



Headquarters,
Johnstown Castle Estate,
County Wexford, Ireland

GREENHOUSE GAS EMISSIONS PERMIT

Permit Register Number:	IE-GHG018-10348-3
Operator:	MSD International GmbH trading as MSD Ireland (Brinny) Brinny Innishannon County Cork
Installation Name:	MSD International GmbH trading as MSD Ireland (Brinny)
Site Name:	MSD International GmbH trading as MSD Ireland (Brinny)
Location:	Brinny Innishannon Cork 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-GHG018-10348.

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
P0005-02

Status Log

Current Permit

Permit number	Date application received	Date Permit issued	Comment
IE-GHG018-10348-3	04 November 2015	30 September 2016	Transfer of permit from Schering-Plough (Ireland) Company to MSD International GmbH trading as MSD Ireland (Brinny). Update of installation name and site name ; Update to Thermal Input Capacity for boiler SG403 from 8MW to 7.2 MW following installation of new burner; Correction of emission source description for boilers SG401 and SG403; Update to Measurement Devices Table to reflect Natural Gas meter reference number ; Update to Procedures.

Previous Permits

Permit number	Change Type	Date application received	Date Permit issued	Comment
IE-GHG018-10348-1	GHG Permit Application	12 June 2013	18 June 2013	
IE-GHG018-10348-2	GHG Variation	14 March 2014	11 April 2014	Addition of new emission source CHP401 (S10) and inclusion of the source stream acetylene.

End of Introductory Note

Glossary of Terms

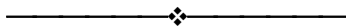
For the purposes of this permit the terms listed in the left hand column shall have the meaning given in the right hand column below:

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)	MSD International GmbH trading as MSD Ireland (Brinny)
“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:

MSD International GmbH trading as MSD Ireland (Brinny)
Brinny
Innishannon
County Cork

Company Registration Number: 908472

from

The Former Operator:

Schering-Plough (Ireland) Company
Rathdrum

Wicklow

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):

MSD International GmbH trading as MSD Ireland (Brinny) **Installation number:** 16

located at

Brinny
Innishannon
Cork
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 15 September 2016, *MSD International GmbH trading as MSD Ireland (Brinny)* 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 2005-2016, 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.: 16

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
(Wastewater Treatment) Wastewater Treatment
(Fermentation Tanks) Fermentation Tanks

- 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
S2	Cochran Boilers Ltd. Boiler SG402 - (S2)	11.5	MW
S3	FKI Babcock Robey Boiler SG401 - (S3)	8.9	MW
S4	Caterpillar Diesel Generator EG901- (S4)	5.3	MW
S5	Caterpillar Diesel Generator EG902- (S5)	5.3	MW
S6	Detroit Diesel Generator EG801 - (S6)	4	MW
S7	Detroit Diesel Generator EG602 - (S7)	4	MW
S8	Clarke Diesel Fire Pump Engine X654 - (S8)	0.62	MW

Emission Source Reference	Emission Source Description	Capacity	Capacity Units
S9	Miscellaneous small scale bench top Laboratory Burners & Atomic Absorption Spectrophotometer- (S9)	0.1	MW
S10	CHP Engine CHP401 - (S10)	3.7	MW
S11	Maintenance Workshop	0.1	MW
S1	BIB Cochran Ltd. Boiler SG403 - (S1)	7.21	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 30 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-GHG018-10348

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	MSD International GmbH trading as MSD Ireland (Brinny)
Site name	MSD International GmbH trading as MSD Ireland (Brinny)
Address	Brinny Innishannon Cork Ireland

Grid reference of site main entrance	E 151520 N 59528
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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
P0005-02	MSD International GmbH, trading as MSD (Brinny)	EPA

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	MSD International GmbH trading as MSD Ireland (Brinny)
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Company Registration Number	908472
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Operator Legal status

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

Is the trading / business name different to the operator name? Yes

Trading / business name MSD International GmbH trading as MSD Ireland (Brinny)

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

Title	█
Forename	█
Surname	█
Position	EHS Lead

Registered office address

Address Line 1	Brinny
Address Line 2	Innishannon
City/Town	County Cork
County	N/A
Postcode	N/A

Principal office address

Is the principal office address different to the registered office address? Yes

Address Line 1	MSD International GmbH trading as MSD Ireland (Brinny)
Address Line 2	Innishannon
City/Town	County Cork
County	N/A
Postcode	N/A
Company registration number	576241

Holding company

Does the company belong to a holding company? Yes

Holding company name MSD International GmbH

Holding company address

Address Line 1	Weystrasse 20
Address Line 2	6000 Lucerne 6
City/Town	Switzerland
County	N/A
Postcode	N/A
Company registration number	CHE-115.587.106

Is the holding company principal address different to the holding company address? 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 end of a reporting period allowances can be balanced against reported emissions. | Yes |

4. Service Contact**e. Service Contact**

Name	
Address / Email Address	MSD International GmbH trading as MSD Ireland (Brinny) Innishannon Co. Cork 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.

Installation number IE-16 at MSD International GmbH trading as MSD Ireland (Brinny) is a Category A combustion installation with a rated thermal input exceeding 20 MW. This comprises 3 boilers with capacities of 7.2, 11.5 and 8.9 MW each respectively. There is also a gas engine CHP unit (3.7 MW) which generates a small portion of steam and low pressure hot water (LPHW) requirement for the site. In addition there are 4 emergency generators with rated capacities of 5.3, 5.3, 4 and 4 MW each respectively. There are 4 further minor emission points; a diesel fire pump with capacity 0.61MW, laboratory burners & atomic absorption spectrophotometer and maintenance workshop welder <0.1 MW.

Natural gas is the Major source stream used for the boilers accounting for > 99.5% of all emissions annually. De minimis source streams of diesel in the boilers, generators and fire pump account for the rest along with de minimis quantities of LPG from miscellaneous small scale bench top gas burners and de minimis quantities of acetylene from atomic absorption spectrophotometer and welder.

The average verified emissions over the last 5 years is <12,000 metric tons and it is a low emission installation under the definition in Article 47 of The Monitoring and Reporting Regulation (Commission Regulation (EU) No. 601/2012 of 21 June 2012) (hereinafter the "MRR").

Established in 1971 the Brinny site manufactures biopharma products. The installation includes large scale fermentation, purification, sterile manufacturing and quality control operations. Its main product is Interferon used in the treatment of cancers and viral diseases.

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)	50.73	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
GHG licence update site plan 14 Mar 14.docx	Updated site plan 14 Mar '14

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)}) 12000

Installation Category: A

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	BIB Cochran Ltd. Boiler SG403 - (S1)
S2	Cochran Boilers Ltd. Boiler SG402 - (S2)
S3	FKI Babcock Robey Boiler SG401 - (S3)
S4	Caterpillar Diesel Generator EG901- (S4)
S5	Caterpillar Diesel Generator EG902- (S5)

Emission Source Reference	Emission Source Description
S6	Detroit Diesel Generator EG801 - (S6)
S7	Detroit Diesel Generator EG602 - (S7)
S8	Clarke Diesel Fire Pump Engine X654 - (S8)
S9	Miscellaneous small scale bench top Laboratory Burners & Atomic Absorption Spectrophotometer- (S9)
Wastewater Treatment	Wastewater Treatment
Fermentation Tanks	Fermentation Tanks
S10	CHP Engine CHP401 - (S10)
S11	Maintenance Workshop

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

Emission Source Reference	Emission Source Description
S2	Cochran Boilers Ltd. Boiler SG402 - (S2)
S3	FKI Babcock Robey Boiler SG401 - (S3)
S4	Caterpillar Diesel Generator EG901- (S4)
S5	Caterpillar Diesel Generator EG902- (S5)
S6	Detroit Diesel Generator EG801 - (S6)
S7	Detroit Diesel Generator EG602 - (S7)
S8	Clarke Diesel Fire Pump Engine X654 - (S8)
S9	Miscellaneous small scale bench top Laboratory Burners & Atomic Absorption Spectrophotometer- (S9)
S10	CHP Engine CHP401 - (S10)
S11	Maintenance Workshop
S1	BIB Cochran Ltd. Boiler SG403 - (S1)

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	Boiler SG403 Flue #1
A2	Boiler SG403 Flue #2
A3	Boiler SG402 Flue
A4	Boiler SG401 Flue
EG901	EG901 Generator Stack

Emission Point Reference	Emission Point Description
EG 902	EG902 Generator Stack
EG801	EG801 Generator Stack
EG802	EG802 Generator Stack
X654	X654 Fire Pump Stack
LB1	LB1 Miscellaneous small scale bench top laboratory burners
Wastewater Treatment Plant	Wastewater Treatment
A5 A6 and IL10 Fermentation building	Fermentation Tanks
A7	CHP Engine CHP401 Flue
LB2	Atomic Absorption Spectrophotometer exhaust
MW1	Maintenance Workshop Welder

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-1	Combustion: Other gaseous & liquid fuels	Natural Gas
DSL-1	Combustion: Commercial standard fuels	Gas/Diesel Oil
LPG-1	Combustion: Other gaseous & liquid fuels	Liquefied Petroleum Gases
Wastewater Treatment	Other	Not applicable
Fermentation Tanks	Other	Not applicable
ACT-1	Combustion: Other gaseous & liquid fuels	Acetylene

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-1	S1,S10,S2,S3	A1,A2,A3,A4,A7	Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous

Source streams (Fuel / Material)	Emission Source Refs.	Emission Point Refs.	Annex 1 Activity
			or municipal waste)
DSL-1	S1,S2,S3,S4,S5,S6,S7,S8	A1,A2,A3,A4,EG902,EG801,EG802,EG901,X654	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-1	S9	LB1	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)
ACT-1	S11,S9	LB2,MW1	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
Wastewater Treatment	Wastewater Treatment	Wastewater Treatment Plant
Fermentation Tanks	Fermentation Tanks	A5 A6 and IL10 Fermentation building

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)? Yes

If the installation is an installation with low emissions as defined above there are a number of special provisions which may be applied to provide a simplified monitoring plan. These provisions are set out in Article 47 of the MRR.

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:

For each source stream, default values for calculation factors are used (natural gas, diesel, LPG). The activity data is first summed up, then the calculation formula according to Article 24(1) is used.

1. Natural Gas (NG1)

Monthly bills for gas used are received from the supplier and are summed. Combustion emissions are calculated by multiplying the activity data related to the amount of fuel combusted, expressed as terajoules based on net calorific value (NCV), with the corresponding emission factor, oxidation factor. A spreadsheet is used to calculate CO₂ emissions using NCV and emission factors published by the EPA. Natural gas emissions will be less than 25,000 tonnes annually.

2. Diesel Oil (DSL-1)

Start and finish stock levels are recorded annually for all tanks. Additions to stock are captured by delivery dockets and invoices. Mobile unit use (forklifts and diesel powered mobile units) are recorded by flow meter (Tank V652) and is subtracted from the diesel oil use. Diesel used = (start of year stock level - end of year stock level) + Deliveries - Mobile Plant use. A spreadsheet is used to calculate CO₂ emissions using NCV and emission factors published by the EPA. Diesel is a de minimis source stream.

3. Propane (LPG-1)

The number of Propane cylinders delivered per annum is used as the basis for calculation. The weight of propane is taken from delivery dockets//Invoices. A spreadsheet is used to calculate CO₂ emissions using NCV and emission factors published by the EPA. Propane is a de minimis source stream.

4. Acetylene (ACT-1)

The number of Acetylene cylinders delivered per annum is used as the basis for calculation. The weight of acetylene is taken from delivery dockets//Invoices. A spreadsheet is used to calculate CO₂ emissions using Tier 1 default factors for NCV and emission factors published by the EPA. Acetylene is a de minimis source stream.

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-1	S1,S2,S3,S10	80105146/2012	Turbine meter	160 to 3250 Sm ³ h ⁻¹	m ³ /hr	1	Gas Networks Ireland AGI adjacent to facility
DSL-1	S1,S2,S3,S4,S5,S6,S7,S8	Various tanks	De minimis diesel usage. Separate level gauges in each tank ranging from 0.85-500 m ³ varying uncertainty from 0.1 to 10%	0-500	m ³	10	On site
LPG-1	S9	Delivery dockets/Invoices	Weight is based on standard cylinder content	0-50	kg	n/a	Operator
ACT-1	S9,S11	Invoices	Weight is based on standard cylinder content	0-50	Kg	n/a	Operator

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-1	80105146/2012	Continual	Trade partner	Yes	Yes	Yes
DSL-1	Various tanks	Batch	Operator	N/A	N/A	N/A

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
LPG-1	Delivery dockets/Invoices	Batch	Trade partner	Yes	Yes	Yes
ACT-1	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-1	S1,S10,S2,S3	80105 146/2012	<1.5%	Standard	4	2b	2a	N/A	1	N/A	N/A	12000	99.9	Major	Yes	n/a	n/a
DSL-1	S1,S2,S3,S4,S5,S6,S7,S8	Various tanks	<10.0%	Standard	No tier	2a	2a	N/A	1	N/A	N/A	10	0.08	De-minimis	Yes	n/a	n/a
LPG-1	S9	Delivery docket s/Invoices	N/A	Standard	No tier	2a	2a	N/A	1	N/A	N/A	1	0.01	De-minimis	Yes	n/a	n/a
ACT-1	S9,S11	Invoices	N/A	Standard	No tier	1	1	N/A	1	N/A	N/A	1	0.01	De-minimis	Yes	n/a	n/a

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

12012

u. 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-1	S1,S10,S2,S3	4	2b	2a	N/A	1	N/A	N/A
DSL-1	S1,S2,S3,S4,S5,S6,S7,S8	No tier	2a	2a	N/A	1	N/A	N/A
LPG-1	S9	No tier	2a	2a	N/A	1	N/A	N/A
ACT-1	S9,S11	No tier	1	1	N/A	1	N/A	N/A

v. 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

w. 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-1	S1,S10,S2,S3	EF	In accordance with "Country Specific NCV and CO2 Emission Factors" issued by the EPA (Ireland's National Greenhouse Gas Inventory)	n/a
NG-1	S1,S10,S2,S3	OxF	In accordance with Tier 1 in the Monitoring and Reporting Regulation	n/a
DSL-1	S1,S2,S3,S4,S5,S6,S7,S8	NCV and Emission Factor	In accordance with "Country Specific NCV and CO2 Emission Factors" issued by the EPA (Ireland's National Greenhouse Gas Inventory)	n/a
DSL-1	S1,S2,S3,S4,S5,S6,S7,S8	OxF	In accordance with Tier 1 in the Monitoring and Reporting Regulation.	n/a
LPG-1	S9	NCV and Emission Factor	In accordance with "Country Specific NCV and CO2 Emission Factors" issued by the EPA (Ireland's National Greenhouse Gas Inventory)	n/a
LPG-1	S9	OxF	In accordance with Tier 1 in the Monitoring and Reporting Regulation.	n/a

Source Stream Refs.	Emission Source Refs.	Parameter	Reference Source	Default Value applied (where appropriate)
ACT-1	S9,S11	NCV and emission factor	In accordance with the Tier 1 NCV and CO2 Emission Factors issued by the EPA	n/a
ACT-1	S11,S9	OxF	In accordance with Tier 1 in the Monitoring and Reporting Regulation.	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

x. 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 Lead	Overall responsibility for M&R activities. Prepares and submits annual report. External bodies (EPA, verifier, etc) point of contact.
Utilities Engineer	Forwards diesel and propane delivery dockets to Manager. Notifies Manager of any proposed changes to GHG emission sources.
Finance Accounts Payments Assistant	Forwards to the Manager all approved invoices for Natural Gas, Diesel and Propane.

Attachment	Description
N/A	N/A

y. 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	Greenhouse Gases Emissions Monitoring and Reporting
Reference for procedure	AP2701.16
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	The procedure AP2701.16 provides details 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. It identifies how the monitoring and reporting responsibilities for the roles identified above are assigned and specifies competence and training undertaken.
Post or department responsible for the procedure and for any data generated	Environmental Health and Safety Dept. (EHS)
Location where records are kept	EHS
Name of IT system used	MIDAS
List of EN or other standards applied	Internal Corporate EHS Standards implemented on site.

z. 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	Greenhouse Gases Emissions Monitoring and Reporting
Reference for procedure	AP2701.16
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	The procedure AP2701.16 requires regular evaluation of the monitoring plan appropriateness including: <ul style="list-style-type: none"> - Ensuring completeness of the emission source streams and metering devices - Ensuring all relevant changes in the nature and functioning of the installation will be included in the monitoring plan - Annual assessment of compliance with the uncertainty

thresholds for activity data and other parameters for the applied tiers for each source stream & emission source

- Annual assessment of any potential measures for improvement of the monitoring methodology applied

- Annual audit conducted verifying monitoring plan appropriateness

Post or department responsible for the procedure and for any data generated	EHS
Location where records are kept	EHS
Name of IT system used	MIDAS
List of EN or other standards applied	Internal Corporate EHS Standards implemented on site.

aa. Data Flow Activities

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

Title of procedure	Greenhouse Gases Emissions Monitoring and Reporting
Reference for procedure	AP2701.16
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	AP 2701.16 is the overarching procedure for management of Greenhouse Gas Activities on the site. The procedure manages data flow activities in accordance with Article 57 of the MRR as detailed in the Data flow activities section for the procedure. In addition the AP2701.16 requires an annual audit of the system to verify that data flow activities are effective.
Post or department responsible for the procedure and for any data generated	EHS
Location where records are kept	EHS
Name of IT system used	MIDAS
List of EN or other standards applied	Internal Corporate EHS Standards implemented on site.
List of primary data sources	The Major source stream on site is natural gas and the primary data source for this stream is the gas invoices from the provider.
Description of the relevant processing steps for each specific data flow activity.	Diesel, LPG and acetylene usage is de minimis and the primary data source here is delivery notes and invoices. For each source stream, default values for calculation factors are used (natural gas, Diesel, LPG). The activity data is first summed up, then the calculation formula according to Article 24(1) is used.
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 1. Natural Gas (NG1) manual inputs) and confirm how outputs of data flow activities are recorded

Monthly bills for gas used are received from the supplier and are summed. Combustion emissions are calculated by multiplying the activity data related to the amount of fuel combusted, expressed as terajoules based on net calorific value (NCV), with the corresponding emission factor and oxidation factor. A spreadsheet is used to calculate CO2 emissions using NCV and emission factors published by the EPA. Natural gas emissions will be less than 25,000 tonnes annually.

2. Diesel Oil (DSL-1)

Start and finish stock levels are recorded annually for all tanks. Additions to stock are captured by delivery dockets and invoices. Mobile unit use (forklifts and diesel powered mobile units) are recorded by flow meter (Tank V652) and is subtracted from the diesel oil use. Diesel used = (start of year stock level - end of year stock level) + Deliveries - Mobile Plant use. A spreadsheet is used to calculate CO2 emissions using NCV and emission factors published by the EPA. Diesel is a de minimis source stream.

3. Propane (LPG-1)

The number of Propane cylinders delivered per annum is used as the basis for calculation. The weight of propane is taken from delivery dockets/Invoices. A spreadsheet is used to calculate CO2 emissions using NCV and emission factors published by the EPA. Propane is a de minimis source stream.

4. Acetylene (ACT-1)

The number of Acetylene cylinders delivered per annum is used as the basis for calculation. The weight of acetylene is taken from delivery dockets/Invoices. A spreadsheet is used to calculate CO2 emissions using Tier 1 default factors for NCV and emission factors published by the EPA. Acetylene is a de minimis source stream.

Submit relevant documents to record data flow activities

Attachment	Description
N/A	N/A

bb. 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	Risk Assessment Methodology/ Greenhouse Gases Emissions Monitoring and Reporting
Reference for procedure	SAFTY27/ AP2701.16
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	Procedure AP 27 01.16 requires an assessment of risk be carried out and this is carried out in accordance with Safty 27 Risk Assessment Methodology. Specifically a risk assessment of the M&R data flow process is conducted to evaluate the potential failure modes & identify the controls in place to mitigate against the risk of data error.
	The risk assessment is reviewed annually, or whenever there are changes to the M&R data flow process that could affect the quality of data.
	If deficiencies are found or reported, effective corrective and preventative action is taken (on ENTROPY) to prevent recurrence.
Post or department responsible for the procedure and for any data generated	EHS
Location where records are kept	EHS
Name of IT system used	MIDAS/ ENTROPY
List of EN or other standards applied	Internal Corporate EHS Standards implemented on site.

cc. 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	Greenhouse Gases Emissions Monitoring and Reporting
Reference for procedure	AP2701.16
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	Natural Gas is the major source stream on site and Diesel, propane and acetylene usage is de minimis. The procedure AP2701.16 requires a calibration certificate for the Gas turbine flow meter to be acquired from Gas Networks Ireland annually.
Post or department responsible for the procedure and for any data generated	EHS
Location where records are kept	EHS
Name of IT system used	MIDAS
List of EN or other standards applied	Internal Corporate EHS Standards implemented on site.

dd. 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	Computer System Development Lifecycle/ Administration of Electronic records and electronic signature/ System administration and use of enterprise backup and recovery system
Reference for procedure	Corporate Policy 28/AP2920.35/ITSOP-0011
Diagram reference	n/a
Brief description of procedure. The description should cover the essential parameters and operations performed	All computerised Systems are governed by the Corporate Policy 28 "Computer System Development Lifecycle", which in turn has Merck System Development Lifecycle (SDLC) procedures which must be followed for each system. This system is similar to GAMP. The SDLC process documents how each system is developed, tested and used (i.e. security access controls and data storage & recovery). The Site Procedure AP2920.35 "Administration of Electronic Records and Electronic Signature Systems" describes the procedure to be followed for the administration of systems generating HAR electronic records and also systems with electronic signature functionality. The Site procedure ITSOP-0011 "System administration and use of enterprise backup and recovery system" details how data is backed up and restored.
Post or department responsible for the procedure and for any data generated	IT
Location where records are kept	IT
Name of IT system used	Various
List of EN or other standards applied	n/a

ee. 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	Greenhouse Gases Emissions Monitoring and Reporting
Reference for procedure	AP2701.16
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	The procedure AP2701.16 specifies the requirement for an annual audit. The audit includes a check on whether data is complete, comparisons with data over previous years,

	comparison of fuel consumption reported with purchase records and factor obtained for fuel suppliers with international reference factors, if applicable, and criteria for rejecting data.
Post or department responsible for the procedure and for any data generated	EHS
Location where records are kept	EHS
Name of IT system used	MIDAS
List of EN or other standards applied	Internal Corporate EHS Standards implemented on site.

ff. 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	Greenhouse Gases Emissions Monitoring and Reporting/ Incident Investigation and Management
Reference for procedure	AP2701.16/ SAFTY41
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	The procedure AP2701.16 specifies:- the requirement to carry out corrective action to handle corrections or issues arising. This is done through our Incident Investigation process on ENTROPY. Appropriate actions are undertaken if data flow activities and control activities are found not to function effectively. Validity of the outputs are assessed, through annual audit and verification by an external verifier. - the process to be followed in the event of a failure of the Gas Networks Ireland meter.
Post or department responsible for the procedure and for any data generated	EHS
Location where records are kept	EHS
Name of IT system used	MIDAS/ ENTROPY
List of EN or other standards applied	Internal Corporate EHS Standards implemented on site.

gg. 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	Greenhouse Gases Emissions Monitoring and Reporting
Reference for procedure	AP2701.16
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	AP2701.16 details how outsourced activities for natural gas meter calibration, verification and fuel delivery are controlled.
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

hh. Record Keeping and Documentation

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

Title of procedure	Greenhouse Gases Emissions Monitoring and Reporting
Reference for procedure	AP2701.16
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	Records are maintained on a number of electronic systems, including ENTROPY, MIDAS, Spreadsheets.
	Hardcopies are maintained for review for 10 years in accordance with requirements of Article 66 and Annex IX of the Monitoring and Reporting Regulation on the requirements for data retention. Relevant records are available for inspection at all times by the competent authority or verifier.
Post or department responsible for the procedure and for any data generated	EHS
Location where records are kept	EHS
Name of IT system used	ENTROPY, MIDAS
List of EN or other standards applied	Internal Corporate EHS Standards implemented on site.

ii. Risk Assessment

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

Attachment	Description
N/A	N/A

jj. Environmental Management System

Does your organisation have a documented Environmental Management System? Yes

Is the Environmental Management System certified by an accredited organisation? No

12. Changes in Operation

kk. 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	Green House Gas Emissions Procedure (AP 2701.16) and Management of Change (Safety 47)
Reference for procedure	AP 2701.16/ Safety 47
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	The procedure AP 2701.16 specifies the requirement to carry out regular audit and will include regular reviews 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 review covers 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 and to ensure such information is submitted to the competent authority by 31 December of each year. Any change will be carried out in accordance with the requirements of the Management of Change Procedure Safety 47.
Post or department responsible for the procedure and for any data generated	EHS
Location where records are kept	EHS
Name of IT system used	Enviromanager, Midas

13. Abbreviations

II. Abbreviations Acronyms or definitions

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

Abbreviation	Definition
EHS	Environmental Health and Safety
MIDAS	Electronic Management system for managing Procedures on site
ENTROPY	Electronic system for logging and tracking Incidents, investigations, CAPA's, audits and EHS management of change
CAPA's	Corrective and Preventative Actions
MRR	The Monitoring and Reporting Regulation (Commission Regulation (EU) No. 601/2012 of 21 June 2012)

14. Additional Information

Any other information:

Attachment	Description
Bord Gais Meter Calibration April 2012.pdf	Brinny Bord Gais Meter Calibration
EDD-SG0176-0018_C00 - Project Datasheet (2).pdf	Project data sheet for CHP engine CHP401
Commissioning data Burner SG403.pdf	Commissioning data for burner in Boiler SG403
Email confirmation from Gas Networks Ireland re meter 80105146 2012.pdf	Confirmation from Gas Networks Ireland on meter 80105146 2012 details
Gas Networks Ireland meter 80105146 2012 calibration cert Apr 2014.pdf	Gas Meter 80105146 2012 calibration cert
Gas Networks Ireland meter 80105146 2012 gas metering system summary Apr 2014.pdf	Gas meter 80105146 2012 gas metering system summary
SG401.docx	SG401- confirmation of boiler description
SG402.pdf	SG402 -confirmation of boiler description
SG403.pdf	SG403 - confirmation of boiler description

Attachment	Description
MSD Brinny (Ireland) Joint Declaration for Permit_Transfer_IRL_ETS_013_3_REV1_15 Sep 16.pdf	MSD International GmbH trading as MSD Ireland (Brinny) Joint Application for the transfer of a GHG Permit 16/09/2016
MSDIG - Public Deed - Swiss cert of incorporation.pdf	Certificate of Incorporation
Business Name Registration Brinny.pdf	Certificate of Registration

15. Confidentiality

mm. 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.