



Headquarters,
Johnstown Castle Estate,
County Wexford, Ireland

GREENHOUSE GAS EMISSIONS PERMIT

Permit Register Number: IE-GHG026-10355-3

Operator: Pfizer Ireland Pharmaceuticals
Operations Support Group
Ringaskiddy
Cork

Installation Name: The Pfizer Biotech Campus at Grange
Castle

Site Name: The Pfizer Biotech Campus at Grange
Castle

Location: Grange Castle International Business
Park, Kilmahudrick
Nangor Road, Clondalkin
Dublin
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-GHG026-10355.

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
P0652-01

Status Log

Current Permit

Permit number	Date application received	Date Permit issued	Comment
IE-GHG026-10355-3	25 January 2016	07 September 2016	Update to details in relation to Operator Representative and Service Contact; update to the name of combustion plant operators in Installation Description; update to natural gas supplier details in the Monitoring Approach Description and changes in reference to responsible department for procedures in Management Section of the Monitoring Plan.

Previous Permits

Permit number	Change Type	Date application received	Date Permit issued	Comment
IE-GHG026-10355-1	GHG Permit Application	18 July 2013	20 August 2013	
IE-GHG026-10355-2	GHG Variation	16 March 2014	18 July 2014	Correction of the reference to the canteen/kitchen emission point from A4-166 to A3-166 and update of contact details.

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)	Pfizer Ireland Pharmaceuticals
“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 transfers this Greenhouse Gas Emissions Permit, subject to any subsequent revisions, corrections or modifications it deems appropriate, to:

The Operator:

Pfizer Ireland Pharmaceuticals
Operations Support Group
Ringaskiddy
Cork

Company Registration Number: 490938

from

The Former Operator:

AHP Manufacturing B.V. trading as Wyeth Medica Ireland
Little Connell

Newbridge
Kildare

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)
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at the following installation(s):

The Pfizer Biotech Campus at Grange Castle **Installation number: 24**

located at

Grange Castle International Business Park, Kilmahudrick
Nangor Road, Clondalkin
Dublin
Ireland

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

In accordance with Joint Declaration made to the Agency on 04 January 2011, *Pfizer Ireland Pharmaceuticals* is deemed to have assumed and accepted all liabilities, requirements and obligations provided for in or arising under the permit, regardless of how and in respect of what period, including the period 2005-2010, prior to the transfer of the permit, that may arise.

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.: 24

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
(S12) cell culture and fermentation

- 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
S11	CHP Unit 1	23.2	MW
S1	Boiler 01	11.5	MW
S2	Boiler 02	11.5	MW
S3	Boiler 03	11.5	MW
S4	Emergency Generator 1	5.1	MW
S5	Emergency Generator 2	5.1	MW
S6	Emergency Generator 3	5.1	MW

Emission Source Reference	Emission Source Description	Capacity	Capacity Units
S10	Emergency Generator 4	5.1	MW
S7	Kitchen Ovens and Cookers	0.04	MW
S8	Diesel Firewater Pump	0.4	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. This shall include all annual emissions reports submitted by the Former Operator(s) in respect of the installation.
- 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.
- 3.16 Any discrepancies with regard to reports submitted by the Former Operator(s) in respect of this installation become the liability of the Operator.

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, including any liabilities arising from the period before the permit was transferred. 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 07 September 2016:

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-GHG026-10355

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	The Pfizer Biotech Campus at Grange Castle
Site name	The Pfizer Biotech Campus at Grange Castle
Address	Grange Castle International Business Park, Kilmahudrick Nangor Road, Clondalkin Dublin Ireland

Grid reference of site main entrance	304176E, 231745N
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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
P0652-01	Pfizer Ireland Pharmaceuticals	Environmental Protection Agency

Has the regulated activity commenced at the Installation? Yes

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 Pfizer Ireland Pharmaceuticals

Company Registration Number 490938

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	Mr
Forename	Gerard
Surname	Shannon
Position	Environment Health & Safety Specialist

Registered office address

Address Line 1	Operations Support Group
Address Line 2	N/A
City/Town	Ringaskiddy
County	Cork
Postcode	N/A

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? No

(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 | Yes |

end of a reporting period allowances can be balanced against reported emissions.

4. Service Contact

e. Service Contact

Name	Gerard Shannon
Address / Email Address	Grange Castle International Business Park Kilmahudrick, Nangor Road Clondalkin Dublin 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 installation comprises of a Combined Heat and Power (CHP) plant and 3 boilers which produce heat (steam) and electricity. The site is located in the Grange Castle Business Park, Clondalkin, Dublin 22. The main purpose of the site is the manufacture of biopharmaceuticals. The site consist of 6 main buildings; Drug Substance, Manufacturing Suites, QA/QC Administration, Development Facility, Central Utilities Buildings and the Warehouse. The CHP and 3 boilers are located in the Central Utilities Building (CUB). A site map illustrating the location of the CHP & boiler installation is provided with this application.

The CHP plant and boilers produce heat and electricity and has an aggregate combustion capacity exceeding 20MW thermal input, which constitutes the regulated activity operated by the Pfizer Biotech campus at Grange Castle. The CHP plant is operated by Veolia Alternative Energy and the boilers are operated by Veolia. Both utilities companies are contracted directly into Pfizer and work solely for Pfizer Ireland Pharmacueticals on the Grange Castle site. The CHP plant consists of a gas turbine with a waste heat recovery steam boiler which has a thermal input capacity of 23.2MW. The 3 boilers each have a thermal input capacity of 11.5MW. Natural gas is used to fire the CHP and 3 boilers. Gas oil is used as a back up for the 3 boilers.

g. Annex 1 Activities

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

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
S11	CHP Unit 1
S1	Boiler 01
S2	Boiler 02
S3	Boiler 03
S4	Emergency Generator 1
S5	Emergency Generator 2
S6	Emergency Generator 3
S10	Emergency Generator 4
S7	Kitchen Ovens and Cookers
S8	Diesel Firewater Pump
S12	Cell Culture and Fermentation

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

Emission Source Reference	Emission Source Description
S11	CHP Unit 1
S1	Boiler 01
S2	Boiler 02
S3	Boiler 03
S4	Emergency Generator 1
S5	Emergency Generator 2
S6	Emergency Generator 3
S10	Emergency Generator 4
S7	Kitchen Ovens and Cookers
S8	Diesel Firewater Pump

l. 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
A2-2	CHP Unit 1 Exhaust (S11)
A1-1	Boiler 01 Stack (S1)
A1-2	Boiler 02 Stack (S2)
A1-3	Boiler 03 Stack (S3)
A4-178	Emergency Generator 1 (S4)
A4-179	Emergency Generator 2 (S5)
A4-180	Emergency Generator 3 (S6)
A4-184	Emergency Generator 4 (S10)
A3-166	Kitchen Ovens and Cookers (S7)
A4-177	Diesel Firewater Pump (S8)
N/A	Cell Culture and Fermentation

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
GO-001	Combustion: Commercial standard fuels	Gas/Diesel Oil
PO-001	Combustion: Commercial standard fuels	Propane
NG-002	Combustion: Other gaseous & liquid fuels	Natural Gas
N/A	Other	N/A

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,S11,S2,S3	A1-1,A1-2,A1-3,A2-2	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
GO-001	S1,S10,S2,S3,S4,S5,S6,S8	A1-1,A1-2,A1-3,A4-177,A4-178,A4-179,A4-180,A4-184	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)
PO-001	S1,S2,S3	A1-1,A1-2,A1-3	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	S7	A3-166	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	S12	N/A

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:

Natural gas is used to fire the CHP & 3 boilers (S1-S3, S11), this is metered (BGM-001-(TP)) at the Bord Gais meter at their AGI near the site. The meters are used for the monthly bills from An Bord Gais. Natural gas is also used to fire the ovens and cookers in Cafe Grange (S7), this is metered (BGM-002-(TP)) at a Bord Gais meter at the rear of Cafe Grange. The meter is used for the monthly bills from Bord Gais. The fuel usage in KWh from the monthly bills is converted to Net Calorific Value and to TJ using standard factors. The CO₂ emissions are calculated on a monthly basis as a product of Activity x NCV x EF x OF. The country specific emission factor for natural gas as updated annually in the EPA document "Country Specific Net Calorific Values and CO₂ Emission Factors for use in the Annual Installation Report" for the relevant year is applied with an oxidation factor of 1.0. The monthly tCO₂ values are then summed for the reported year.

Gas oil is used as a back up fuel for the 3 boilers (S1-S3), this is metered on a supply and return lines (BOM-004 & BOM-005). The meter is reviewed on a monthly basis. The meter is also logged on the Building Management System (BMS). Gas oil is used for the 4 emergency generators (S4-S6, S10), this is metered on the supply to the generators (EGM-001). This meter is reviewed on a monthly basis. Gas oil is used to fire the diesel fire water pump (S8), this is not metered as it uses such a small amount of fuel a "no tier" approach is used, instead the fuel delivery invoices are used to determine fuel usage. The gas oil usage in m³ from the monthly reviews and invoices are converted to Kilotonnes using the density of gas oil from the vendor MSDS (Material Safety Data Sheet). The CO₂ emissions are calculated on a monthly basis as a production of Activity x NCV x EF x OF. The country specific Net Calorific Value and Emission Factor for gas oil as updated annually in the EPA document "Country Specific Net Calorific Values and CO₂ Emission Factors for use in the Annual Installation Report" for the relevant year is applied with an oxidation factor of 1.0. The monthly tCO₂ values are then summed for the reported year.

Propane is used a pilot light for the boilers when they are using fuel oil. A very small quantity is used therefore a "no tier" approach is used. It has been previously agreed with the Agency that a 1 cylinder (34kg) usage assumption will be applied (this is a large over estimation). The country specific Net Calorific Value and Emission Factor for propane as updated annually in the EPA document "Country Specific Net Calorific Values and CO₂ Emission Factors for use in the Annual Installation Report" for the relevant year is applied with an oxidation factor of 1.0. The CO₂ emissions are calculated on an annual basis as a product of Activity x NCV x EF x OF.

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	S11,S1,S2,S3	BGM-001 (TP) (71786 & 71787)	Turbine meter	0-17000 Operating pressure 24 bar	Sm ³ /h	1.41	Bord Gais AGI, off site at south end at Nangor Road
GO-001	S1,S2,S3	BOM-004 & BOM-005	Ultrasonic meter	-12.2 to 12.2	m/s	5	Boiler Room, Central Utilities Building
NG-002	S7	BGM-002 (TP)	Bellows meter	5 to 25	m ³ /h	1.5	Rear of Cafe Grange
GO-001	S10,S4,S5,S6	EGM-001	Rotary meter	0-999,999	Litres	1	Fuel Oil Bund in Central Utilities Building Yard
PO-001	S1,S2,S3	N/A Invoices	Cylinder - Assumption of 1 propane gas cylinder used per annum	0-34	kg	N/A	Cylinder stored by gas skid located in Central Utilities Building Yard
GO-001	S8	Invoices	Delivery Invoices	N/A	m ³	N/A	Engineering Department, Site Energy Lead

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	BGM-001 (TP) (71786 & 71787)	Continual	Trade partner	Yes	Yes	Yes
GO-001	BOM-004 & BOM-005	Continual	Operator	N/A	N/A	N/A
NG-002	BGM-002 (TP)	Continual	Trade partner	Yes	Yes	Yes
GO-001	EGM-001	Continual	Operator	N/A	N/A	N/A
PO-001	N/A Invoices	Batch	Trade partner	Yes	Yes	Yes
GO-001	Invoices	Batch	Trade partner	Yes	Yes	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,S11,S2,S3	BGM-001 (TP) (71786 & 71787)	<1.5%	Standard	4	2b	2a	N/A	1	N/A	N/A	36230	99.11	Major	Yes	n/a	n/a
GO-001	S1,S10,S2,S3,S4,S5,S6,S8	BOM-004 & BOM-005,EGM-001,Invoices	N/A	Standard	No tier	2a	2a	N/A	1	N/A	N/A	315	0.86	De-minimis	Yes	n/a	n/a
PO-001	S1,S2,S3	N/A Invoices	N/A	Standard	No tier	2a	2a	N/A	1	N/A	N/A	0	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)
NG-002	S7	BGM-002 (TP)	<1.5%	Standard	No tier	2b	2a	N/A	1	N/A	N/A	9	0.02	De-minimis	Yes	n/a	n/a

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

36554

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
Boiler Oil Meter BOM-004 & BOM-005.pdf	BOM-004 & BOM-005 Uncertainty Data
Bord Gais AGI BGM-001 TP.pdf	BGM-001 TP Uncertainty Data
Bord Gais Meter - Kitchen BGM-002 TP.pdf	BGM-002 TP Uncertainty Data
Generator Oil Meter (EGM-001).pdf	EGM-001 Uncertainty Data
Meter Uncertainty Assessment.doc	Meter Uncertainty Assessment

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,S11,S2,S3	4	2b	2a	N/A	1	N/A	N/A
GO-001	S1,S10,S2,S3,S4,S5,S6,S8	No tier	2a	2a	N/A	1	N/A	N/A
PO-001	S1,S2,S3	No tier	2a	2a	N/A	1	N/A	N/A
NG-002	S7	No tier	2b	2a	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)
N/A	N/A	N/A	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,S11,S2,S3,S7	Emission Factor	Ireland's National Greenhouse Gas Inventory	n/a
GO-001	S1,S10,S2,S3,S4,S5,S6,S8	NCV and Emission Factor	Ireland's National Greenhouse Gas Inventory	n/a
PO-001	S1,S2,S3	NCV and Emission Factor	Ireland's National Greenhouse Gas Inventory	n/a

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
EHS Specialist, Environment	<ul style="list-style-type: none"> • Ensuring all Greenhouse Gas (GHG) sources are identified. • Determining whether any proposed changes to activities associated with the combustion of natural gas, diesel and propane may impact site's CO2 emissions. • Monitoring and reviewing the fuel usage data on a monthly basis to ensure that there are no anomalies in the data. • Completion of the CO2 calculations based on the fuel usage data and compare with previous months.. • Preparation and issue of reports required by the GHG Permit i.e. Annual Installations Emissions Report and compare against previous reporting years to identify increase/decrease in CO2 emissions and fuel consumption. • Auditing of the calibration and maintenance of fuel metering equipment. • Liaising with the external verifier to ensure all reported results are in compliance with the monitoring guidelines. • Liaising with the Agency on any issues and correspondence. • Update and review of the GHG Risk Assessment as required. • Co-ordinate the surrender and transfer of allowances for the Emissions Trading Registry Account. • Update and/or review this procedure on a biennial basis. • Review of legislation in relation to the emissions trading scheme and Greenhouse gas emissions

Job Title / Post	Responsibilities
Engineering – Energy Lead	<ul style="list-style-type: none"> •Ensuring all Greenhouse Gas (GHG) sources are identified •Determining whether any proposed changes to activities associated with the combustion of natural gas, diesel and propane may impact site’s CO2 emissions •Monitoring and reviewing the fuel usage data on a monthly basis to ensure that there are no anomalies in the data •Reviewing energy saving projects and implementing the projects where feasible. •Signatory for the Emissions Trading Registry Account
Engineering – Utilities	<ul style="list-style-type: none"> •Ensuring all fuel metering devices are calibrated and maintained according to the schedule on the Maintenance Management System. •Ensuring any corrective or preventative actions are completed and followed up as per Engineering Quality Control Procedure.
Finance	<ul style="list-style-type: none"> •Purchasing, where necessary, of the required credits in the event of any short fall in allocated Emissions Trading credits. •Providing, when necessary, a representative signatory for the Emissions Trading Registry Account •Review of natural gas bills and forwarding to Energy lead as appropriate for review and approval.

Attachment	Description
GC GHG Monitoring and Reporting Process Flow.vsd	Pfizer Grange Castle GHG Monitoring and Reporting Process Flow chart

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	Quality Assurance and Control Procedures For The GHG Monitoring And Reporting
Reference for procedure	EHS-SPI-408
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	Section 6 and the flow chart in Section 8 of EHS-SPI-408 outlines the responsibilities for monitoring and reporting of emissions from the installation. Review of the system is captured through the site's EHS Management System Audit Program and is completed annually. Training on this procedure is a read and understand and added to appropriate persons curricula.
Post or department responsible for the procedure and for any data generated	Engineering & EHS Department
Location where records are kept	Local Network Drive & PDOC's (Controlled documents management system), PLS (Training)
Name of IT system used	PDOC's (Controlled documents management system)
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	Quality Assurance and Control Procedures For The GHG Monitoring And Reporting
Reference for procedure	EHS-SPI-408
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	The scope of this procedure applies to recording, collection, calculation, and quality assurance of data relating to the monitoring and reporting of Greenhouse Gases required as

part of Greenhouse Gas Permit Register Number IE-GHG026.

Review of the system is also captured through the site's EHS Management System Audit Program and is completed annually. This review will cover the following:

- 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.

Post or department responsible for the procedure and for any data generated	Engineering & EHS Department
Location where records are kept	Local Network Drive & Sharepoint (EHS Management System tool), PDOC's (Controlled documents management system),
Name of IT system used	Sharepoint (EMS management tool)
List of EN or other standards applied	N/A

bb. Data Flow Activities

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

Title of procedure	Quality Assurance and Control Procedures For The GHG Monitoring And Reporting
Reference for procedure	EHS-SPI-408
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	The scope of this procedure applies to recording, collection, calculation, and quality assurance of data relating to the monitoring and reporting of Greenhouse Gases required as part of Greenhouse Gas Permit Register Number IE-GHG026.

Post or department responsible for the procedure and for any data generated	Engineering and EHS Department
Location where records are kept	Local Network Drive, password protected & PDOC's (Controlled documents management system),

<p>Name of IT system used List of EN or other standards applied List of primary data sources</p>	<p>N/A N/A BGM-001- Natural Gas Invoices for CHP and Boilers</p>
<p></p>	<p>BGM-002 - Natural Gas Invoices for kitchen ovens and cookers</p>
<p></p>	<p>BOM-004 & BOM-005 - Diesel oil readings from Buliding Management System (BMS)</p>
<p></p>	<p>EGN-001 - Diesel oil readings for 4 generators direct from meter</p>
<p>Description of the relevant processing steps for each specific data flow activity.</p>	<p>Natural Gas (NG-001 & NG-002) - Calculations are based on suppliers invoices. The gas bill will have, as a minimum, the energy consumption for the period. The Net Calorific Value</p>
<p>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</p>	<p>of the natural gas will be taken from the gas bills. The CO2 emissions are calculated on a monthly basis as a product of Activity x NCV x EF x OF. The country specific emission factor for natural gas as updated annually in the EPA document "Country Specific Net Calorific Values and CO2 Emission Factors for use in the Annual Installation Report" for the relevant year is applied with an oxidation factor of 1.0. The monthly tCO2 values are then summed for the reported year.</p>
<p></p>	<p>Gas Oil - Calculations are based on meter readings for the boiler gas oil usage. The gas oil used by the firewater diesel pump will be tracked from the suppliers invoices. The country specific Net Calorific Value and Emission Factor for gas oil are updated annually in the EPA document "Country Specific Net Calorific Values and CO2 Emission Factors for use in the Annual Installation Report" for the relevant year is applied with an oxidation factor of 1.0.</p>
<p></p>	<p>Propane - A worst-case assumption of 1 cylinder of propane will be used per reporting period (year). The quantity of propane per cylinder will be obtained from the vendor/supplier. The country specific Net Calorific Value and Emission Factor for propane as updated annually in the EPA document "Country Specific Net Calorific Values and CO2 Emission Factors for use in the Annual Installation Report" for the relevant year is applied with an oxidation factor of 1.0.</p>
<p></p>	<p>The activity data and CO2 emissions are calculated using the following formulas in accordance with Article 24(1) of the Commission Monitoring and Reporting Regulations - Energy content of fuel consumption [TJ] = fuel consumed [t or m3] * net calorific value of the fuel [TJ/t or TJ/m3]. CO2 emissions = Activity data [TJ/m3] * Emission Factor [tCO2/TJ] * Oxidation factor</p>

All calculations are completed on an Excel spreadsheet and the electronic copy of the spreadsheet is stored on a local network drive which is password protected.

Submit relevant documents to record data flow activities

Attachment	Description
Copy of 2011 CO2 Emissions.xls	CO2 Emissions Spreadsheet

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	Quality Assurance and Control Procedures For The GHG Monitoring And Reporting
Reference for procedure	EHS-SPI-408
Diagram reference	n/a
Brief description of procedure. The description should cover the essential parameters and operations performed	EHS-SPI-4087, Associated Risk Assessment Assess the following: -Identification of Greenhouse Gas Sources; Recording fuel usage;Responsibilities and Competence; CO2 calculations methods; Maintenance and calibration of equipment; Record keeping; Corrective and Preventive actions; Verifying the methodology and calculations; Surrendering allowances:Failure to complete and submit a report to the EPA on proposed improvements detailed in the verified report. The documented risk assessment is carried out by the EHS Specialist.
Post or department responsible for the procedure and for any data generated	EHS
Location where records are kept	Local Network Drive, password protected & PDOC's (Controlled documents management system),
Name of IT system used	PDOC's
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	Quality Assurance and Control Procedures For The GHG Monitoring And Reporting
Reference for procedure	EHS-SPI-408
Diagram reference	n/a

Brief description of procedure. The description should cover the essential parameters and operations performed

Section 9.5 of EHS-SPI-408, Maintenance and Calibration of measurement equipment, states -

Natural Gas: Bord Gais are responsible for the maintenance and calibration of the gas meter (BGM-001-TP and BGM-002-TP) at Grange Castle. Bord Gais are also responsible for the maintenance and calibration of the chromatograph that measures the calorific value of the natural gas at the AGI.

Gas Oil: Grange Castle’s Engineering Calibrations and Maintenance Group are responsible for the maintenance and calibration of the gas oil gas meter on the supply line to the generators (EGM-001) and the gas oil meters for the boilers (BOM-004 and BOM-005). The calibrations are controlled by an electronic software calibrations management system. This is captured in MTNC-0009 Maintenance Management System and in CALS-0020 Calibration Programme, CALS-0022 Instrument Life Cycle. On an annual basis a request will be made for the calibration certification for the third party meters BGM-001-TP and BGM-002-TP.

Post or department responsible for the procedure and for any data generated	EHS & Engineering
Location where records are kept	Local Network Drive, password protected, PDOC's & EMAS
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	Quality Assurance and Control Procedures For The GHG Monitoring And Reporting
Reference for procedure	EHS-SPI-408
Diagram reference	n/a
Brief description of procedure. The description should cover the essential parameters and operations performed	Section 9.7 of EHS-SPI-408, Data Management, Quality Assurance and Control Process Section, states the following:

All site documentation is managed and controlled through QUAL-0002 Grange Castle Documentation Systems. Periodic reviews of all procedures are captured through the onsite documentation on line system, PDOC’s.

In addition to the Corporate Policy WTSO-0658, which relates to disaster recovery management, the business has established and maintains a policy relating to information protection and risk management (IPRM) (WTPO-0024), BT Risk Management Domain Policy. Procedures related to the policy cover the initial development, testing and implementation of new IT products and services as well as the production support and maintenance of these products and services which includes, access control and security, data back-up and disaster recovery. A compliance risk profile (CRP) is mandatory for each application/system. A CRP is the characterization of IT compliance risks associated with applications, IT Infrastructure and/ or IT processes and compliance to the applicable IT Compliance Requirements (WTSO-0012 Compliance Risk Profiles).

Records control is an integral part of the sites GHG Emissions Monitoring and Reporting system. All records must be legible, dated, identifiable and traceable to the product or service involved. All data relating to the GHG Emissions Monitoring and Reporting system complies with Article 60 of the Monitoring and Reporting Regulations. All documentation relating to the GHG Emissions Permit (as listed in Annex IX of the Monitoring and Reporting Regulations) is retained for a period of no less than 10 years. All documentation will be available for review, if and when required, by the EPA and the appointed verifier.

Post or department responsible for the procedure and for any data generated	Pfizer Business Technology
Location where records are kept	Pfizer Business Technology
Name of IT system used	Various
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	Quality Assurance and Control Procedures For The GHG Monitoring And Reporting
Reference for procedure	EHS-SPI-408
Diagram reference	n/a
Brief description of procedure. The description should cover the essential parameters and operations performed	In Section 6.0 of EHS-SPI-408, Responsibilities, outlines the responsibilities of EHS and the Energy Lead, which includes, but are not limited to:-
	<ul style="list-style-type: none"> •Monitoring and reviewing the fuel usage data on a monthly basis to ensure that there are no anomalies in the

data.

- Completion of the CO2 calculations based on the fuel usage data and compare with previous months.
- Preparation and issue of reports required by the GHG Permit i.e. Annual Installations Emissions Report, and compare against previous reporting years to identify increase/decrease in CO2 emissions and fuel consumption.
- Reviewing energy saving projects and implementing the projects where feasible
- Review of legislation in relation to the emissions trading scheme and greenhouse gas emissions

Post or department responsible for the procedure and for any data generated
 Location where records are kept
 Name of IT system used
 List of EN or other standards applied

EHS
 Local network drives
 n/a
 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
 Reference for procedure
 Diagram reference
 Brief description of procedure. The description should cover the essential parameters and operations performed

Quality Assurance and Control Procedures For The GHG Monitoring And Reporting
 EHS-SPI-408
 N/A
 Section 9.8 of EHS-SPI-408, Corrective and Preventative Action, states -

For Metering Devices- Corrective and preventative actions in relation to calibration of the gas oil meter are captured in CALS-0023 "Calibration Event Handling". This procedure details the corrective action to be taken in the event that the calibration tolerance has been exceeded or if the instrument is damaged and requires placement.

Correction and repair of third party meters (i.e. BGM-001-TP and BGM-002-TP) is the responsibility of the third party. On an annual basis a request will be made for the calibration certification for the third party meter BGM-001-TP.

Reporting and Record Keeping- In the event that there are errors discovered in the reporting and record keeping these will be investigated using EHS SPI 103 "Incident Reporting

and Management”.An investigation will be carried out using a team based investigation. The team will review the errors and detail a root cause for the errors and implement corrective actions. The corrective actions will be actioned to ensure that incident will not occur again. The corrective actions will be tracked to completion and only when the corrective actions are closed is the incident investigation closed out.

Post or department responsible for the procedure and for any data generated	EHS
Location where records are kept	Procedures managed by PDOC's & Engineering documentation, Incidents & CAPA's stored in Mirashare system.
Name of IT system used	as above
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	Quality Assurance and Control Procedures For The GHG Monitoring And Reporting
Reference for procedure	EHS-SPI-408
Diagram reference	n/a
Brief description of procedure. The description should cover the essential parameters and operations performed	The Natural Gas meters are maintained and calibrated by Bord Gais. Section 9.5 of EHS-SPI-408, Maintenance and Calibration of measurement equipment, states - Natural Gas: Bord Gais are responsible for the maintenance and calibration of the gas meter (BGM-001-TP and BGM-002-TP) at Grange Castle. Bord Gais are also responsible for the maintenance and calibration of the chromatograph that measures the calorific value of the natural gas at the AGI.
Post or department responsible for the procedure and for any data generated	n/a
Location where records are kept	n/a
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:

<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>Quality Assurance and Control Procedures For The GHG Monitoring And Reporting</p> <p>EHS-SPI-408</p> <p>n/a</p> <p>Section 9.7 of EHS-SPI-408, Data Management, Quality Assurance and Control Process Section, states the following:-</p> <p>All site documentation is managed and controlled through QUAL-0002 Grange Castle Documentation Systems. Periodic reviews of all procedures are captured through the onsite documentation on line system PDOC's.</p> <p>Records control is an integral part of the sites GHG Emissions Monitoring and Reporting system. All records must be legible, dated, identifiable and traceable to the product or service involved.</p> <p>All data relating to the GHG Emissions Monitoring and Reporting system complies with Article 66 of the Monitoring and Reporting Regulations. All documentation relating to the GHG Emissions Permit (as listed in Annex IX of the Monitoring and Reporting Regulations) is retained for a period of no less than 10 years. All documentation will be available for review, if and when required, by the EPA and the appointed verifier.</p>
<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>EHS</p> <p>EHS Cabinets (hard copy) and local network drives (soft copy)</p> <p>n/a</p> <p>n/a</p>

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
ETS Risk Assessment Rev01.doc	Pfizer Grange Castle Process for determining CO2 emissions from Emissions Trading activities
2015 Fuel Oil Usage.xls	Fuel Oil Usage 2015

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	Quality Assurance and Control Procedures For The GHG Monitoring And Reporting
Reference for procedure	EHS-SPI-408
Diagram reference	n/a
Brief description of procedure. The description should cover the essential parameters and operations performed	Section 9.1 of EHS-SPI-408 states: Any changes in the nature or quantity of any emissions, abatement/treatment or recovery systems, range of processes, fuels, raw materials, intermediates, products or wastes generated are captured in the site change control procedures (QUAL-0125

and PRCS-0030). Any changes in legislation dealing with Greenhouse Gases or Emissions Trading will be captured in EHS-SPI-104 Update of Environment, Health and Safety Legislation Register.

EHS-SPI-415 Review of Environmental Aspects will detail the impacts of the activities on site and initiate measures to control the impacts.

Any changes in capacity or activity level that have an impact on the installation's allocation will result in an NER template being completed by the Engineering & EHS department and submitted to the EPA by the 31st December each year.

Post or department responsible for the procedure and for any data generated	Engineering & EHS Department
Location where records are kept	Local Network Drives
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
EHS-SPI-408 Quality Assurance & Control Procedures for the GHG Monitoring and Reporting.pdf	Green House Gas Monitoring and Control Procedure

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.