



Headquarters,
Johnstown Castle Estate,
County Wexford, Ireland

GREENHOUSE GAS EMISSIONS PERMIT

Permit Register Number:	IE-GHG024-10353-3
Operator:	Diageo Ireland St. James's Gate Dublin 8 Ireland
Installation Name:	St. James's Gate Brewery
Site Name:	St. James's Gate Brewery
Location:	St. James's Gate Dublin 8 Ireland

Introductory Note

This introductory note does not form a part of the Greenhouse Gas Emissions Permit.

This Greenhouse Gas Emissions Permit authorises the holder to undertake named activities resulting in emissions of Carbon Dioxide from the listed emission sources. It also contains requirements that must be met in respect of such emissions, including monitoring and reporting requirements. This Greenhouse Gas Emissions Permit places an obligation on the Operator to surrender allowances to the Agency equal to the annual reportable emissions of carbon dioxide equivalent from the installation in each calendar year, no later than four months after the end of each such year.

Contact with Agency:

If you contact the Agency about this Greenhouse Gas Emissions Permit please quote the following reference: Greenhouse Gas Emissions Permit N^o IE-GHG024-10353.

All correspondence in relation to this permit should be addressed to:

Email: help.ets@epa.ie

By Post: Climate Change Unit, Environmental Protection Agency
P.O. Box 3000, Johnstown Castle Estate,
Co. Wexford

Updating of the permit:

This Greenhouse Gas Emissions Permit may be updated by the Agency, subject to compliance with Condition 2. The current Greenhouse Gas Emissions Permit will normally be available on the Agency's website at www.epa.ie and [ETSWAP](#).

Surrender of the permit:

Before this Greenhouse Gas Emissions Permit can be wholly or partially surrendered, a written application must be made to the on-line ETS portal, and written permission received from, the Agency through [ETSWAP](#).

Transfer of the permit or part of the permit:

Before this Greenhouse Gas Emissions Permit can be wholly or partially transferred to another Operator a joint written application to transfer this Greenhouse Gas Emissions Permit must be made (by both the existing and proposed Operators) to, and written permission received from, the Agency through the on-line ETS portal [ETSWAP](#).

Licence held pursuant to the Environmental Protection Agency Act 1992, as amended. (as of the date of this permit):

IPC/IE Licence Register Number
P0301-04

Status Log

Current Permit

Permit number	Date application received	Date Permit issued	Comment
IE-GHG024-10353-3	15 December 2016	28 February 2017	<p>Addition of the source stream VOC 1 (off gases from roasters).</p> <p>Update meter uncertainty from 2.5% to 3% for NGM3, NGM4, NGM5 & NGM6.</p> <p>Update the source stream category for DSL-001 to major and the activity data to tier 4.</p>

Previous Permits

Permit number	Change Type	Date application received	Date Permit issued	Comment
IE-GHG024-10353-1	GHG Permit Application	19 December 2012	18 December 2013	
IE-GHG024-10353-2	GHG Variation	31 July 2014	09 March 2016	<ol style="list-style-type: none"> 1. New Roaster and afterburner added (S21) 2. Minor additions of temporary LPG (S19), acetylene (S20) and gas oil units (S18) 3. Minor additions of standby generation (S17) and laboratories (S16) 4. Replacement of meter (NGM2) 5. Update of contact details and IED number

End of Introductory Note

Glossary of Terms

For the purposes of this permit the terms listed in the left hand column shall have the meaning given in the right hand column below:

The Agency	Environmental Protection Agency.
Agreement	Agreement in writing.
Allowance	Permission to emit to the atmosphere one tonne of carbon dioxide equivalent during a specified period issued for the purposes of Directive 2003/87/EC by the Agency or by a designated national competent authority of a Member State of the European Union.
Annual Reportable Emissions	Reportable Emissions of carbon dioxide made in any calendar year commencing from 1 January 2005 or the year of commencement of the activity, whichever is the later.
A & V Regulation	Commission Regulation (EU) No 600/2012 of 21 June 2012 on the verification of greenhouse gas emission reports and tonne-kilometre reports and the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council and any amendments or revisions thereto.
Category A Installation	As defined in Article 19.2 (a) of the M&R Regulation.
Category B Installation	As defined in Article 19.2 (b) of the M&R Regulation.
Category C Installation	As defined in Article 19.2 (c) of the M&R Regulation.
The Directive	Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.
Emissions	The release of greenhouse gases into the atmosphere from sources in an installation.
EPA	Environmental Protection Agency.
Fall-Back Methodology	As defined in Article 22 of the M&R Regulation.
GHG	Greenhouse gas.
GHG Permit	Greenhouse gas emissions permit.
Greenhouse Gas	Any of the gases in Schedule 2 of the Regulations.
IPC/IE	Integrated Pollution Control/Industrial Emissions.
Installation	Any stationary technical unit where one or more activities listed in Schedule 1 to the Regulations are carried out. Also any other directly associated activities which have a technical connection with the activities carried out on that site and which could have an effect on emissions and pollution. References to an installation include references to part of an installation.

Installation with low emissions	As defined in Article 47 of the M&R Regulation.
Major Source Streams	As defined in Article 19.3 (c) of the M&R Regulation.
M&R Regulation	Commission Regulation (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and any amendments or revisions thereto.
Mis-statement	An omission, misrepresentation or error in the Operators reported data, not considering the uncertainty permissible pursuant to Article 12(1)(a) of Regulation (EU) no 601/2012.
N/A	Not applicable.
Monitoring Plan	The Plan submitted and approved in accordance with Condition 3.1 of this permit and attached at Appendix 1.
Non-conformity	Any act or omission by the Operator, either intentional or unintentional, that is contrary to the greenhouse gas emissions permit and the requirements of the Monitoring Plan.
The National Administrator	The person so designated in accordance with the requirements of any Regulations adopted as provided for under Article 19.3 of Directive 2003/87/EC.
The Operator (for the purposes of this permit)	Diageo Ireland
“operator”	Any person who operates or controls an installation or to whom decisive economic power over the functioning of the installation has been delegated.
Person	Any natural or legal person.
Reportable emissions	The total releases to the atmosphere of carbon dioxide (expressed in tonnes of carbon dioxide equivalent) from the emission sources specified in Table 2 and arising from the Schedule 1 activities which are specified in Table 1.
The Regulations	European Communities (Greenhouse Gas Emissions Trading) Regulations 2012 (S.I. No 490 of 2012) and any amendments or revisions thereto.
The Verifier	A legal person or another legal entity carrying out verification activities pursuant to Regulation (EU) No 600/2012 and accredited by a national accreditation body pursuant to Regulation (EC) No 765/2008 and Regulation (EU) No 600/2012 or a natural person otherwise authorised, without prejudice to Article 5(2) of Regulation (EC) No 765/2008, at the time a verification report is issued.
The Registry	The Registry as provided for under Article 19 of Directive 2003/87/EC.

Schedule 1

Schedule 1 to the Regulations.



Reasons for the Decision

The Agency is satisfied, on the basis of the information available, that subject to compliance with the conditions of this permit, the Operator is capable of monitoring and reporting emissions in accordance with the requirements of the Regulations.

Activities Permitted

Pursuant to the Regulations the Agency issues this Greenhouse Gas Emissions Permit, subject to any subsequent revisions, corrections or modifications it deems appropriate, to:

The Operator:

Diageo Ireland
St. James's Gate
Dublin 8
Ireland

Company Registration Number: 22876

to carry out the following

Categories of activity:

Annex 1 Activity
Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)

at the following installation(s):

St. James's Gate Brewery **Installation number: 22**

located at

St. James's Gate
Dublin 8
Ireland

subject to the five conditions contained herein, with the reasons therefor and associated tables attached thereto.

Conditions

Condition 1. The Permitted Installation

- 1.1 This permit is being granted in substitution for the previous GHG permit granted to the Operator as listed in the Status Log of this GHG permit.
- 1.2 The Operator is authorised to undertake the activities and/or the directly associated activities specified in Table 1 below resulting in the emission of carbon dioxide:

Table 1 - Activities which are listed in Schedule 1 of the Regulations and other directly associated activities carried out on the site:

Installation No.: 22

Activity Description
Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)
Directly Associated Activity Description
(S15) Brewing DAA

- 1.3 Carbon dioxide from Schedule 1 activities shall be emitted to atmosphere only from the emission sources as listed in Table 2 below:

Table 2 Emission Sources and Capacities:

Emission Source Reference	Emission Source Description	Capacity	Capacity Units
S1	CHP No. 1 Gas Turbine & Waste Heat Boiler	26.67	MW
S2	CHP No. 2 Gas Turbine & Waste Heat Boiler	26.67	MW
S3	CHP No. 3 Gas Turbine & Waste Heat Boiler	26.67	MW
S4	CHP No. 4 Boiler	23	MW
S5	CHP: Emergency Diesel Generator	0.96	MW
S6	No. 1 Roaster & Afterburner	2.68	MW
S7	No. 2 Roaster & Afterburner	2.68	MW

Emission Source Reference	Emission Source Description	Capacity	Capacity Units
S8	St. Jame's Gate Canteen	0.1	MW
S9	Guinness Storehouse Kitchen	0.3	MW
S11	St. Jame's Gate Research Laboratory	0.1	MW
S12	98 James Street - Kitchen Various	0.1	MW
S14	No. 3 Roaster & Afterburner	2.68	MW
S16	Brewing Laboratory	0.05	MW
S17	Roast House: Standby Diesel Generator	0.14	MW
S18	Temporary - Diesel Plant	0	MW
S19	Temporary - LPG Plant	0	MW
S20	Temporary - Acetylene Plant	0	MW
S21	No. 4 Roaster & Afterburner	2.68	MW

- 1.4 The activity shall be controlled, operated and maintained so that emissions of carbon dioxide shall take place only as set out in this GHG Emissions Permit. The permit does not control emissions of gases other than carbon dioxide. All agreed plans, programmes and methodologies required to be carried out under the terms of this permit, become part of this permit.
- 1.5 This GHG Permit is for the purposes of GHG emissions permitting under the European Communities (Greenhouse Gas Emissions Trading) Regulations 2012 and any amendments to the same only and nothing in this permit shall be construed as negating the Operator's statutory obligations or requirements under any other enactments or regulations unless specifically amended by the Regulations.
- 1.6 Any reference in this permit to 'installation' shall mean the installation as described in the Greenhouse Gas Emissions Permit application and any amendments approved by the Agency.

Reason: To describe the installation and clarify the scope of this permit.

Condition 2. Notification

- 2.1 No alteration to, or reconstruction in respect of, the activity or any part thereof which would, or is likely to, result in a change in:
- 2.1.1 the nature or functioning of the installation;
 - 2.1.2 the capacity of the installation as detailed in this permit;
 - 2.1.3 the fuels used at the installation;
 - 2.1.4 the range of activities to be carried out at the installation
- that may require updating of the GHG permit shall be carried out or commenced without prior notice to and without the prior written agreement of the Agency.
- 2.2 The Operator shall notify the Agency in writing of the cessation of all or part of any activity listed in Table 1 of this permit no later than one month from the date of cessation or by 31 December of the year of cessation, whichever is sooner.
- 2.3 The Operator shall apply for an update of this GHG Permit where there is a change to the Operator name and/or registered address of the Operator, within seven days of the change.
- 2.4 For installations or parts of installations which have not come into operation when the application for this permit was made the Operator shall notify the Agency of the date of commencement of the activity within seven days of commencement.
- 2.5 The Operator shall notify the Agency in writing within three days of becoming aware of any factors which may prevent compliance with the conditions of this permit.
- 2.6 The Operator shall submit to the Agency by 21 January of each year a declaration of operability. The declaration submitted shall be in the format required by the Agency.
- 2.7 All notifications required under Condition 2 above shall be made to the address given in the Explanatory Note included with this permit.
- 2.8 The Operator shall submit to the Agency by 31 December of each year all relevant information about any planned or effective changes to the capacity, activity level and operation of an installation. The information submitted shall be in the format required by the Agency.

Reason: To provide for the notification of updated information on the activity.

Condition 3. Monitoring and Reporting

- 3.1 The Operator shall monitor and record greenhouse gas emissions on site in accordance with the M&R Regulation and the approved Monitoring Plan attached at Appendix 1 to this GHG permit and in compliance with any other guidance approved by the Agency for the purposes of implementing the Directive and/or the Regulations.
- 3.2 The Operator shall modify the monitoring plan in any of the following situations:
- 3.2.1 new emissions occur due to new activities carried out or due to the use of new fuels or materials not yet contained in the monitoring plan;
 - 3.2.2 the change of availability of data, due to the use of new measurement instrument types, sampling methods or analysis methods, or for other reasons, leads to higher accuracy in the determination of emissions;

- 3.2.3 data resulting from the previously applied monitoring methodology has been found incorrect;
- 3.2.4 changing the monitoring plan improves the accuracy of the reported data, unless this is technically not feasible or incurs unreasonable costs;
- 3.2.5 the monitoring plan is not in conformity with the requirements of the M&R Regulation and the Agency requests a change;
- 3.2.6 it is necessary to respond to the suggestions for improvement of the monitoring plan contained in the verification report.

The Operator shall notify any proposals for modification of the monitoring plan to the Agency without undue delay. Any significant modifications of the monitoring plan, as defined in Article 15 of the M&R Regulation, shall be subject to approval by the Agency. Where approved these changes shall be implemented within a timeframe agreed by the Agency.

3.3 Temporary changes to the monitoring methodology:

3.3.1 Where it is for technical reasons temporarily not feasible to apply the tier in the monitoring plan for the activity data or each calculation factor of a fuel or material stream as approved by the Agency, the Operator shall apply the highest achievable tier until the conditions for application of the tier approved in the monitoring plan have been restored. The Operator shall take all necessary measures to allow the prompt restoration of the tier in the approved monitoring plan. The Operator shall notify the temporary change to the monitoring methodology without undue delay to the Agency specifying:

- (i) The reasons for the deviation from the tier;
- (ii) in detail, the interim monitoring methodology applied by the Operator to determine the emissions until the conditions for the application of the tier in the monitoring plan have been restored;
- (iii) the measures the Operator is taking to restore the conditions for the application of the tier in the approved monitoring plan;
- (iv) the anticipated point in time when application of the approved tier will be resumed.

3.3.2 A record of all non-compliances with the approved monitoring plan shall be maintained on-site and shall be available on-site for inspection by authorised persons of the Agency and/or by the Verifier at all reasonable times.

3.4 The Operator shall appoint a Verifier to ensure that, before their submission, the reports required by Condition 3.5 below are verified in accordance with the criteria set out in Schedule 5 of the Regulations, the A&V Regulation and any more detailed requirements of the Agency.

3.5 The written report of the verified annual reportable emissions and the verification report in respect of each calendar year shall be submitted to the Agency by the Operator no later than 31 March of the following year. The reports shall be in the format required by the Agency and meet the criteria set out in the M&R and A&V Regulations.

3.6 The Operator shall enter the verified annual reportable emissions figure for the preceding year into the Registry no later than 31 March of the following year. This figure shall be electronically approved by the Verifier in the registry no later than 31 March of each year.

3.7 Where an Operator is applying the Fall-Back methodology, the Operator shall assess and quantify each year the uncertainties of all parameters used for the determination of the annual emissions in accordance with the ISO Guide to the Expression of Uncertainty in Measurement or another equivalent internationally accepted standard and include the verified results in the written report of the verified annual reportable emissions to be submitted to the Agency by 31 March each year.

- 3.8 An Operator shall submit to the Agency for approval a report containing the information detailed in (i) or (ii) below, where appropriate, by the following deadlines:
- (a) for a category A installation, by 30 June every four years;
 - (b) for a category B installation, by 30 June every two years;
 - (c) for a category C installation, by 30 June every year.
- (i) Where the Operator does not apply at least the tiers required pursuant to the first subparagraph of Article 26(1) and to Article 41(1) of the M&R Regulation, the Operator shall provide a justification as to why it is technically not feasible or would incur unreasonable costs to apply the required tiers. Where evidence is found that measures needed for reaching those tiers have become technically feasible and do not incur unreasonable costs, the Operator shall notify the Agency of appropriate modifications to the monitoring plan and submit proposals for implementing appropriate measures and its timing.
- (ii) Where the Operator applies a fall-back monitoring methodology, the Operator shall provide a justification as to why it is technically not feasible or would incur unreasonable costs to apply at least tier 1 for one or more major or minor source streams. Where evidence is found that measures needed for reaching at least tier 1 for those source streams have become technically feasible and do not incur unreasonable costs, the Operator shall notify the Agency of appropriate modifications to the monitoring plan, submit proposals and a timeframe for implementing appropriate measures.
- 3.9 Where the verification report states outstanding non conformities, misstatements or recommendations for improvements the Operator shall submit a report to the Agency for approval by 30 June of the year in which the verification report is issued. This requirement does not apply to the Operator of an installation with low emissions where the verification report contains recommendations for improvements only. The report shall describe how and when the Operator has rectified or plans to rectify the non-conformities identified and to implement recommended improvements. Where recommended improvements would not lead to an improvement of the monitoring methodology this must be justified by the Operator. Where the recommended improvements would incur unreasonable costs the Operator shall provide evidence of the unreasonable nature of the costs. The Operator shall implement the improvements specified by the Agency in response to the report submitted in accordance with this Condition in accordance with a timeframe set by the Agency.
- 3.10 The Operator shall make available to the Verifier and to the Agency any information and data relating to emissions of carbon dioxide which are required in order to verify the reports referred to in Condition 3.5 above or as required by the Agency to facilitate it in establishing benchmarks and/or best practice guidance.
- 3.11 Provision shall also be made for the transfer of environmental information, in relation to this permit, to the Agency's computer system, as may be requested by the Agency.
- 3.12 The Operator shall retain all information as specified in the M&R Regulation for a period of at least 10 years after the submission of the relevant annual report.
- 3.13 A record of independent confirmation of capacities listed in this permit shall be available on-site for inspection by authorised persons of the Agency at all reasonable times.
- 3.14 The Operator shall keep records of all modifications of the monitoring plan. The records shall include the information specified in Article 16.3 of the M&R Regulation.
- 3.15 The Operator shall ensure that members of the public can view a copy of this permit and any reports submitted to the Agency in accordance with this permit at all reasonable times. This

requirement shall be integrated with the requirements of any public information programme approved by the Agency in relation to any other permit or licence held by the Operator for the site.

Reason: To provide for monitoring and reporting in accordance with the Regulations.

Condition 4. Allowances

4.1 Surrender of Allowances

4.1.1 The Operator shall, by 30 April in each year, surrender to the Agency, or other appropriate body specified by the Agency, allowances equal to the annual reportable emissions in the preceding calendar year.

4.1.2 The number of allowances to be surrendered shall be the annual reportable emissions for the preceding calendar year plus such allowances as may be necessary to cover any earlier calendar year in respect of which allowances remain outstanding and due. This includes allowances to cover the amount of any annual reportable emissions in respect of which allowances were not surrendered in accordance with Condition 4.1.1 in the previous year, and the amount of any reportable emissions which were discovered during the previous year to have been unreported in reports submitted under Condition 3 in that or in earlier years.

4.1.3 In relation to activities or parts of activities which have ceased to take place and have been notified to the Agency in accordance with Condition 2.2 above, the Operator shall surrender to the Agency allowances equal to the annual reportable emissions from such activities in the preceding calendar year or part thereof, together with such allowances as may be necessary to cover any earlier calendar year in respect of which allowances remain outstanding and due as described in Condition 4.1.2 above.

4.1.4 The Operator may, from 2008 onwards, subject to the provisions of the Regulations and the relevant National Allocation Plan for that compliance year, surrender emission reduction units (ERUs) and certified emission reduction units (CERs) in place of allowances.

4.2 The holding, transfer, surrender and cancellation of allowances shall be in accordance with the requirements of any Regulations adopted as provided for under Article 19.3 of Directive 2003/87/EC, any amendment or revision to the same and any guidance issued by the Agency or the National Administrator.

4.3 The Operator shall provide the National Administrator with all the necessary information for the opening of an Operator holding account for the installation described in Condition 1 of this permit within twenty working days of the issue of this permit, unless such an account is already open.

Reason: To provide for the surrendering, holding, transfer and cancellation of allowances in respect of reported emissions.

Condition 5. Penalties

5.1 Any Operator who fails to comply with Condition 4.1 above shall be subject to the provisions of the Regulations, including, but not limited to the payment of penalties.

Reason: To provide for the payment of excess emissions penalties as required under the Regulations.

Sealed by the seal of the Agency on this the 28 February 2017:

PRESENT when the seal of the Agency was affixed hereto:

Ms. Annette Prendergast
Inspector/ Authorised Person

Appendix 1 to Greenhouse Gas Emissions Permit Number IE-GHG024-10353

Monitoring Plan

1. Guidelines & Conditions

1. Directive 2003/87/EC as amended by Directive 2009/29/EC (hereinafter "the (revised) EU ETS Directive") requires operators of installations which are included in the European Greenhouse Gas Emission Trading Scheme (the EU ETS) to hold a valid GHG emission permit issued by the relevant Competent Authority and to monitor and report their emissions and have the reports verified by an independent and accredited verifier.

The Directive can be downloaded from:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2003L0087:20090625:EN:PDF>

2. The Monitoring and Reporting Regulation (Commission Regulation (EU) No 601/2012) (hereinafter the "MRR") defines further requirements for monitoring and reporting.

The MRR can be downloaded from:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:181:0030:0104:EN:PDF>

Article 12 of the MRR sets out specific requirements for the content and submission of the monitoring plan and its updates. Article 12 outlines the importance of the Monitoring plan as follows:

The monitoring plan shall consist of a detailed complete and transparent documentation of the monitoring methodology of a specific installation [or aircraft operator] and shall contain at least the elements laid down in Annex I.

Furthermore Article 74(1) states:

Member States may require the operator and aircraft operator to use electronic templates or specific file formats for submission of monitoring plans and changes to the monitoring plan as well as for submission of annual emissions reports tonne-kilometre data reports verification reports and improvement reports. Those templates or file format specifications established by the Member States shall at least contain the information contained in electronic templates or file format specifications published by the Commission

3. All Commission guidance documents on the Monitoring and Reporting Regulation will be published at the link below as they become available:

http://ec.europa.eu/clima/policies/ets/monitoring/index_en.htm

(a) Information sources:

EU Websites:

EU-Legislation: <http://eur-lex.europa.eu/en/index.htm>

EU ETS general: http://ec.europa.eu/clima/policies/ets/index_en.htm

Monitoring and Reporting in the EU ETS: http://ec.europa.eu/clima/policies/ets/monitoring/index_en.htm

Environmental Protection Agency Website:

<http://www.epa.ie>

Environmental Protection Agency Contact:

GHGpermit@epa.ie

2. Application Details

The Installation Name, Site Name and the address of the site of the installation are detailed below. The Site Name and address can be updated from the Organisation Details Page on the ETSWAP website. The Installation Name can only be updated by your Competent Authority.

Installation name	St. James's Gate Brewery
Site name	St. James's Gate Brewery
Address	St. James's Gate Dublin 8 Ireland

Grid reference of site main entrance	E 314300, N233915
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Licence held pursuant to the Environmental Protection Agency Act 1992, as amended.	Yes
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IPC/IE Licence Register Number	Licence holder	Competent body
P0301-04	Diageo Ireland St. James's Gate, Dublin 8	Environmental Protection Agency

Has the regulated activity commenced at the Installation?	Yes
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Date of Regulated Activity commencement	01 January 2008
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This information is only required to identify the first relevant reporting year of an installation. If the installation was in operation from the beginning of 2008 and held a Greenhouse Gas Emissions Permit from this point, 1 January 2008 will be used where the actual date of commencement is not readily known.

3. About the Operator

The information about the "Operator" is listed below. The "Operator" is defined as the person who it is proposed will have control over the relevant Regulated Activities in the installation in respect of which this application is being made.

(b) Operator Details

The name of the operator and where applicable the company registration number are detailed below. These details can only be updated by the Environmental Protection Agency.

Operator name Diageo Ireland

Company Registration Number 22876

Operator Legal status

The legal status of the operator is: Company / Corporate Body

(c) Company / Corporate Body

Is the trading / business name different to the operator name? No

Details of the individual authorised to submit this application on behalf of the company / corporate body.

Title	█
Forename	█
Surname	█
Position	Utilities and Engineering Development Manager

Registered office address

Address Line 1	St. James's Gate
Address Line 2	N/A
City/Town	Dublin 8
County	N/A
Postcode	Ireland

Principal office address

Is the principal office address different to the registered office address? No

Holding company

Does the company belong to a holding company? Yes

Holding company name Diageo Ireland Holdings

Holding company address

Address Line 1	St James's Gate
Address Line 2	N/A
City/Town	Dublin 8
County	N/A
Postcode	Ireland
Company registration number	22876

Is the holding company principal address different to the

No

holding company address?

(d) Operator Authority

Does the operator named above have the authority and ability to:

- a. manage site operations through having day-to-day control of plant operation including the manner and rate of operation Yes
- b. ensure that permit conditions are effectively complied with Yes
- c. control monitor and report specified emissions Yes
- d. be responsible for trading in Allowances so that at the end of a reporting period allowances can be balanced against reported emissions. Yes

4. Service Contact

e. Service Contact

Name	
Address / Email Address	St. James's Gate Brewery Dublin 8 Ireland

5. Installation Activities

f. Installation Description

Below is a description of the installation and its activities, a brief outline description of the site and the installation and the location of the installation on the site. The description also includes a non-technical summary of the activities carried out at the installation briefly describing each activity performed and the technical units used within each activity.

The St. James's Gate Brewery, is based in central Dublin. The main products are Guinness, Ales and Lagers for the Irish market and for export. It also produces spent grains which are used inter alia for animal feed. The site is included in the

EU ETS as it has on site combustion of fuels with an installed capacity of > 20 MW thermal input. In fact the installed capacity is 115.48 MW.

In 2015 it had CO2 emissions of approximately 53,443 tonnes. It has a natural gas-fired CHP plant which supplies the site with its electricity needs except for times when the CHP plant is off line. If the supply of natural gas is interrupted for any reason the site has a back up supply of diesel oil which can be used in the CHP plant. In the event that down time of the CHP plant occurs, electricity is imported from the grid.

The CHP plant produces a surplus of electricity which is exported to the National Grid. In 2012 and 2013 the site production capacity was expanded significantly by the construction of new brewing capacity. The new plant showed substantial gains in specific energy use per unit output compared to the old plant, but due to rationalisation and consolidation of all brewing activities in Ireland to St James's Gate, the site emissions are likely to increase. The site is currently examining a range of energy supply options for the newly expanded brewery.

The CHP plant and associated boilers are operated by a third party i.e. Gatepower. The gas metering is owned and operated by the gas supply company Bord Gais.

There are significant on-site movements of beer by fork lift trucks and other diesel driven vehicles. Emissions from the use of transport fuels on the site are not included in the emissions inventory.

Of the sites emissions of CO2, approximately 93% are from natural gas combustion at the CHP plant, 6% are from natural gas burning at the roasters. >1% of CO2 are associated with other small de-minimus quantities of natural gas, propane, diesel, roaster off-gases and acetylene. There are a number of temporary, but de-minimis combustion units using gas-oil, acetylene and propane. These units are mobile but not when in use and are therefore included.

g. Annex 1 Activities

The table below lists the technical details for each Annex 1 activity carried out at the installation.

Note that 'capacity' in this context means:

- Rated thermal input (for combustion installations) which is defined as the rate at which fuel can be burned at the maximum continuous rating of the installation multiplied by the calorific value of the fuel and expressed as megawatts thermal.
- Production capacity for those specified Annex I activities for which production capacity determines ETS eligibility.

Annex 1 Activity	Total Capacity	Capacity units	Specified Emissions
Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)	115.48	MW	Carbon Dioxide

h. Site Diagram

The table below lists attachments (if available) that provide a simple diagram showing emissions sources source streams sampling points and metering/measurement equipment.

Attachment	Description
Permit Variation Drawing - emission points.pdf	Drawing - EU ETS emission point references Nov 2015.pdf
Permit Variation Drawing - measurement devices.pdf	Permit Variation Drawing - measurement devices

i. Estimated Annual Emissions

Detail of the estimated annual emission of CO₂ equivalent. This information enables categorisation of the installation in accordance with Article 19 of the MRR and is based on the average verified annual emissions of the previous trading period data OR if this data is not available or is inappropriate a conservative estimate of annual average emissions including transferred CO₂ excluding CO₂ from biomass.

Estimated Annual Emissions (tonnes CO_{2(e)}) 57676

6. Emissions Details

j. About your emissions

Annex I of the Monitoring and Reporting Regulations (MRR) requires that monitoring plans include a description of "the installation" and activities to be carried out and monitored including a list of emission sources and source streams. The information provided in this template relates to the Annex I activity(ies) comprised in the installation in question and should relate to a single installation. It includes any activities carried out by the operator and does not include related activities carried out by other operators.

k. Emission Sources

The table below lists all the emission sources at the installation, which may include directly associated activities/excluded activities.

Emission Source Reference	Emission Source Description
S1	CHP No. 1 Gas Turbine & Waste Heat Boiler
S2	CHP No. 2 Gas Turbine & Waste Heat Boiler
S3	CHP No. 3 Gas Turbine & Waste Heat Boiler
S4	CHP No. 4 Boiler
S5	CHP: Emergency Diesel Generator
S6	No. 1 Roaster & Afterburner
S7	No. 2 Roaster & Afterburner
S8	St. Jame's Gate Canteen
S9	Guinness Storehouse Kitchen

Emission Source Reference	Emission Source Description
S11	St. Jame's Gate Research Laboratory
S12	98 James Street - Kitchen Various
S14	No. 3 Roaster & Afterburner
S15	Brewing DAA
S16	Brewing Laboratory
S17	Roast House: Standby Diesel Generator
S18	Temporary - Diesel Plant
S19	Temporary - LPG Plant
S20	Temporary - Acetylene Plant
S21	No. 4 Roaster & Afterburner

The table below lists the emission sources which are linked to the Regulated Activities at the installation.

Emission Source Reference	Emission Source Description
S1	CHP No. 1 Gas Turbine & Waste Heat Boiler
S2	CHP No. 2 Gas Turbine & Waste Heat Boiler
S3	CHP No. 3 Gas Turbine & Waste Heat Boiler
S4	CHP No. 4 Boiler
S5	CHP: Emergency Diesel Generator
S6	No. 1 Roaster & Afterburner
S7	No. 2 Roaster & Afterburner
S8	St. Jame's Gate Canteen
S9	Guinness Storehouse Kitchen
S11	St. Jame's Gate Research Laboratory
S12	98 James Street - Kitchen Various
S14	No. 3 Roaster & Afterburner
S16	Brewing Laboratory
S17	Roast House: Standby Diesel Generator
S18	Temporary - Diesel Plant
S19	Temporary - LPG Plant
S20	Temporary - Acetylene Plant
S21	No. 4 Roaster & Afterburner

I. Emission Points

The table below lists all the emission points at the installation, which may include directly associated activities/excluded activities.

Emission Point Reference	Emission Point Description
A1-3	Boiler 1 of CHP 1 Stack
A1-4	Boiler 2 of CHP 2 Stack
A1-5	Boiler 3 of CHP 3 Stack
A1-7	Boiler 4 of CHP 4 Stack
A1-6	Bypass Stack - Gas Turbine 1 CHP plant
A1-8	Exhaust Standby Emergency Diesel Generator
A2-1	No. 1 Main Roaster & Afterburner
A2-2	No. 2 Main Roaster & Afterburner
A2-3	No. 3 Main Roaster & Afterburner
F1	St James's Gate Canteen - Kitchen Various
F2	Guinness Storehouse - Kitchen Various
F4	St. James's Gate Brewery Laboratory
F5	No. 98 James's Street - Kitchen various
DAA - 01	DAA - Brewing
F6	Brewing Laboratory
A2-5	Exhaust Emergency Diesel Generator for Fire Pump
F7	Exhaust Temporary Diesel Plant
F8	Exhaust Temporary - LPG Plant
F9	Exhaust Temporary - Acetylene Plant
A2-4	No. 4 Main Roaster & Afterburner

m. Source Streams (fuels and/or materials)

The table below lists the source streams which are used in Schedule 1 Activities at the installation.

Source Stream Reference	Source Stream Type	Source Stream Description
NG-001	Combustion: Other gaseous & liquid fuels	Natural Gas
DSL-001	Combustion: Commercial standard fuels	Gas/Diesel Oil
NG-002	Combustion: Other gaseous & liquid fuels	Natural Gas
LPG-001	Combustion: Other gaseous & liquid fuels	Liquefied Petroleum Gases

Source Stream Reference	Source Stream Type	Source Stream Description
DSL-002	Combustion: Commercial standard fuels	Gas/Diesel Oil
Acet - 001	Combustion: Other gaseous & liquid fuels	Acetylene
VOC1 (off gases from roasters)	Combustion: Other gaseous & liquid fuels	Other Biogas

n. Emissions Summary

The table below provides a summary of the emission source and source stream details in the installation.

Source streams (Fuel / Material)	Emission Source Refs.	Emission Point Refs.	Annex 1 Activity
NG-001	S1,S2,S3,S4	A1-3,A1-4,A1-5,A1-6,A1-7	Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)
DSL-001	S1,S2,S3,S4	A1-3,A1-4,A1-5,A1-6,A1-7	Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)
NG-002	S11,S12,S14,S21,S6,S7,S8,S9	A2-1,A2-2,A2-3,A2-4,F1,F2,F4,F5	Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)
LPG-001	S16,S19,S4	A1-7,F6,F8	Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)
DSL-002	S17,S18,S5	A1-8,A2-5,F7	Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)

Source streams (Fuel / Material)	Emission Source Refs.	Emission Point Refs.	Annex 1 Activity
Acet - 001	S20	F9	Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)
VOC1 (off gases from roasters)	S14,S21,S6,S7	A2-1,A2-2,A2-3,A2-4	Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)

o. Excluded Activities

Certain activities that result in greenhouse gas emissions may be excluded under the EU ETS Directive for example truly mobile sources such as vehicle emissions.

Do you have any excluded activities which need to be identified in your monitoring plan? Yes

Detail of these activities:

Source Stream Refs	Emission Source Ref	Emission Point Ref
n/a	S15	DAA - 01

7. Low Emissions Eligibility

p. Low Emissions Eligibility

The operator may submit a simplified monitoring plan for an installation where no nitrous oxide activities are carried out and it can be demonstrated that:

(a) the average verified annual emissions of the installation during the previous trading period was less than 25 000 tonnes CO_{2(e)} per year or;

(b) where this data is not available or inappropriate a conservative estimate shows that emissions for the next 5 years will be less than 25 000 tonnes CO_{2(e)} per year.

Note: the above data shall include transferred CO₂ but exclude CO₂ stemming from biomass.

Does the installation satisfy the criteria for installations with low emissions (as defined by Article 47 of the MRR)? No

8. Monitoring Approaches

q. Monitoring Approaches

Emissions may be determined using either a calculation based methodology ("calculation") or measurement based methodology ("measurement") except where the use of a specific methodology is mandatory according to the provisions of the MRR. [MRR Article 21].

Note: the operator may subject to competent authority approval combine measurement and calculation for different sources. The operator is required to ensure and demonstrate that neither gaps nor double counting of reportable emissions occurs.

Please specify whether or not you propose to apply the following monitoring approaches. Select all monitoring approaches that are applicable to you. The consecutive sections will become mandatory based on the selected approaches.

Calculation	Yes
Measurement	No
Fall-back approach	No
Monitoring of N ₂ O	No
Monitoring of PFC	No
Monitoring of transferred / inherent CO ₂	No

9. Calculation

r. Approach Description

The calculation approach including formulae used to determine annual CO₂ emissions:

The following calculations are carried out annually per fuel with respect to the consumption of:

- a. Natural Gas
- b. Diesel / Gas Oil
- c. Propane
- d. Acetylene
- e. VOC

Annual CO₂ emissions = Final tCO₂ A+ Final tCO₂ B + Final tCO₂C + Final tCO₂D + Final t CO₂ E

- a. Natural Gas

The site comprises of scheduled activities fed by two natural gas supplies. Natural Gas source stream (NG-001) consists of fuel supplied from the transmission connected natural gas system. Natural Gas source stream (NG-002) consists of fuel supplied from the distribution connected natural gas system.

NGM1 is the gas supply meter to the CHP plant for source stream NG-001. NGM2 is the gas supply meter to the roaster plant. NGM 3,4,5,6 are the meters for other small natural gas users at the site. NGM2,3,4,5 & 6 are supplied from source stream NG-002.

Natural Gas Calculations

1. Gross kWh (Taken from the monthly gas invoices) convert to NCV using current conversion factor on the EPA website. Net kWh converted to TJ using factor 3.6×10^{-6}
2. Convert to TJ
3. Emission Factor (EF)
4. Preliminary CO2 tonnes = TJ*EF
5. Oxidation factor
6. Final CO2 tonnes = Preliminary CO2 tonnes * Oxidation factor

The CO2 emission (tCO2) is calculated on a monthly basis. The monthly tCO2 values are then summed for the reporting year.

b. Diesel / Gas Oil

Gas oil (DSL-001) is used as a backup to natural gas at the CHP plant. It is calculated by reference to invoiced quantities and the measurement of fuel stock changes in the diesel storage tank at the beginning and end of each reporting period. Gas oil (DSL-002) is used for the CHP / roast house standby generators and for temporary diesel plant by reference to invoiced quantities and the measurement of fuel stock changes at the beginning and end of each reporting period.

c. Propane gas

Propane consumption (LPG-001) is used as ignition gas at the CHP plant and in the lab. It is calculated by reference to invoiced quantities. As consumption is very low, a "no tier" approach has been adopted. This assumes that any propane purchased in a reporting year is all combusted during that period.

1. Bottles delivered to site (as per delivery dockets/invoices)
2. Kgs propane per bottle (from delivery dockets/vendor invoices)
3. $kT = (\text{kgs} \times 10^{-6})$
4. Convert to TJ = $kT \times \text{NCV}$ (NCV is per country specific factors published annually by the EPA.)
5. Emission Factor (EF)
6. Preliminary CO2 tonnes = TJ*EF
7. Oxidation factor (assumed 1)

8. Final CO2 tonnes = Preliminary CO2 tonnes * Oxidation factor

d. Acetylene

Acetylene consumption is calculated by reference to invoiced quantities. As consumption is very low, a "no tier" approach has been adopted. This assumes that any acetylene purchased in a reporting year is all combusted during that period.

1. Bottles delivered to site (as per delivery dockets/invoices)

2. Kgs acetylene per bottle (from delivery dockets/vendor invoices)

3. $kT = (\text{kgs} * 10^{-6})$

4. Convert to TJ = $kT * NCV$ (NCV is per country specific factors published annually by the EPA.)

5. Emission Factor (EF)

6. Preliminary CO2 tonnes = $TJ * EF$

7. Oxidation factor (assumed 1)

8. Final CO2 tonnes = Preliminary CO2 tonnes * Oxidation factor

E. VOC

This source stream is included to account for the CO2 emissions arising from the destruction of off-gases/biogas from the four roasters in the roaster afterburners. As consumption is very low a "no tier" approach has been adapted. A conservative value for CO2 emissions is calculated based on:

1. The highest TOC concentration in mg/Nm³ (A) measured during monitoring of roaster off gases during a roast cycle.

2. The maximum volume rate Nm³/hr (B) permitted during each roast cycle.

3. Duration of a roast cycle in hours (C)

4. The total number of roast cycles completed (by all roasters) during the reporting year (D)

5. Mass of offgas per roast (as kg carbon) per roast (E) = $A * B * C / 1000$

5. Mass of offgas 'fuel' kg per roast (F) = Mass of offgas per roast (as carbon) per roast (E) / % carbon (weighted average from speciated sample)

5. Tonnes of off-gas entering afterburners (G) = $(D * F) / (1,000)$

6. The emission factor for the offgas fuel is zero as it is considered biogas (produced from roasting solid biomass barley crop)

7. The NCV of the source stream was estimated at 27.37 TJ/Kt based on literature values for the components of the roaster off-gas.

8. Activity data TJ (H) = $G / 1000 * 27.37$

9. CO₂ emissions in tonnes due to roaster off-gases (I) = H*O*1 (oxidation factor)

The calculation assumes all carbon in VOC off gas emissions stream is converted to CO₂ by the afterburners.

s. Measurement Devices

Below is a description of the specification and location of the measurement systems used for each source stream where emissions are determined by calculation

Also a description of all measurement devices including sub-meters and meters used to deduct non-Annex I activities to be used for each source and source stream.

Source Stream Refs.	Emission Source Refs.	Measurement Device Ref.	Type of Measurement Device	Measurement Range	Metering Range Units	Specified Uncertainty (+/- %)	Location
NG-001	S1,S2,S3,S4	NGM1	Turbine Meter and P&T Correctors	0 to 5,000	Nm3/hr	1.414	BGE AGI adjacent to CHP plant
NG-002	S6,S7,S14,S21	NGM2	Turbine Meter and P&T Correctors	0 to 1,000	Nm3/hr	1.414	BGE AGI adjacent to Roast House
NG-002	S9	NGM3	Diaphragm	0-100	Nm3/hr	3	Basement of Guinness Storehouse
NG-002	S8	NGM4	Diaphragm	0-100	Nm3/hr	3	Basement of front office near canteen
NG-002	S11	NGM5	Diaphragm	0-100	Nm3/hr	3	Basement of R&D lab
NG-002	S12	NGM6	Diaphragm	0-100	Nm3/hr	3	Basement of 98 James's St.
DSL-001	S1,S2,S3,S4	DSL1	Supplier Invoices and Tank Dip Levels	Variable	litres	0.53	On delivery trucks,ultrasonic probe on fuel tanks
LPG-001	S4,S16,S19	LPGM1 & LPGM2	Supplier Invoices	Not Applicable	Not Applicable	10	CHP plant boiler ignition gas, Brewing Lab , Various temporary locations on site.
DSL-002	S5,S17,S18	DSL2 & DSL3	Supplier Invoices	Not Applicable	litres	10	CHP plant ,

Source Stream Refs.	Emission Source Refs.	Measurement Device Ref.	Type of Measurement Device	Measurement Range	Metering Range Units	Specified Uncertainty (+/- %)	Location
							Roasthouse, Various temporary locations on site.
Acet - 001	S20	ACETM1	Supplier Invoices	kg	n/a	n/a	n/a
VOC1 (off gases from roasters)	S6,S7,S14,S21	None	N/A	N/A	N/A	N/A	Roaster

Source Stream Refs.	Measurement Device Ref.	Determination Method	Instrument Under Control Of	Conditions Of Article 29(1) Satisfied	Invoices Used To Determine Amount Of Fuel Or Material	Trade Partner And Operator Independent
NG-001	NGM1	Continual	Trade partner	Yes	Yes	Yes
NG-002	NGM2	Continual	Trade partner	Yes	Yes	Yes
NG-002	NGM3	Continual	Trade partner	Yes	Yes	Yes
NG-002	NGM4	Continual	Trade partner	Yes	Yes	Yes
NG-002	NGM5	Continual	Trade partner	Yes	Yes	Yes
NG-002	NGM6	Continual	Trade partner	Yes	Yes	Yes
DSL-001	DSL1	Batch	Trade partner	Yes	Yes	Yes
LPG-001	LPGM1 & LPGM2	Batch	Trade partner	Yes	Yes	Yes
DSL-002	DSL2 & DSL3	Batch	Trade partner	Yes	Yes	Yes
Acet - 001	ACETM1	Batch	Trade partner	Yes	Yes	Yes
VOC1 (off gases from roasters)	None	Batch	Operator	N/A	N/A	Yes

t. Applied Tiers

The table below identifies the tiers applied against the relevant input data for each source stream and confirms whether a standard (MRR Article 24) or mass balance (MRR Article 25) approach is applied.

(i) The highest tiers as defined in Annex II of the MRR should be used by Category B and C installations to determine the activity data and each calculation factor (except the oxidation factor and conversion factor) for each major source stream. Category A installations should apply as a minimum the tiers listed in Annex V.

(ii) Operators may apply a tier one level lower than those referred to in sub paragraph (i) above for Category C installations and up to two levels lower for Category A and B installations with a minimum of tier 1 if the operator can demonstrate to the satisfaction of the competent authority that this is not technically feasible or would lead to unreasonable cost to apply the higher tier. The justification for not applying the higher tier should be recorded when completing the tier table.

(iii) The competent authority may allow an operator to apply even lower tiers than those referred to in the sub paragraph (ii) with a minimum of tier 1 for a transition period of up to three years if the operator can demonstrate to the satisfaction of the competent authority that this is not technically feasible or would lead to unreasonable cost to apply the higher tier and provides an improvement plan detailing how and by when at least the tier referred to in sub paragraph (ii) will be achieved. The improvement plan should be referenced in subsequent table and provided to the competent authority at the time of submission of this plan.

(iv) For minor source streams operators shall apply the highest tier which is technically feasible and will not lead to unreasonable costs with a minimum of tier 1 for activity data and each calculation factor. For de-minimis source streams operators may use conservative estimations rather than tiers unless a defined tier can be achieved without additional effort (MRR Article 26(2)).

(v) Installations with low emissions as identified in section 6(d) may apply as a minimum tier 1 for determining activity data and calculation factors for all source streams unless higher accuracy is achievable without additional effort.

* Note 1: For commercial standard fuels the minimum tiers listed in Annex V of the MRR may be applied for all activities in all installations.

* Note 2: If you are intending to apply a fall-back approach please complete the table below and select "n/a" for the tiers to be applied for each source stream where a fall-back approach is used. Section 10 "Fall-back" must also be completed for these source streams.

* Note 3: For biomass or mixed fuels the emission factor is the preliminary emission factor as defined in Definition 35 Article 3 of the MRR.

Source Stream Refs.	Emission Source Refs.	Measurement Device Refs.	Overall Metering Uncertainty (less than +/- %)	Applied Monitoring Approach	Activity Data Tier Applied	Net Calorific Value Tier Applied	Emission Factor Tier Applied	Carbon Content Tier Applied	Oxidation Factor Tier Applied	Conversion Factor Tier Applied	Biomass Fraction Tier Applied	Estimated Emissions tCO _{2(e)}	% of Total Estimated Emissions	Source Category	Highest Tiers Applied	Justification for not applying the highest tiers	Improvement Plan Reference (where applicable)
NG-001	S1,S2,S3,S4	NGM1	<1.5%	Standard	4	2b	2a	N/A	1	N/A	N/A	49631	93.3	Major	No	See attachment "unreasonable_costs_tool_en.xlsx" which demonstrates unreasonable cost as per Article 18 of the MRR as the justification for seeking a derogation	n/a

Source Stream Refs.	Emission Source Refs.	Measurement Device Refs.	Overall Metering Uncertainty (less than +/- %)	Applied Monitoring Approach	Activity Data Tier Applied	Net Calorific Value Tier Applied	Emission Factor Tier Applied	Carbon Content Tier Applied	Oxidation Factor Tier Applied	Conversion Factor Tier Applied	Biomass Fraction Tier Applied	Estimated Emissions tCO _{2(e)}	% of Total Estimated Emissions	Source Category	Highest Tiers Applied	Justification for not applying the highest tiers	Improvement Plan Reference (where applicable)
																tion from the highest tier. This document is included in section "Additional Information".	
NG-002	S8,S9,S11,S12	NGM3, NGM4, NGM5, NGM6	<5.0%	Standard	No tier	2b	2a	N/A	1	N/A	N/A	49	0.09	De-minimis	Yes	n/a	n/a
LPG-001	S4,S16,S19	LPGM1 & LPGM2	N/A	Standard	No tier	2a	2a	N/A	1	N/A	N/A	0.67	0	De-minimis	Yes	n/a	n/a
DSL-002	S5,S17,S18	DSL M2 & DSL M3	N/A	Standard	No tier	2a	2a	N/A	1	N/A	N/A	0.62	0	De-minimis	Yes	n/a	n/a

Source Stream Refs.	Emission Source Refs.	Measurement Device Refs.	Overall Metering Uncertainty (less than +/- %)	Applied Monitoring Approach	Activity Data Tier Applied	Net Calorific Value Tier Applied	Emission Factor Tier Applied	Carbon Content Tier Applied	Oxidation Factor Tier Applied	Conversion Factor Tier Applied	Biomass Fraction Tier Applied	Estimated Emissions tCO _{2(e)}	% of Total Estimated Emissions	Source Category	Highest Tiers Applied	Justification for not applying the highest tiers	Improvement Plan Reference (where applicable)
DSL-001	S1,S2,S3,S4	DSL1	<1.5%	Standard	4	2a	2a	N/A	1	N/A	N/A	110.22	0.21	Major	Yes	n/a	n/a
Acet - 001	S20	ACETM1	N/A	Standard	No tier	1	1	N/A	1	N/A	N/A	0	0	De-minimis	Yes	n/a	n/a
NG-002	S6,S7,S14,S21	NGM2	<1.5%	Standard	4	2b	2a	N/A	1	N/A	N/A	3401	6.39	Minor	Yes	n/a	n/a
VOC1 (off gases from roasters)	S6,S7,S14,S21	None	N/A	Standard	No tier	No tier	1	N/A	1	N/A	N/A	0	0	De-minimis	N/A	n/a	n/a

Total Estimated Emissions for Calculation (tonnes CO_{2(e)})

53192.51

u. Uncertainty Calculations

The table below lists evidence attached to the application that demonstrates compliance with the applied tiers in accordance with Article 12 of the MRR.

Attachment	Description
Metering Uncertainty Calculations St james's gate.docx	Metering Uncertainty Calculations St james's gate
DSL-001 Meter uncertainty calculation Diageo SJG 2016.xls	2017 GO metering uncertainty
Diesel LT - Original Cert.pdf	GO Level TRansmitter uncertainty

v. Applied tiers

Applied tiers for each source stream

Source Stream Ref.	Emission Source Refs.	Activity Data Tier Applied	Net Calorific Value Tier Applied	Emission Factor Tier Applied	Carbon Content Tier Applied	Oxidation Factor Tier Applied	Conversion Factor Tier Applied	Biomass Fraction Tier Applied
NG-001	S1,S2,S3,S4	4	2b	2a	N/A	1	N/A	N/A
NG-002	S8,S9,S11,S12	No tier	2b	2a	N/A	1	N/A	N/A
LPG-001	S4,S16,S19	No tier	2a	2a	N/A	1	N/A	N/A
DSL-002	S5,S17,S18	No tier	2a	2a	N/A	1	N/A	N/A
DSL-001	S1,S2,S3,S4	4	2a	2a	N/A	1	N/A	N/A
Acet - 001	S20	No tier	1	1	N/A	1	N/A	N/A
NG-002	S6,S7,S14,S21	4	2b	2a	N/A	1	N/A	N/A
VOC1 (off gases from roasters)	S6,S7,S14,S21	No tier	No tier	1	N/A	1	N/A	N/A

w. Justification for Applied tiers

Justifications for the applied tiers for each major source stream where highest tiers are not currently achieved.

Source Stream Ref.	Emission Source Refs.	Justification for the applied tier	Improvement Plan Reference (where applicable)
NG-001	S1,S2,S3,S4	See attachment "unreasonable_costs_tool_en.xlsx" which demonstrates unreasonable cost as per Article 18 of the MRR as the justification for seeking a derogation from the highest tier. This document is included in section "Additional Information".	n/a

10. Calculation Factors

x. Default Values

The table below lists, for each parameter, where default values are to be used for calculation factors.

Source Stream Refs.	Emission Source Refs.	Parameter	Reference Source	Default Value applied (where appropriate)
NG-001,NG-002	S1,S2,S3,S4,S6,S7,S8,S9,S11,S12,S14,S21	NCV	Supplier Invoices	n/a
DSL-001,DSL-002	S1,S2,S3,S4,S5,S17,S18	NCV	Country Specific Value by EPA	n/a
LPG-001	S4,S16,S19	NCV	Country Specific Value by EPA	n/a
NG-001,NG-002	S1,S11,S12,S14,S2,S21,S3,S4,S6,S7,S8,S9	EF	Country Specific Value by EPA	n/a
NG-001,NG-002	S1,S11,S12,S14,S2,S21,S3,S4,S6,S7,S8,S9	OxF	Country Specific Value by EPA	1
DSL-001,DSL-002	S1,S17,S18,S2,S3,S4,S5	EF	Country Specific Value by EPA	n/a
DSL-001,DSL-002	S1,S17,S18,S2,S3,S4,S5	OxF	Country Specific Value by EPA	1
LPG-001	S16,S19,S4	OxF	Country Specific Value by EPA	1
LPG-001	S16,S19,S4	EF	Country Specific Value by EPA	n/a
Acet - 001	S20	NCV	Country Specific Value by EPA	n/a
Acet - 001	S20	EF	Country Specific Value by EPA	n/a
Acet - 001	S20	OxF	Country Specific Value by EPA	1
VOC1 (off gases from roasters)	S6,S7,S14,S21	NCV	Literature values	27.37 TJ/Kt
VOC1 (off gases from roasters)	S6,S7,S14,S21	EF	Gaseous Biomass (from roasting barley)	0
VOC1 (off gases from roasters)	S14,S21,S6,S7	OxF	Country Specific Value by EPA	1

Sampling and Analysis

Do you undertake sampling and analysis of any of the parameters used in the calculation of your CO₂ emissions? No

11. Management

y. Monitoring and Reporting Responsibilities

Responsibilities for monitoring and reporting emissions from the installation are listed below:

Relevant job titles/posts and provide a succinct summary of their role relevant to monitoring and reporting are listed below.

Job Title / Post	Responsibilities
Utilities and 3rd Party Contracts Manager	Responsible for the activities carried out in relation to the monitoring and reporting of EU ETS emissions and associated procedures for compliance.
SJG Technical/Governance Manager	Responsible for the Management of all Quality, Safety and Environmental systems at the St. James's Gate site.

Attachment	Description
N/A	N/A

z. Assignment of Responsibilities

Details of the procedure used for managing the assignment of responsibilities for monitoring and reporting within the installation and for managing the competencies of responsible personnel in accordance with Article 58(3)(c) of the MRR:

This procedure identifies how the monitoring and reporting responsibilities for the roles identified above are assigned and how training and reviews are undertaken.

Title of procedure	ENV01/110
Reference for procedure	Resource, Role, Responsibility and Authority
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure outlines the roles and responsibilities of staff for Greenhouse Gas monitoring and reporting. It also assigns the responsibility for retaining training records so as to manage the assignment of responsibilities for monitoring and reporting within the installation and for managing the competencies of responsible personnel in accordance with Article 58(3)(c) of the MRR.
Post or department responsible for the procedure and for any data generated	SJG Technical/Governance Manager & Utilities and 3rd Party Contracts Manager
Location where records are kept	Records are stored in individual departments or with management representatives either as hard copy or on computer
Name of IT system used	N/A
List of EN or other standards applied	N/A

aa. Monitoring Plan Appropriateness

Details of the procedure used for regular evaluation of the monitoring plan's appropriateness covering in particular any potential measures for the improvement of the monitoring methodology:

Title of procedure	ENV01/127
Reference for procedure	Emissions Gas Trading - Reporting and Monitoring
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure outlines the appropriateness of the monitoring plan by; <ul style="list-style-type: none"> - checking the list of emissions sources and source streams, ensuring completeness of the emissions and source streams and that all relevant changes in the nature and

functioning of the installation will be included in the monitoring plan;

- assessing compliance with the uncertainty thresholds for activity data and other parameters (where applicable) for the applied tiers for each source stream and emission source; and

- assessment of potential measures for improvement of the monitoring methodology applied.

<p>Post or department responsible for the procedure and for any data generated</p> <p>Location where records are kept</p> <p>Name of IT system used</p> <p>List of EN or other standards applied</p>	<p>SJG Technical/Governance Manager & Utilities and 3rd Party Contracts Manager</p> <p>Records are stored in individual departments or with management representatives either as hard copy or on computer</p> <p>N/A</p> <p>N/A</p>
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bb. Data Flow Activities

Details of the procedures used to manage data flow activities in accordance with Article 57 of the MRR:

<p>Title of procedure</p> <p>Reference for procedure</p> <p>Diagram reference</p> <p>Brief description of procedure. The description should cover the essential parameters and operations performed</p>	<p>ENV01/127</p> <p>Emissions Gas Trading - Reporting and Monitoring</p> <p>N/A</p> <p>This procedure outlines the main steps of data flow activities from primary data to annual emissions so as to manage data flow activities in accordance with Article 57 of the MRR.</p>
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<p>Post or department responsible for the procedure and for any data generated</p> <p>Location where records are kept</p> <p>Name of IT system used</p> <p>List of EN or other standards applied</p>	<p>SJG Technical/Governance Manager & Utilities and 3rd Party Contracts Manager</p> <p>Records are stored in individual departments or with management representatives either as hard copy or on computer</p> <p>N/A</p> <p>N/A</p>
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List of primary data sources

Monthly natural gas energy consumption from invoices.

Diesel invoices.

Propane invoices.

Acetylene invoices.

Description of the relevant processing steps for each specific data flow activity.

The following calculations are carried out annually per fuel with respect to the consumption of:

Identify each step in the data flow and include the formulas and data used to determine emissions from the primary data. Include details of any relevant electronic data processing and storage systems and other inputs (including manual inputs) and confirm how outputs of data flow activities are recorded

a. Natural Gas

b. Diesel / Gas Oil

c. Propane

d. Acetylene

e. VOC

annual CO2 emissions = Final TCO2 A+ Final TCO2 B + Final TCO2C + + Final TCO2D + Final t CO2 E

a. Natural Gas

The site comprises of scheduled activities fed by two natural gas supplies. Natural Gas source stream (NG-001) consists of fuel supplied from the transmission connected natural gas system. Natural Gas source stream (NG-002) consists of fuel supplied from the distribution connected natural gas system.

NGM1 is the gas supply meter to the CHP plant for source stream NG-001.

NGM2 is the gas supply meter to the roaster plant. NGM 3,4,5,6 are the meters for other small natural gas users at the site. NGM2,3,4,5 & 6 are supplied from source stream NG-002.

Natural Gas Calculations

1. Gross KWhr (Taken from the monthly gas invoices) convert using current conversion factor on the EPA website. Net Kw hr converted to TJ using factor $3.6 \cdot 10^{-6}$.

2. Convert to TJ

3. Emission Factor (EF)

4. Preliminary CO2 tonnes = TJ*EF

5. Oxidation factor

6. Final CO2 tonnes = Preliminary CO2 tonnes * Oxidation factor

The CO2 emission (tCO2) is calculated on a monthly basis. The monthly tCO2 values are then summed for the reporting year.

b. Diesel / Gas Oil

Gas oil (DSL-001) is used as a backup to natural gas at the CHP plant. It is calculated by reference to invoiced quantities and the measurement of fuel stock changes in the diesel storage tank at the beginning and end of each reporting period.

Gas oil (DSL-002) is used for the CHP/roast house standby generators and for temporary/mobile diesel plant by reference to invoiced quantities.

c. Propane gas

Propane consumption (LPG-001) is used as ignition gas at the CHP plant and in the lab. It is calculated by reference to invoiced quantities. As consumption is very low, a "no tier" approach has been adopted. This assumes that any propane purchased in a reporting year is all combusted during that period.

1. Bottles delivered to site (as per delivery dockets/invoices)

2. Kgs propane per bottle (from delivery dockets/vendor invoices)

3. $KT = (\text{kgs} * 10^{-6})$

4. Convert to TJ = $KT * NCV$ (NCV is per country specific factors published annually by the EPA.)

5. Emission Factor (EF)

6. Preliminary CO2 tonnes = TJ*EF

7. Oxidation factor (assumed 1)

8. Final CO2 tonnes = Preliminary CO2 tonnes * Oxidation

factor

d. Acetylene

Acetylene consumption is calculated by reference to invoiced quantities. As consumption is very low, a "no tier" approach has been adopted. This assumes that any acetylene purchased in a reporting year is all combusted during that period.

1. Bottles delivered to site (as per delivery dockets/invoices)
2. Kgs acetylene per bottle (from delivery dockets/vendor invoices)
3. $KT = (\text{kgs} * 10^{-6})$
4. Convert to TJ = $KT * NCV$ (NCV is per country specific factors published annually by the EPA.)
5. Emission Factor (EF)
6. Preliminary CO2 tonnes = $TJ * EF$
7. Oxidation factor (assumed 1)
8. Final CO2 tonnes = Preliminary CO2 tonnes * Oxidation factor

e. VOC

A conservative value for CO2 emissions is calculated based on:

1. The highest TOC concentration in mg/Nm³ (A) measured during monitoring of roaster off gases during a roast cycle.
2. The maximum volume rate Nm³/hr (B) permitted during each roast cycle.
3. Duration of a roast cycle in hours (C)
4. The total number of roast cycles completed (by all roasters) during the reporting year (D)
5. Mass of offgas per roast (as kg carbon) per roast (E) = $A * B * C / 1000$
5. Mass of offgas 'fuel' kg per roast (F) = Mass of offgas per

roast (as carbon) per roast (E) / % carbon (weighted average from speciated sample)

5. Tonnes of off-gas entering afterburners (G) = $(D * F) / (1,000)$

6. The emission factor for the offgas fuel is zero as it is considered biogas (produced from roasting solid biomass barley crop)

7. The NCV of the source stream was estimated at 27.37 TJ/Kt based on literature values for the components of the roaster off-gas.

8. Activity data TJ (H) = $G / 1000 * 27.37$

9. CO₂ emissions in tonnes due to roaster off-gases (I) = $H * 0 * 1$ (oxidation factor)

The calculation assumes all carbon in VOC off gas emissions stream is converted to CO₂ by the afterburners.

Submit relevant documents to record data flow activities

Attachment	Description
Natural Gas Emissions Calculation Flow Diagram Rev.2.pdf	Data Flow Activities

cc. Assessing and Controlling Risks

Details of the procedures used to assess inherent risks and control risks in accordance with Article 58 of the MRR:

Title of procedure	Evidence Procedure for Risk Assessment under EU ETS
Reference for procedure	ENV01-127A
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure outlines how the assessments of risks are undertaken so as to assess inherent risks and control risks in accordance with Article 58 of the MRR.

Post or department responsible for the procedure and for any data generated	Utilities and 3rd Party Contracts Manager
Location where records are kept	Records are stored in individual departments or with management representatives either as hard copy or on computer
Name of IT system used	N/A
List of EN or other standards applied	N/A

dd. Quality Assurance of Metering / Measuring Equipment

Details of the procedures used to ensure quality assurance of measuring equipment in accordance with Article 58 and 59 of the MRR.

Title of procedure	Emissions Gas Trading - Reporting and Monitoring
Reference for procedure	ENV01/127
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure describes the steps required for quality assurance of metering equipment including sourcing of calibration certificates from external meter owners so as to ensure quality assurance of measuring equipment in accordance with Article 58 and 59 of the MRR.

Post or department responsible for the procedure and for any data generated	Utilities and 3rd Party Contracts Manager
Location where records are kept	Records are stored in individual departments or with management representatives either as hard copy or on computer
Name of IT system used	N/A
List of EN or other standards applied	N/A

ee. Quality Assurance of Information Technology used for Data Flow Activities

Details of the procedures used to ensure quality assurance of information technology used for data flow activities in accordance with Article 58 and 60 of the MRR:

Title of procedure	Data Management
Reference for procedure	ENV01/127
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure identifies how information technology is tested and controlled so as to ensure quality assurance of information technology used for data flow activities in accordance with Article 58 and 60 of the MRR.

Post or department responsible for the procedure and for any data generated	SJG Technical/Governance Manager
Location where records are kept	Records are stored in individual departments or with management representatives either as hard copy or on computer
Name of IT system used	N/A
List of EN or other standards applied	N/A

ff. Review and Validation of Data

Details of the procedures used to ensure regular internal reviews and validation of data in accordance with Articles 58 and 62 of the MRR.

Title of procedure	Emissions Gas Trading - Reporting and Monitoring
Reference for procedure	ENV01/127
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure describes the steps required for internal review of reported data so as to ensure regular internal reviews and validation of data in accordance with Articles 58 and 62 of the MRR.

Post or department responsible for the procedure and for any data generated	SJG Technical/Governance Manager & Utilities and 3rd Party Contracts Manager
Location where records are kept	Records are stored in individual departments or with management representatives either as hard copy or on computer
Name of IT system used	N/A
List of EN or other standards applied	N/A

gg. Corrections and Corrective Actions

Details of the procedures used to handle corrections and corrective actions in accordance with Articles 58 and 63 of the MRR:

Title of procedure	Non-Conformance Procedure
Reference for procedure	ENV01/117
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure describes the steps to investigate non-conformances and to initiate corrective and preventative action so as to handle corrections and corrective actions in

accordance with Articles 58 and 63 of the MRR.

Post or department responsible for the procedure and for any data generated	SJG Technical/Governance Manager & Utilities and 3rd Party Contracts Manager
Location where records are kept	Records are stored in individual departments or with management representatives either as hard copy or on computer
Name of IT system used	N/A
List of EN or other standards applied	N/A

hh. Control of Outsourced Activities

Details of the procedures used to control outsourced processes in accordance with Articles 59 and 64 of the MRR.

Title of procedure	Emissions Gas Trading - Reporting and Monitoring
Reference for procedure	ENV01/127
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure identifies checks carried out for outsourced processes so as to control outsourced processes in accordance with Articles 59 and 64 of the MRR.

Post or department responsible for the procedure and for any data generated	Utilities and 3rd Party Contracts Manager
Location where records are kept	Records are stored in individual departments or with management representatives either as hard copy or on computer
Name of IT system used	N/A
List of EN or other standards applied	N/A

ii. Record Keeping and Documentation

Details of the procedures used to manage record keeping and documentation:

Title of procedure	Control of Environmental Records
Reference for procedure	ENV01/118
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure requires that all environmental records are kept for a period of 10 years so as to manage record keeping and documentation as stipulated in Annex IX of the

MRR.

Post or department responsible for the procedure and for any data generated SJG Technical/Governance Manager & Utilities and 3rd Party Contracts Manager
 Location where records are kept Records are stored in individual departments or with management representatives either as hard copy or on computer
 Name of IT system used N/A
 List of EN or other standards applied N/A

jj. Risk Assessment

The results of a risk assessment that demonstrates that the control activities and procedures are commensurate with the risks identified:

Attachment	Description
ENV01-127A - Risk Assessment Rev.2.pdf	ENV01-127A - Risk Assessment Rev.2

kk. Environmental Management System

Does your organisation have a documented Environmental Management System? Yes

Is the Environmental Management System certified by an accredited organisation? Yes

The standard to which the Environmental Management System is certified: ISO 14001

12. Changes in Operation

II. Changes in Operation

Article 24(1) of Commission Decision 2011/278/EC requires that Member States must ensure that all relevant information about any planned or effective changes to the capacity activity level and operation of an installation is submitted by the operator to the competent authority by 31 December each year. Article 12(3) of the MRR further provides that Member States may require information to be included in the monitoring plan of an installation for the purposes of meeting these requirements.

Details of the procedure used to ensure regular reviews are carried out to identify any planned or effective changes to the capacity activity level and operation of the installation that have an impact on the installation's allocation:

The procedure specified below cover the following:

- planning and carrying out regular checks to determine whether any planned or effective changes to the capacity activity level and operation of an installation are relevant under Commission Decision 2011/278/EC; and
- Procedures to ensure such information is submitted to the competent authority by 31 December of each year.

Title of procedure	ENV01/127
Reference for procedure	Emissions Gas Trading - Reporting and Monitoring
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	This procedure outlines the procedure used to ensure regular reviews are carried out to identify any planned or effective changes to the capacity, activity level and operation of the installation so as to ensure that all relevant information about any planned or effective changes to the capacity, activity level and operation of an installation is submitted by the operator to the competent authority by 31 December each year.
Post or department responsible for the procedure and for any data generated	SJG Technical/Governance Manager & Utilities and 3rd Party Contracts Manager
Location where records are kept	Records are stored in individual departments or with management representatives either as hard copy or on computer
Name of IT system used	N/A

13. Abbreviations

mm. Abbreviations Acronyms or definitions

Abbreviations acronyms or definitions that have been used in this monitoring plan:

Abbreviation	Definition
N/A	N/A

14. Additional Information

Any other information:

Attachment	Description
unreasonable_costs_tool_en.xlsx	unreasoanble cost tool
Chromatograph Costs.pdf	Gas Chromatograph Costs
Guinness CHP Metering Summary 2014.pdf	CHP Natural Gas Meter Summary 2014 NGM1
sn 83048532 meter.pdf	Roast House Natural Gas Meter Calibration NGM2
Roaster 4 Burner details.docx	Roaster photos 2016
Calculations to determine NCV of Roaster off gases 2016.xlsx	Calcs to determine NCV of roaster off gases
2017unreasonable_costs_tool_en.xlsx	Confidential unreasonable costs

15. Confidentiality

nn. Confidentiality Statement

It is the Environmental Protection Agency's policy to make information received by it in the course of its work open to inspection by any person on request. This is in accordance with the provisions of the European Communities (Access to Information on the Environment) Regulations 2007 to 2011.

In the event that you considered that some of the information being submitted of a confidential nature, then the nature of this information and the reasons why it should be considered confidential, with reference to the European Communities (Access to Information on the Environment) Regulations 2007 to 2011 and any amendments must be explicitly requested using the facility below. The Board of the Environmental Protection Agency will consider the requests and if the information can be deemed as confidential and necessary.

Notwithstanding any request for confidentiality, the Environmental Protection Agency explicitly reserves the right to release data to the Commission, including emissions and allocations to the public, on the basis that the data will be used for the purposes foreseen in Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

Please tick this box if you consider that any part of your form should be treated as commercially confidential/sensitive: false

END of Appendix I.