OS grid ref 516490, 427750]	Biogas flare from purification of process condensate	No parameters set	No limit set	-	-	Permanent sampling access not required
A19 [Point A19 on the Continuous Emissions Locations plan Rev 3]	Road tanker loading area Vapour Combustion Unit stack	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	50 mg/m ³	Average over sample period	Once every year	EN 14792
		Carbon monoxide	100 mg/m ³	Average over sample period	Once every year	EN 15058
		TVOC (as carbon)	2 kg/hour <small>Note 3</small>	Average over sample period	Once every year	Mass Balance based on monitoring undertaken to EN 12319
		TVOC (as carbon)	75 mg/m ³ <small>Note 3</small>	Average over sample period	Once every year	EN 12319
A20 as shown on 51203670-90-000-141-LAY-0006 Emission Locations	Particulate Matter	Wheat intake lane 1 hopper vent abatement plant bag filter stack	20 mg/m ³	Average over sample period	Quarterly for first 12 months. Every 6 months thereafter. <small>Note 6</small>	BS EN 13284-1

We would like to request that the monitoring frequency for A20 emission point is reduced to once every year given the below compliant data on emissions throughout 2022 & 2023 below.

19th May 2022 – Particulate Matter – 0.82mg/m³ (Limit of 20mg/m³)

1st September 2022 – Particulate Matter – 0.2mg/m³ (Limit of 20mg/m³)

29th November 2022 – Particulate Matter – 0.53mg/m³ (Limit of 20mg/m³)

3rd April 2023 – Particulate Matter – 0.78mg/m³ (Limit of 20mg/m³)

A21 – Wheat intake lane 2 hopper vent abatement plant bag filter stack

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A21 as shown on 51203670-90-000-141-LAY-0006 Emission Locations	Particulate Matter	Wheat intake lane 2 hopper vent abatement plant bag filter stack	20 mg/m ³	Average over sample period	Quarterly for first 12 months. Every 6 months thereafter. <small>Note 6</small>	BS EN 13284-1
<p>Note 1: Maximum length of time that the DDGS dryers can operate unabated before shut-down of emissions source shall be 24 hours.</p> <p>Note 2: Concentration of 20 mg/m³ for VOCs (as acetaldehyde) shall apply when mass release exceeds 100 g/hour.</p> <p>Note 3: Concentration limit of 75 mg/m³ as Carbon for TVOCs shall apply when mass release exceeds 2 kg/hr.</p> <p>Note 4: Emission point on the 'continuous emission locations' plan in Section 4 of application.</p> <p>Note 5: Refer to PO1 in table S1.4 of this permit.</p> <p>Note 6: Monitoring frequency may be reduced to once every year by written agreement with the Environment Agency if the data clearly demonstrates sufficient stability.</p>						

We would like to request that the monitoring frequency for A21 emission point is reduced to once every year given the below compliant data on emissions throughout 2022 & 2023 below.

19th May 2022 – Particulate Matter – 1.0mg/m³ (Limit of 20mg/m³)

1st September 2022 – Particulate Matter – 0.31mg/m³ (Limit of 20mg/m³)

29th November 2022 – Particulate Matter – 0.48mg/m³ (Limit of 20mg/m³)

3rd April 2023 – Particulate Matter – 0.37mg/m³ (Limit of 20mg/m³)

3. Minor changes

A20

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A17 ^{Note 4}	Pellet cooler 4 via cyclone stack	Particulate matter	50 mg/m ³	Average over sample period	Once every year	EN 13284-1
A18 [OS grid ref 516490, 427750]	Biogas flare from purification of process condensate	No parameters set	No limit set	-	-	Permanent sampling access not required
A19 [Point A19 on the Continuous Emissions Locations plan Rev 3]	Road tanker loading area Vapour Combustion Unit stack	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	50 mg/m ³	Average over sample period	Once every year	EN 14792
		Carbon monoxide	100 mg/m ³	Average over sample period	Once every year	EN 15058
		TVOC (as carbon)	2 kg/hour ^{Note 3}	Average over sample period	Once every year	Mass Balance based on monitoring undertaken to EN 12319
		TVOC (as carbon)	75 mg/m ³ ^{Note 3}	Average over sample period	Once every year	EN 12319
A20 as shown on 51203670-90-000-141-LAY-0006 Emission Locations	Particulate Matter ←	Wheat intake lane 1 hopper vent abatement plant bag filter stack	20 mg/m ³	Average over sample period	Quarterly for first 12 months. Every 6 months thereafter. ^{Note 6}	BS EN 13284-1

A21

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A21 as shown on 51203670-90-000-141-LAY-0006 Emission Locations	Particulate Matter ←	Wheat intake lane 2 hopper vent abatement plant bag filter stack	20 mg/m ³	Average over sample period	Quarterly for first 12 months. Every 6 months thereafter. ^{Note 6}	BS EN 13284-1

Note 1: Maximum length of time that the DDGS dryers can operate unabated before shut-down of emissions source shall be 24 hours.

Note 2: Concentration of 20 mg/m³ for VOCs (as acetaldehyde) shall apply when mass release exceeds 100 g/hour.

Note 3: Concentration limit of 75 mg/m³ as Carbon for TVOCs shall apply when mass release exceeds 2 kg/hr.

Note 4: Emission point on the 'continuous emission locations' plan in Section 4 of application.

Note 5: Refer to PO1 in table S1.4 of this permit.

Note 6: Monitoring frequency may be reduced to once every year by written agreement with the Environment Agency if the data clearly demonstrates sufficient stability.

H1 Assessment findings

The H1 assessment before A21 was added:

Air Impact Screening									
Screen out Insignificant Emissions to Air									
This page displays the Process Contribution as a proportion of the EAL or EQS. Emissions with PCs that are less than the criteria indicated may be screened from further assessment as they are likely to have an insignificant impact.									
Number	Substance	Long Term	Short Term	Long Term			Short Term		
		EAL	EAL	PC	% PC of EAL	> 1% of EAL?	PC	% PC of EAL	> 10% of EAL?
		µg/m ³	µg/m ³	µg/m ³	%		µg/m ³	%	
1	Particulates (PM10)	40.0	-	0.951	2.38	Yes	61.9	-	
1	Nitrogen Dioxide	40.0	200	4.19	10.5	Yes	259	130	Yes
2	Carbon monoxide	-	10,000	3.29	-		216	2.16	No

The H1 assessment after A20 and A21 were added:

Air Impact Screening									
Screen out Insignificant Emissions to Air									
This page displays the Process Contribution as a proportion of the EAL or EQS. Emissions with PCs that are less than the criteria indicated may be screened from further assessment as they are likely to have an insignificant impact.									
Number	Substance	Long Term	Short Term	Long Term			Short Term		
		EAL	EAL	PC	% PC of EAL	> 1% of EAL?	PC	% PC of EAL	> 10% of EAL?
		µg/m ³	µg/m ³	µg/m ³	%		µg/m ³	%	
1	Particulates (PM10)	40.0	-	16.7	41.7	Yes	467	-	
1	Nitrogen Dioxide	40.0	200	4.19	10.5	Yes	259	130	Yes
2	Carbon monoxide	-	10,000	3.29	-		216	2.16	No

The H1 assessment was modelled using the average of the last five readings where available or all readings if less than 5 available as the long term concentrations with the highest individual reading for the short term concentration for emission points A1 to A19. The proposed maximum permitted limits for A1-7 were used as potential maximums for both long term and short term concentrations for A20 and A21.

The Assessment shows an increase in particulates as a result of the new filter additions but these remain under 50% of the long term PC of EAL. It is anticipated based on performance of other filters on site that the in use measured values are likely to be significantly lower than these modelled values (the average for all other particulate readings is 1.53 mg/m³ with a highest reading of 4.9 mg/m³ with 20mg/m³ being used for this modelling exercise).

There are no changes to any of the systems which are evaluated for NO or CO.

As H1 has shown that these changes are not significant and it is not proposed to do any further air dispersion modelling to assess the impact.

