

Permit with introductory note

Pollution Prevention and Control (England & Wales) Regulations 2000

Billingham Fertilizer Works

**Terra Nitrogen (UK) Ltd
Terra Production Centre
PO Box 81
Billingham
TS23 1XT**

**Permit number
BX3287IK**

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Introductory note

This introductory note does not form a part of the Permit

The following Permit is issued under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I.2000 No.1973), as amended, ("the PPC Regulations") to operate part of an installation carrying out activities covered by the description in Section 4.2 Part A (1) (a) (i) and (ii), Section 4.3 A (1) (a) and Section 4.8 B (a) in Part 1 to Schedule 1 of the PPC Regulations, to the extent authorised by the Permit:

Section 4.2 Part A (1) (a) (i)	Producing inorganic chemicals (Ammonia Plant)
Section 4.2 Part A (1) (a) (ii)	Producing inorganic chemicals (3 Nitric Acid Plants)
Section 4.3 Part A (1) (a)	Producing nitrogen based fertilizers (Nitram Plant)
Section 4.8 Part B (a)	Ammonia Storage and distribution.

Aspects of the operation of the installation which are not regulated by conditions of the Permit are subject to the condition implied by Regulation 12(10) of the PPC Regulations, i.e. the Operator shall use the best available techniques for preventing or, where that is not practicable, reducing emissions from the installation.

Techniques include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.

In some sections of the Permit conditions require the Operator to use Best Available Techniques (BAT), in each of the aspects of the management of the installation, to prevent and where that is not practicable to reduce emissions. The conditions do not explain what is BAT. In determining BAT, the Operator should pay particular attention to relevant sections of the IPPC Sector guidance, appropriate Horizontal guidance and other relevant guidance.

A non-technical description of the installation is given in the Application, but the main features of the installation are as follows.

The Billingham Fertilizer Works comprises three integrated production/storage areas linked by pipelines. These are Billingham Main Site, Portrack Site and North Tees Ammonia Storage Site.

The current plants/processes on the Billingham Main Site are:

- No. 4 Ammonia Plant and associated product storage and distribution system
- Water Treatment Plant (Demin Water Plant)
- Ammonia Solution Plant
- Nos. 2 and 3 Liquefied Carbon Dioxide Plants and associated product storage
- Nos. 1, 3 and 4 Weak Nitric Acid Plants and associated product storage and distribution
- Auxiliary Boilers. NB These are operated by Dalkia Utility Services plc.

In addition to the manufacturing processes, there are facilities to store fertilizer products on the Billingham Main Site.

Ammonia is manufactured by the reaction of nitrogen and hydrogen at pressure and temperature over a catalyst at up to 1600 te/day. The mixture of nitrogen and hydrogen, is manufactured from natural gas (methane), steam and atmospheric air. The heat necessary for the reaction is provided by the combustion of natural gas and air at a slight negative pressure in the primary reformer furnace. The heat generated by the reaction of the oxygen from the air and hydrogen increases the gas temperature and allows further reforming to take place in the secondary reformer.

Unreacted steam is condensed from the gas stream before being scrubbed of trace amounts (ppm) of ammonia and methanol before being put to drain. The trace amounts of ammonia and methanol are returned, with the scrubbing steam, to the primary reformer feed system. By-product Carbon Dioxide (CO₂) is recovered using a potassium carbonate solution. Although the minimum amount of CO₂ is vented, the production rate exceeds demand so the excess has to be vented.

The ammonia is separated (by cooling and condensing) from the unconverted feed gas, and the product further refrigerated before being exported to stock. Water used in the process, primarily for raising steam, is purified in an on-site Water Treatment Plant (Demin Water Plant).

The continuous discharges to atmosphere are from the plant furnaces via the common flue gas chimney and the CO₂ blow-off. A number of process operations in the start-up, shut-down or plant trip situation result in short, intermittent releases of process fluids. These are released to atmosphere via the two flared vents.

The anhydrous ammonia produced on the Billingham Main Site is distributed by pipeline and primarily stored at the North Tees Ammonia Storage Site comprising three 12,000te flat bottomed, cylindrical storage tanks, related refrigeration units and export pumps. Non-condensable gases from refrigeration units are purged to atmosphere. The ammonia distribution pipeline network links to users at Billingham, Wilton and North Tees and includes some storage capacity on the Billingham Main Site along with road tanker import/export terminals. Ammonia solution is produced on the Billingham Main Site as a by-product from the ammonia process. This product is stored on Billingham Main Site and is exported primarily by road tanker. Another by-product is carbon dioxide. This is stored on the Billingham Main Site and exported by road tanker.

Nitric acid is produced on the Billingham Main Site in three units, Nos. 1, 3 and 4 Weak Nitric Acid Plants. This is by the oxidation of ammonia in the presence of a catalyst followed by absorption of the resulting oxides of nitrogen in water. All three nitric acid plants use the same basic process, the differences being associated with plant capacity and heat recovery systems.

Gas leaving the absorption system (tail gas) is heated by heat exchange with hot process gas, and then passes to the tail gas turbine. In the tail gas turbine the hot gas is expanded to recover power. The tail gas leaving the turbine is vented to atmosphere through a tall stack. This is the principal gaseous waste stream from the plant. In the newer plants (3 and 4), immediately before the tail gas turbine, the level of NO_x in the tail gas is reduced by conversion to N₂ by selective catalytic reduction.

Nitric acid is stored on the Billingham Main Site and is distributed by pipeline to Portrack Site and by road to off-site customers. Concentrated nitric acid (70%) can also be produced on the Billingham Main Site by blending imported 96-99% acid with weak acid produced on site.

Fertilizer grade ammonium nitrate (AN) is produced on Portrack Site by a neutralisation reaction between ammonia and nitric acid. Heat is evolved and steam is released. Vapours are condensed in the Neutraliser effluent condenser. The resultant condensate is fed to a contaminated condensate head tank. The Neutraliser effluent condensers are fitted with vents (located above the plant structure) to prevent a build up of insoluble gases.

The AN is further concentrated in a falling-film Evaporator. The steam that is boiled off in the evaporator and air are then treated in the prill tower candle filter. The concentrated AN solution is pumped to the prill tower where droplets solidify into prills. The tower air is partly discharged into the atmosphere directly, and partly filtered to remove a large proportion of the AN fume and ammonia before discharging to atmosphere. The prills are conveyed from the tower base and are cooled to before screening.

Fertilizer product is packaged in plastic intermediate bulk containers (ibc) and stored in various areas around the installation, both within covered sheds and in the open under tarpaulins. In addition, a quantity is exported in bulk, intermediate storage being in plant bulk hoppers.

The installation is subject to the climate change levy and an associated climate change agreement. The nitric acid manufacturing process is energy intensive and waste heat is used to raise steam. Energy is recovered from this in the Turbo Alternator on No. 4 Nitric Acid Plant where it is used to generate electricity. Surplus steam is also fed into the site steam distribution system for other site steam users. In the event of site steam demand exceeding supply, auxiliary boilers are available to balance the system. These are an integral part of the installation and are owned and operated by Dalkia Utility Services plc.

The emissions to air from the installation with the potential to affect local air quality are ammonia, carbon monoxide, oxides of nitrogen and particulates (from ammonium nitrate production). In addition, the greenhouse gases carbon dioxide and nitrous oxide are emitted. Habitats assessment has concluded that permitted releases along with improvement conditions imposed ensure a tolerable effect on nearby European sites.

The main site drains discharge into the upper Tees estuary via River Tees Outfall No. 1 (RTO1). This is controlled under Water industry Act Consent owned by Terra. There is also an unused parallel system that has cross connections with the RTO1 system. A number of Operators discharge into the drain system under a set of local agreements.

The RTO1 system can be considered to consist of two main legs, North and South. These meet at Manhole 8, where the main site monitoring effort is concentrated.

Main emissions from Terra's operations discharged to the North leg of the site drainage system are; Ammonia Plant general site drainage and oil-water separator discharges, plant condensates, Carbon Dioxide Recovery Section effluent, cooling water purge, CO₂ Plant cooling water purge and site drainage, Demineralised Water Plant process effluent, site drainage and storm water

Main emissions from Terra's operations are discharged to the South leg of the site drainage system. These are Process effluents from Nitrates Area in conjunction with site drainage and storm water. Process effluents and storm water drainage from Portrack Site are discharged into Billingham Beck via two outfalls. The North Tees Ammonia Storage Site drains via an outfall that discharges to the lower Tees estuary.

Emissions to water (Tees estuary) that could affect water quality are ammonia, nitrate and suspended solids. Habitats assessment has concluded that permitted releases along with improvement conditions imposed ensure a tolerable effect on nearby European sites.

Detailed environmental impact assessments conclude that the main local environmental impacts of the installation are:

- Particulate emissions to atmosphere from the Nitram Plant (along with visible plume)
- Emissions of oxides of nitrogen from the Billingham Main Site (ambient air quality in Billingham)
- Ammonia releases to water (achievement of Environment Agency water quality targets for the Tees estuary)
- Greenhouse gas emissions.

The Operator has given the commitment to achieve accredited Environmental Management system. This is reinforced by Improvement Condition. The installation is a top tier site under the Control of Major Accident Hazard (COMAH) Regulations.

Note that the Permit requires the submission of certain information to the Agency (see Sections 4 and 5). In addition, the Agency has the power to seek further information at any time under regulation 28 to the PPC Regulations provided that it acts reasonably.

Other PPC Permits relating to this installation

Permit holder	Permit Number	Date of Issue
Dalkia Utility Services plc	BX3296IU	31/08/05

Superseded Licences/Authorisations/Consents relating to this installation

Holder	Reference Number	Date of Issue
Terra Nitrogen (UK) Ltd IPC Authorisation	AN8321	07/02/95
Terra Nitrogen (UK) Ltd IPC Authorisation	AL7561	05/08/94
Terra Nitrogen (UK) Ltd IPC Authorisation	AL7553	16/09/04
Terra Nitrogen (UK) Ltd WRA Consent	254/X/0674	21/08/87

Other activities may take place on the site of this installation which are not regulated under this Permit or any other PPC Permit referred to in the Table above.

Other existing Licences/Authorisations/Registrations relating to this site

Holder	Reference Number	Date of issue
Terra Nitrogen (UK) Ltd WRA Consent (RT01)	QR.25/04/1588	02/08/99

Public Registers

Considerable information relating to Permits including the Application is available on public registers in accordance with the requirements of the PPC Regulations. Certain information may be withheld from public registers where it is commercially confidential or contrary to national security.

Variations to the Permit

This Permit may be varied in the future (by the Agency serving a Variation Notice on the Operator). If the Operator itself wants any of the Conditions of the Permit to be changed, it must submit a formal Application. The Status Log within the Introductory Note to any such Variation Notice will include summary details of this Permit, variations issued up to that point in time and state whether a consolidated version of the Permit has been issued.

Surrender of the Permit

Before this Permit can be wholly or partially surrendered, an Application to surrender the Permit has to be made by the Operator. For the application to be successful, the Operator must be able to demonstrate to the Agency that there is no pollution risk and that no further steps are required to return the site to a satisfactory state.

Transfer of the Permit or part of the Permit

Before the Permit can be wholly or partially transferred to another person, an Application to transfer the Permit has to be made jointly by the existing and proposed holders. A transfer will be allowed unless the Agency considers that the proposed holder will not be the person who will have control over the operation of the installation or will not comply with the conditions of the transferred Permit. If, however, the Permit authorises the carrying out of a specified waste management activity, the transfer will only be allowed if the proposed holder is also considered to be "a fit and proper person" as required by the PPC Regulations.

Talking to us

Please quote the Permit Number if you contact the Agency about this Permit.

To give a Notification under Condition 5.1.1, the Operator should use the Incident Hotline telephone number (0800 80 70 60) or any other number notified in writing to the Operator by the Agency for that purpose.

Status Log

Detail	Date	Response Date
Application BX3287IK	Received 23/12/04	
Response to request for information	Request dated 11/03/05	Response dated 02/06/05 and 20/06/05
Response to request for information (Application Site Report)	Request dated 14/06/05	Response dated 04/07/05
Permit determined	30/9/05	

End of Introductory Note.

Permit

Pollution Prevention and Control
Regulations 2000



**Environment
Agency**

Permit

Permit number

BK3287IK

The Environment Agency (the Agency) in exercise of its powers under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations (SI 2000 No 1973), hereby authorises

Terra Nitrogen (UK) Limited ("the Operator"),

whose Registered Office is

Florence House

Radcliffe Crescent

Thornaby

Stockton-on-Tees

TS17 6BS

Company registration number 3455690

to operate part of an Installation at

Billingham Fertilizer Works

Terra Production Centre

PO Box 81

Billingham

TS23 1XT

to the extent authorised by and subject to the conditions of this Permit.

Signed

Date

		30/09/05
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M J Peacock (Process Industry Regulation Strategic Permitting Group Team Leader)

Authorised to sign on behalf of the Agency

Conditions

1 General

1.1 Permitted Activities

- 1.1.1 The Operator is authorised to carry out the activities and/or the associated activities specified in Table 1.1.1.

Table 1.1.1

Activity listed in Schedule 1 of the PPC Regulations / Associated Activity	Description of specified activity	Limits of specified activity
Section 4.2 (1)(a)(i) Producing Inorganic chemicals.	No4 Ammonia Plant	Receipt of raw materials to despatch of finished product.
Section 4.2 A(1)(a)(ii) Producing Inorganic chemicals.	No1, No3 and No4 Weak Nitric Acid Plants	Receipt of raw materials to despatch of finished product.
Section 4.3 A1(a) Producing nitrogen based fertilisers.	Nitram Plant	Receipt of raw materials to despatch of finished product.
Section 4.8 B (a) Storage in tanks.	Ammonia Storage and Distribution	Receipt and despatch of finished product.
Ammonia Solution Plant	Associated Activity	Receipt of raw materials to despatch of finished product.
No2/3 CO2 Plants	Associated Activity	Receipt of raw materials to despatch of finished product.
Demineralised water Plant	Associated Activity	Generation of Demineralised water.
Nitric Acid Storage and Distribution	Associated Activity	Receipt and despatch of finished product.

1.2 Site

- 1.2.1 The activities authorised under condition 1.1.1 shall not extend beyond the Site, being the land generally shown edged in green and pipe-runs coloured blue on the Site Plan at Schedule 5 to this Permit. Detailed IPPC installation boundaries and pipeline technical connections are shown on the Site Plan IPPC/TB/M1b contained in Application section IPPC/TB/D1 which are inside the area edged in blue and indicated in green that represent the extent of the installation covered by this Permit and that/those of the other Operator of the installation.

1.3 Overarching Management Condition

- 1.3.1 Without prejudice to the other conditions of this Permit, the Operator shall implement and maintain a management system, organisational structure and allocate resources that are sufficient to achieve compliance with the limits and conditions of this Permit.

1.4 Improvement Programme

- 1.4.1 The Operator shall complete the improvements specified in Table 1.4.1 by the date specified in that table, and shall send written notification of the date of completion of each requirement to the Agency within 14 days of the completion of each such requirement.

Table 1.4.1: Improvement programme		
Reference	Requirement	Date
All Installation		
1	The Operator shall conduct an assessment of all monitoring methods and procedures, both in-house and those employed by external contractors, for conformance with appropriate monitoring Standards, such as CEN, BSI, ISO, etc., having regard for the Agency Guidance for the Large Volume Organic Chemicals Sector IPPC S4.01 and the hierarchy of Sampling and Analysis Standards presented. A written report on the findings and proposed actions will be submitted to the Agency.	01 August 2006
2	The Operator shall review the provision of MCERTS certification or MCERTS accreditation (as appropriate) for the monitoring equipment, personnel and organisations employed for the emission monitoring programme in condition 2.10.1 and propose a timetable in writing for achieving this standard or an equivalent acceptable to the Agency.	01 August 2006
3	The Operator shall provide, in writing, a protocol used by the Operator to determine 'uncertainty' values associated with each parameter to be reported for each emission point, together with an indication of the likely uncertainty values associated with the test methods used.	01 April 2006
4	The Operator shall undertake a review of all containment measures at the Billingham Main Site to prevent releases of harmful substances to surface water, sewer and groundwater. The operator shall produce a written report having regard for the techniques identified in agency Guidance for the Inorganic Chemicals Sector IPPC S4.03 and provide a timetable for any improvements identified. The report shall not only cover process materials but waste water, rain water run-off where there is potential for contamination, storm water, cooling water, water from treatment of accidental releases of raw materials, products or waste materials and from fire fighting.	01 July 2006
5	The Operator shall review the arrangements for separating the effluent streams on the Billingham Main Site that feed to S1 and S2, and shall include consideration of the prevention, minimisation, segregation and treatment of streams prior to discharge, including options for biological treatment. The operator shall produce a written report having regard for the Agency Sector Guidance Note IPC S4.03 and provide a timetable for any improvements identified. The report shall also consider options to reduce the releases of ammonia and nitrate to receiving waters and include the proposals and associated timescales in the report for this improvement condition.	01 July 2006

Table 1.4.1: Improvement programme		
Reference	Requirement	Date
All Installation (cont'd)		
6	The Operator shall carry out an environmental noise assessment at Western Site Boundary (Locations 1,6 and 7 Drawing IPPC/TB/M3) nearest to sensitive off-site receptors. This assessment shall have regard to the requirements within Agency Guidance Note for Noise, H3. The Operator shall submit a written report to the Agency detailing results against benchmarks (as listed in H3), conclusions and any recommendations along with any timetable for implementation.	01 August 2006
Nitram		
7	The Operator shall review alternative techniques for preventing or minimising the release of Suspended Solids in the magnesium nitrate plant washings. The benchmark levels for these parameters listed in Agency Guidance for Speciality Organic Chemicals, S4.02 should be considered. If levels cannot be reduced, the Operator shall review alternatives to the current disposal route. The Operator shall submit a written report of the findings to the Agency with an action plan for implementing the proposed changes and timescales for implementation.	01 January 2007
8	The Operator shall identify substances that contribute to the Direct Toxicity of the BBO9 (W1) release, and carry out further Direct Toxicity Assessment if required, so that substances can be treated. The operator shall investigate methods to reduce the levels of alkalinity, acidity, suspended solids and Ammoniacal nitrogen and other identified substances/parameters in effluent at release point BB09(W1), with an aim to achieve benchmark levels. The operator shall submit a written report to the Agency, with a schedule of activities for improvements, with a view to the reduction of Ammonia being completed within 3 years of the submission of the report. The report also shall demonstrate that Terras contribution to the effects on nearby Habitats sites will be less than 1% of the EAL for ammonia defined in The Agency's IPPC H1 Guidance.	01 January 2007
9	The Operator shall undertake a review of options assessment on the emission to air of particulates from release points P1, P2, P3 and P4. The benchmark level for this parameter listed in Agency Guidance for Inorganic Chemicals, S4.03 should be considered and justification provided for any higher levels proposed. A summary of the assessment shall be sent to the Agency together with a timetable to implement any necessary improvements identified.	01 January 2007
10	The Operator shall undertake a review of options assessment on the Plume Visibility from release points P1, P2, P3 and P4. The aim for this parameter shall be to 'avoid visible emissions' as stated in Agency Guidance for Inorganic Chemicals, S4.03. A summary of the assessment shall be sent to the Agency together with a timetable to implement any necessary improvements identified.	01 January 2007

Table 1.4.1: Improvement programme		
Reference	Requirement	Date
Ammonia Plant		
11	The Operator shall carry out a review of options to reduce Nitrogen Oxides (NO _x) from release point B1. The Operator shall produce a written report having regard for techniques identified in the Agency Sector Guidance Note – combustion Activities (Consultation Draft 30.03.05) and provide a timetable for any improvements identified.	01 June 2006
12	The Operator shall review techniques for monitoring and/or estimating or calculating releases of ammonia post No 4 Ammonia Plant CO ₂ Blow off (Release point B2) sufficient to validate the emissions data used within H1 as part of the PPC Application. The Operator shall submit a written report to the Agency detailing results against any benchmarks and test for significance (as detailed in IPPC H1 Guidance), conclusions and any recommendations along with any timetable for implementation.	01 August 2007
13	For emission point B1 on the Ammonia plant, the operator shall continuously monitor the NO_x emissions as NO₂, using an installed appropriate MCERT accredited instrument for a 6 month trial period, and provide data on the following:- - i). demonstrate the stability of the NO₂ emissions and provide hourly, daily and monthly means, with their associated standard deviations, and the max and min data, - ii). characterise the emissions as a function of production rate and other operating variables. iii) propose consent limits based on the data, iv) propose revised monitoring arrangements, - v). a demonstration of the environmental impacts on nearby habitats and local air quality, based on maximum and mean one hour NO₂ emission rates for all significant NO₂ emissions. The operator shall submit a written report to the Agency on its findings.	01 December 2007
Nitric Acid		
14	The Operator shall carry out a wide ranging review of options to reduce Nitrous Oxide from release points B4, B5 and B6. The Operator shall produce a written report for The Agency and provide a timetable for any improvements identified. The report should cover in-process techniques such as conditions at ammonia oxidation and nitrous oxide decomposition along with abatement options.	01 December 2006
15	The Operator shall install Continuous Emission Monitoring (CEM) equipment on release point B4 for the measurement of Nitrous Oxide. The equipment shall meet MCERTS requirements unless otherwise agreed in writing by The Agency and have the facility for recording and reporting hourly average and daily average results.	01 March 2007

Table 1.4.1: Improvement programme		
Reference	Requirement	Date
NT Storage		
16	The Operator shall carry out a programme of representative monitoring for ammonia from release points NT01 and NT02 using MCERTS approved methods or equivalent approved in writing by the Agency. A written report shall be submitted to the Agency to include concentration data, mass release and operational data sufficient to validate the emissions data used within H1 as part of the PPC Application.	01 January 2007
17	The Operator shall reassess the environmental impact of ammonia emissions using the information provided from the monitoring programme outlined in improvement condition 16. A written report with conclusions and recommendations shall be submitted to the Agency.	01 April 2007

- 1.4.2 Where the Operator fails to comply with any requirement by the date specified in Table 1.4.1 the Operator shall send written notification of such failure to the Agency within 14 days of such date.

1.5 Minor Operational Changes

- 1.5.1 The Operator shall seek the Agency's written agreement to any minor operational changes under condition 2.1.1 of this Permit by sending to the Agency: written notice of the details of the proposed change including an assessment of its possible effects (including waste production) on risks to the environment from the Permitted Installation; any relevant supporting assessments and drawings; and the proposed implementation date.
- 1.5.2 Any such change shall not be implemented until agreed in writing by the Agency. As from the agreed implementation date, the Operator shall operate the Permitted Installation in accordance with that change, and relevant provisions in the Application shall be deemed to be amended.
- 1.5.3 When the qualification "unless otherwise agreed in writing" is used elsewhere in this Permit, the Operator shall seek such agreement by sending to the Agency written notice of the details of the proposed method(s) or techniques.
- 1.5.4 Any such method(s) or techniques shall not be implemented until agreed in writing by the Agency. As from the agreed implementation date, the Operator shall operate the Permitted Installation using that method or technique, and relevant provisions in the Application (and the Site Protection and Monitoring Programme, as the case may be) shall be deemed to be amended.

1.6 Pre-Operational Conditions

- 1.6.1 There are no pre-operational conditions

1.7 Off-site Conditions

- 1.7.1 There are no off-site conditions

Operating conditions

2.1 In-Process Controls

- 2.1.1 The Permitted Installation shall, subject to the conditions of this Permit, be operated using the techniques and in the manner described in the documentation specified in Table 2.1.1, or as otherwise agreed in writing by the Agency in accordance with conditions 1.5.1 and 1.5.2 of this Permit.

Table 2.1.1: Operating techniques

Description	Parts	Date Received
Application	The response to questions B2.1 and B2.2 of the Application Form given in sections IPPC/TB/D6, IPPC/TB/ p1-11, B2.2 IPPC/TB/S1 of the application	23/12/04
Further Information	5 pages of information received.	02/06/05

- 2.1.2 The Permitted Installation shall, subject to the other conditions of this Permit, be operated using the techniques and in the manner described in the Site Protection and Monitoring Programme submitted under condition 4.1.7 of this Permit (as amended from time to time under condition 4.1.7), or as otherwise agreed in writing by the Agency.

2.2 Emissions

2.2.1 Emissions to Air, (including heat, but excluding Odour, Noise or Vibration) from Specified Points

- 2.2.1.1 This Part 2.2.1 of this Permit shall not apply to releases of odour, noise or vibration.
- 2.2.1.2 Emissions to air from the emission points in Table 2.2.1 shall only arise from the source(s) specified in that Table.

Table 2.2.1 : Emission points to air

Emission point reference or description	Source	Location of emission point
B1	No 4 Ammonia Plant Flue Gas Stack	Point B1 on Figure IPPC/TB/M2(e) Billingham Main Site.
B2	No 4 Ammonia Plant CO ₂ Blow-off	Point B2 on Figure IPPC/TB/M2(e) Billingham Main Site.
B3	No 3 CO ₂ Plant Condenser Purge	Point B3 on Figure IPPC/TB/M2(e) Billingham Main Site.
B4	No 1 Weak Nitric Acid Plant Tail Gas Stack	Point B4 on Figure IPPC/TB/M2(e) Billingham Main Site.
B5	No3 Weak Nitric Acid Plant Tail Gas Stack	Point B5 on Figure IPPC/TB/M2(e) Billingham Main Site.
B6	No 4 Weak Nitric Acid Plant Tail Gas Stack	Point B6 on Figure IPPC/TB/M2(e) Billingham Main Site.
B7	No 1 Weak Nitric Acid Plant Blow Down Separator	Point B7 on Figure IPPC/TB/M2(e) Billingham Main Site.
B8	No 3 Weak Nitric Acid Plant Blow Down Separator	Point B8 on Figure IPPC/TB/M2(e) Billingham Main Site.
B9	No 4 Weak Nitric Acid Plant Blow Down Separator	Point B9. on Figure IPPC/TB/M2(e) Billingham Main Site.
B10	Nitrates Tank Farm Vents	Point B10 on Figure IPPC/TB/M2(e) Billingham Main Site.
P1	Nitram Tower Top Fan A	Point P1 on Figure IPPC/TB/M2(f) Portrack Site
P2	Nitram Tower Top Fan A	Point P2 on Figure IPPC/TB/M2(f) Portrack Site
P3	Nitram Tower Top Fan A	Point P3 on Figure IPPC/TB/M2(f) Portrack Site
P4	Nitram Tower Up-duct	Point P4 on Figure IPPC/TB/M2(f) Portrack Site
P5	Magnesite Reaction Vessel Vent	Point P5 on Figure IPPC/TB/M2(f) Portrack Site
NT1	Tanks 1 and 3 Purge	Point NT1 on Figure IPPC/TB/M2(g) North Tees Ammonia Storage.
NT2	Tank 2 Purge	Point NT2 on Figure IPPC/TB/M2(g) North Tees Ammonia Storage.

2.2.1.3 The limits for emissions to air for the parameter(s) and emission point(s) set out in Table 2.2.2 shall not be exceeded.

Table 2.2.2 : Emission limits to air and monitoring

Emission point reference	Parameter	Limit (including Reference Period) ¹	Monitoring frequency Note 2 Note 3	Monitoring method	
B1	Carbon Monoxide	100 mg/m ³ hourly average	6 monthly	Electrochemical (Lancom)	Sensor
B1	Oxides of Nitrogen (as NO ₂)	1500 mg/m ³ hourly average	6 monthly	Electrochemical (Lancom)	Sensor
B4	Oxides of Nitrogen (as NO ₂)	600 mg/m ³ hourly average	Continuous	Infra Red Analyser	
B5	Oxides of Nitrogen (as NO ₂)	400 mg/m ³ hourly average	Continuous	Infra Red Analyser	
B6	Oxides of Nitrogen (as NO ₂)	400 mg/m ³ hourly average	Continuous	Infra Red Analyser	
P1	Particulates - Ammonium Nitrate	75 mg/m ³ hourly average	6 monthly	Extractive filter (Modified BCURA)	
P2	Particulates - Ammonium Nitrate	75 mg/m ³ hourly average	6 monthly	Extractive filter (Modified BCURA)	
P3	Particulates - Ammonium Nitrate	75 mg/m ³ hourly average	6 monthly	Extractive filter (Modified BCURA)	
P4	Particulates - Ammonium Nitrate	80 mg/m ³ hourly average	6 monthly	Extractive filter (Modified BCURA)	

Note 1: See Section 6 for reference conditions.

Note 2: For continuous measurements; In compliance if 95% of hourly average measurements within any rolling 24 hour period are within limit.

Note 3: For continuous measurements; Limits do not apply for 2 hour period representing plant start-up and shut-down

2.2.1.4 No condition applies

2.2.2 Emissions to water (other than groundwater), including heat, from specified points

2.2.2.1 This Part 2.2.2 of this Permit shall not apply to releases of odour, noise or vibration or to releases to groundwater.

Emissions to water (other than sewer)

2.2.2.2 Conditions 2.2.2.3 - 2.2.2.6 shall not apply to emissions to sewer.

2.2.2.3 Emissions to water from the emission point(s) specified in Table 2.2.4 shall only arise from the source(s) specified in that Table

Table 2.2.4: Emission point to water

Emission Point Reference or description	Source	Receiving Water
W1 on Table 1 of Aquatic Release Assessment Report and Figure IPPC/TB/M2(f) Portrack site.	Process Effluents and site drainage from Northern Part of Portrack Site	Billingham Beck
W2 on Table 1 of Aquatic Release Assessment Report and Figure IPPC/TB/M2(f) Portrack site.	Site drainage from Southern Part of Portrack Site (plus treated sewerage effluent)	Unnamed tributary of Billingham Beck
W3 on Table 1 of Aquatic Release Assessment Report and Figure IPPC/TB/M2(g) North Tees Ammonia Storage Site.	Process effluents and site drainage from North Tees Ammonia Storage.	Lower Tees Estuary
W4 on Table 1 of Aquatic Release Assessment Report and Figure IPPC/TB/M2(e) Billingham Main Site	Storm Water from culvert below Belasis Avenue.	Belasis Beck
W5 on Table 1 of Aquatic Release Assessment Report and Figure IPPC/TB/M2(e) Billingham Main Site	Storm Water from culvert below Nelson Avenue.	Belasis Beck
W6 on Table 1 of Aquatic Release Assessment Report and Figure IPPC/TB/M2(e) Billingham Main Site	Storm Water from culvert below Cowpen Bewley Road.	Belasis Beck
RT02 Figure IPPC/TB/M2(e) Billingham Main Site (Note 1)	Process Effluents and site drainage from installation.	Lower Tees Estuary

Note 1. Process emissions to water from emission point RT02 may only be made in event of an unforeseen emergency or maintenance activity involving the drain leading to the main release point RT01. In this event the Environment Agency shall be notified without delay, by fax, stating the circumstances of the event and anticipated period of the diversion to allow remedial action to be undertaken.

2.2.2.4 The limits for the emissions to water for the parameter(s) and emission point(s) set out in Table 2.2.5 shall not be exceeded.

2.2.2.5 Where a substance is specified in Table 2.2.5 but no limit is set for it, the concentration of such substance in emissions to water from the relevant emission point shall be no greater than the background concentration

Table 2.2.5 : Emission limits to water and monitoring

Emission reference	point	Parameter	Limit (including Reference Period) Note1	Monitoring frequency	Monitoring method
W1 (BB09)		Ammoniacal Nitrogen (as N)	3.0te/Day	Daily composite	Spectrophotometric
W1 (BB09)		Nitrate N	3.0te/Day	Daily composite	Spectrophotometric
W1 (BB09)		pH	2.0-10.5 (note 2)	Weekly Spot	
W1 (BB09)		Suspended Solids	2.0 te/Day	Daily composite	Gravimetric
W3		Ammoniacal Nitrogen (as N)	400mg/l	Daily spot.	Spectrophotometric

Note1. Limit on composites represents average daily load figure taken from flow proportional sampler over 24 hr period calculated over one week of samples. For W1 composite, flow is by agreed estimation and calculation methodology.

Note 2. Limit based on 95% compliance in any rolling 12 month period.

2.2.2.6 Total emissions to water in any year of a substance listed in Table 2.2.6 shall not exceed the relevant limit in that Table

Table 2.2.6 Annual emission limits

Substance	Limit
Ammoniacal Nitrogen (as N)	1000 Tonnes
Nitrate N	1000 Tonnes

Emissions to sewer

2.2.2.7 Emissions to sewer from the specified emission points in Table 2.2.7 shall only arise from the source(s) specified in that Table.

Table 2.2.7 Emission points to sewer

Emission point reference or description	Source	Sewer
S1 on Table 1 of Aquatic Release Assessment Report and Figure IPPC/TB/M2(e) Billingham Main Site	Ammonia Road Tanker Filling/Solution Plant. Non Routine. Bund drainings/storm water/site drainage. Nitrates Area. Cooling tower purges. Process effluents. Site drainage. No 4 Ammonia Plant. Process effluents (inc. Benfield solution). Cooling tower purges. Site drainage. 2/3 CO₂ Plants. Cooling tower purges.. Site drainage. Demin Water Plant. Neutralised process effluents. Non Process Areas. Site drainage. Storm water. Non-Terra Sources as described in Section B2.2 of the Application.	RT01 –main drain from Billingham complex to the River Tees.
S2 on Table 1 of Aquatic Release Assessment Report and Figure IPPC/TB/M2(e) Billingham Main Site	Nitrates Area. Process Effluents. Site Drainage Stores/labs/Offices Non process Areas. Site Drainage. Storm Water. Non-Terra Sources as described in Section B2.2 of the Application.	RT01 –main drain from Billingham complex to the River Tees.

2.2.2.8 The limits for the emissions to sewer for the parameter(s) and emission point(s) set out in Table 2.2.8 shall not be exceeded.

Table 2.2.8 : Emission limits and monitoring frequency to sewer

Emission reference	point	Substance	Limit (including Reference Period) Note 1	Monitoring frequency	Monitoring method
S1		Ammoniacal Nitrogen (as N)	2000kg/day	Daily composite	Spectrophotometric
S1		Nitrate N	500kg/day	Daily composite	Spectrophotometric
S1		Vanadium	10kg/day Batch sample (Note 2)	Each and every batch	Analysis of Benfield Solution break tank.
S1		Methanol	1000kg/day (Note 3)	Daily composite	GC with FID
S2		Ammoniacal Nitrogen (as N)	1000kg/day	Daily composite	Spectrophotometric
S2		Nitrate N	500kg/day	Daily composite	Spectrophotometric

Note 1: Limit represents daily average load figure calculated over one week of samples.

Note 2: 5 Day rolling average load.

Note 3: During periods of catalyst reduction following Ammonia 4 Plant catalyst change, start-up and breakdown/maintenance of condensate stripper, limit shall be 5 tonnes/day weekly mean.

2.2.2.9 Where a substance is specified in Table 2.2.8 but no limit is set for it, the concentration of such substance in emissions to sewer from the relevant emission point shall be no greater than the background concentration.

2.2.2.10 Total emissions in any year of a substance listed in Table 2.2.9 shall not exceed the relevant limit in that Table

Table 2.2.9 Annual emission limit

Substance	Annual limit
Mercury	1 Kg. Calculated from usage multiplied by concentration in raw materials

2.2.3 Emissions to groundwater

2.2.3.1 No emission from the Permitted Installation shall give rise to the introduction into groundwater of any substance in List I (as defined in the Groundwater Regulations 1998 (S.I. 1998 No. 2746)).

2.2.3.2 No emission from within the Permitted Installation shall give rise to the introduction into groundwater of any substance in List II (as defined in the Groundwater Regulations 1998 (S.I. 1998 No. 2746)) so as to cause pollution (as defined in the Groundwater Regulations 1998 (S.I. 1998 No. 2746)).

- 2.2.3.3 For substances other than those in List I or II (as defined in the Groundwater Regulations 1998 (SI 1998 No.2746)), the Operator shall use BAT to prevent or where that is not practicable to reduce emissions to groundwater from the Permitted Installation provided always that the techniques used by the Operator shall be no less effective than those described in the Application.

2.2.4 Fugitive emissions of substances to air

- 2.2.4.1 The Operator shall use BAT so as to prevent or where that is not practicable to reduce fugitive emissions of substances to air from the Permitted Installation in particular from:

- storage areas
- buildings
- pipes, valves and other transfer systems
- open surfaces

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.5 Fugitive emissions of substances to water and sewer

- 2.2.5.1 Subject to condition 2.2.5.2 below, the Operator shall use BAT so as to prevent or where that is not practicable to reduce fugitive emissions of substances to water (other than Groundwater) and sewer from the Permitted Installation in particular from:

- all structures under or over ground
- surfacing
- bunding
- storage areas

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

- 2.2.5.2 There shall be no release to water that would cause a breach of an EQS established by the UK Government to implement the Dangerous Substances Directive 76/464/EEC.

2.2.6 Odour

- 2.2.6.1 The Operator shall use BAT so as to prevent or where that is not practicable to reduce odorous emissions from the Permitted Installation, in particular by:

- limiting the use of odorous materials
- restricting odorous activities
- controlling the storage conditions of odorous materials
- controlling processing parameters to minimise the generation of odour
- optimising the performance of abatement systems
- timely monitoring, inspection and maintenance

- employing, where appropriate, an approved odour management plan

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant

2.2.7 Emissions to Land

2.2.7.1 This Part 2.2.7 of this Permit shall not apply to emissions to groundwater.

2.2.7.2 No emission from the Permitted Installation shall be made to land.

2.2.8 Equivalent Parameters or Technical Measures

2.2.8.1 The Operator shall comply with the requirements specified in Table 2.2.11, which supplement or replace emission limit values in accordance with Regulation 12(8) of the PPC Regulations.

Table 2.2.11 Equivalent parameters and technical measures

Parameter or measure	Requirement or description of measure, and frequency if relevant
Ammonia and Methanol to Water	The Ammonia Plant Condensate Scrubber shall be maintained so as to ensure reliable and efficient operation. The Operator shall ensure that when possible the Ammonia Plant Condensate Scrubber is operational.
Oxides of nitrogen as NO ₂	The No 4 WNA Plant Selective Catalytic Reduction (SCR) shall be maintained so as to ensure reliable and efficient operation. Operator shall ensure that when possible the No 4 WNA Plant SCR is operational.
Oxides of nitrogen as NO ₂	The WNA Plants 3 and 4 shall be maintained so as to ensure reliable and efficient operation. Operator shall ensure that when possible WNA Plants 3 and 4 shall be operated in preference to WNA plant 1.

2.3 Management

2.3.1 A copy of this Permit and those parts of the application referred to in this Permit shall be available, at all times, for reference by all staff carrying out work subject to the requirements of the Permit.

Training

2.3.2 The Permitted Installation shall be supervised by staff who are suitably trained and fully conversant with the requirements of this Permit.

- 2.3.3 All staff shall be fully conversant with those aspects of the Permit conditions which are relevant to their duties and shall be provided with adequate professional technical development and training and written operating instructions to enable them to carry out their duties.
- 2.3.4 The Operator shall maintain a record of the skills and training requirements for all staff whose tasks in relation to the Permitted Installation may have an impact on the environment and shall keep records of all relevant training.

Maintenance

- 2.3.5 All plant and equipment used in operating the Permitted Installation, the failure of which could lead to an adverse impact on the environment, shall be maintained in good operating condition.
- 2.3.6 The Operator shall maintain a record of relevant plant and equipment covered by condition 2.3.5 and for such plant and equipment:
- 2.3.6.1 a written or electronic maintenance programme; and
 - 2.3.6.2 records of its maintenance.

Incidents and Complaints

- 2.3.7 The Operator shall maintain and implement written procedures for:
- 2.3.7.1 taking prompt remedial action, investigating and reporting actual or potential non-compliance with operating procedures or emission limits; and
 - 2.3.7.2 investigating incidents, (including any malfunction, breakdown or failure of plant, equipment or techniques, down time, any short term and long term remedial measures and near misses) and prompt implementation of appropriate actions; and
 - 2.3.7.3 ensuring that detailed records are made of all such actions and investigations.
- 2.3.8 The Operator shall record and investigate complaints concerning the Permitted Installation's effects or alleged effects on the environment. The record shall give the date and nature of complaint, time of complaint, name of complainant (if given), a summary of any investigation and the results of such investigation and any actions taken.

2.4 Efficient use of raw materials

- 2.4.1 The Operator shall -
- 2.4.1.1 maintain the raw materials table or description submitted in response to Section 2.4 of the Application and in particular consider on a periodic basis whether there are suitable alternative materials to reduce environmental impact;

a review of the audit and a

description of progress made against the action plan shall be submitted to the Agency at least every 4 years thereafter;
and

- 2.4.1.3 ensure that incoming water use is directly measured and recorded.

2.5 Waste Storage and Handling

- 2.5.1 The Operator shall design, maintain and operate all facilities for the storage and handling of waste on the Permitted Installation such that there are no releases to water or land during normal operation and that emissions to air and the risk of accidental release to water or land are minimised.

2.6 Waste recovery or disposal

- 2.6.1 Waste produced at the Permitted Installation shall be:

2.6.1.1 recovered to no lesser extent than described in the Application; and

2.6.1.2 where not recovered, disposed of while avoiding or reducing any impacts on the environment provided always that this is not done in any way that would have a greater effect on the environment than that described in the Application.

- 2.6.2 The Operator shall maintain the waste recovery or disposal table or description submitted in response to Section 2.6 of the Application and in particular review the available options for waste recovery and disposal for the purposes of complying with condition 2.6.1 above.

- 2.6.3 The Operator shall maintain and implement a system which ensures that a record is made of the quantity, composition, origin, destination (including whether this is a recovery or disposal operation) and where relevant removal date of any waste that is produced at the Permitted Installation.

2.7 Energy Efficiency

- 2.7.1 The Operator shall produce a report on the energy consumed at the Permitted Installation over the previous calendar year, by 31 January each year, providing the information required by condition 4.1.2.

- 2.7.2 The Operator shall maintain and update annually an energy management system which shall include, in particular, the monitoring of energy flows and targeting of areas for improving energy efficiency.

- 2.7.3 The Operator shall design, maintain and operate the Permitted Installation so as to secure energy efficiency, taking into account relevant guidance including the Agency's Energy Efficiency Horizontal Guidance Note as from time to time amended. Energy efficiency shall be secured in particular by:

- ensuring that the appropriate operating and maintenance systems are in place;
- ensuring that all plant is adequately insulated to minimise energy loss or gain;

- ensuring that all appropriate containment methods, (e.g. seals and self-closing doors) are employed and maintained to minimise energy loss;
- employing appropriate basic controls, such as simple sensors and timers, to avoid unnecessary discharge of heated water or air;
- where building services constitute more than 5% of the total energy consumption of the installation, identifying and employing the appropriate energy efficiency techniques for building services, having regard in particular to the Building services part of the Agency's Energy Efficiency Horizontal Guidance Note H2; and

maintaining and implementing an energy efficiency plan which identifies energy saving techniques that are applicable to the activities and their associated environmental benefit and prioritises them, having regard to the appraisal method in the Agency's Energy Efficiency Horizontal Guidance Note H2.

2.8 Accident prevention and control

- 2.8.1 The Operator shall maintain and implement when necessary the accident management plan submitted or described in response to Section 2.8 of the Application. The plan shall be reviewed at least every 2 years or as soon as practicable after an accident, whichever is the earlier, and the Agency notified of the results of the review within 2 months of its completion.

2.9 Noise and Vibration

- 2.9.1 The Operator shall use BAT so as to prevent or where that is not practicable to reduce emissions of noise and vibration from the Permitted Installation, in particular by:
- equipment maintenance, eg. of fans, pumps, motors, conveyors and mobile plant;
 - use and maintenance of appropriate attenuation, eg. silencers, barriers, enclosures;
 - timing and location of noisy activities and vehicle movements;
 - periodic checking of noise emissions, either qualitatively or quantitatively; and
 - maintenance of building fabric,

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.10 On-site Monitoring

- 2.10.1 *The Operator shall maintain and implement an emissions monitoring programme which ensures that*
- and that the results of such monitoring*
- are assessed. The programme shall ensure that monitoring is carried out under an appropriate range of operating conditions.*

- 2.10.2 The Operator shall carry out environmental or other specified substance monitoring to the frequencies and methods described in Table 2.10.1

Table 2.10.1 : Other monitoring requirements

Emission point reference or source or description of point of measurement	Substance or parameter	Monitoring frequency	Monitoring method	Other specifications
B2	Methanol	6 Monthly	Colorimetric Tube	
B4	Nitrous Oxide (N ₂ O)	Occasional spot	Tedlar Bag. Analysis by GC with TDC	
B5	Ammonia	6 Monthly	Colorimetric Tube	
B5	Nitrous Oxide (N ₂ O) Daily average	Continuous	Infra Red Analyser	
B6	Ammonia	6 Monthly	Colorimetric Tube	
B6	Nitrous Oxide (N ₂ O) Daily average	Continuous	Infra Red Analyser	
P1	Ammonia	6 Monthly	Colorimetric Tube	
P2	Ammonia	6 Monthly	Colorimetric Tube	
P3	Ammonia	6 Monthly	Colorimetric Tube	
P4	Ammonia	6 Monthly	Colorimetric Tube	
S1	Ammoniacal Nitrogen (as N)	Continuous	Photochemical	
S1	Nitrate N	Continuous	Photochemical	
S1	Total Organic Carbon (TOC)	Continuous	Infra Red	
S1	Total Organic Carbon (TOC)	Daily Composite	Infra Red	
S1	Flow	Continuous	Ultrasonic Level	Instantaneous and Integrated Daily Flow rate recorded
S1	pH	Continuous	pH meter	
S2	Ammoniacal Nitrogen (as N)	Continuous	Photochemical	
S2	Nitrate N	Continuous	Photochemical	
S2	Total Organic Carbon (TOC)	Continuous	Infra Red	
S2	Total Organic Carbon (TOC)	Daily Composite	Infra Red	
S2	Flow	Continuous	Ultrasonic Level	Instantaneous and Integrated Daily Flow rate recorded
S2	pH	Continuous	pH meter	
W1	Flow	Daily	Calculation and Estimation Method	
W1	Ammoniacal Nitrogen (as N)	Weekly Snap	Spectrophotometric	
W1	Nitrate N	Weekly Snap	Spectrophotometric	

Table 2.10.1 : Other monitoring requirements

Emission point reference or source or description of point of measurement	Substance or parameter	Monitoring frequency	Monitoring method	Other specifications
W3	Suspended Solids	Weekly Snap	Gravimetric	
W3	pH	Continuous	pH Meter	
W3	Total Organic Carbon (TOC)	Weekly Snap	NDIR	
Benfield Sump	Volume discharged per batch	Each Batch	Calculation	
WNA Plant running	On-time	Continual operation	on Timing.	

2.10.3 The Operator shall carry out monitoring of the process variables listed in Table 2.10.1 to the frequencies and methods described in that Table.

2.10.4

2.10.5 The Operator shall notify the Agency at least 14 days in advance of undertaking monitoring and/ or spot sampling, where such notification has been requested in writing by the Agency.

2.10.6 The Operator shall maintain records of all monitoring taken or carried out (this includes records of the taking and analysis of samples instrument measurements (periodic and continual), calibrations, examinations, tests and surveys) and any assessment or evaluation made on the basis of such data.

2.10.7 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme in condition 2.10.1 of this Permit shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing.

2.10.8 There shall be provided:

2.10.8.1 safe and permanent means of access to enable sampling/monitoring to be carried out in relation to the emission points specified in Schedule 2 to this Permit, unless otherwise specified in that Schedule; and

2.10.8.2 safe means of access to other sampling/monitoring points when required by the Agency.

2.10.9 The Operator shall carry out the on-going monitoring identified in the Site Protection and Monitoring Programme submitted under condition 4.1.7, unless otherwise agreed in writing by the Agency.

2.10.10 The Operator shall, within 6 months of the issue of this Permit, in accordance with and using the format given in the Land Protection Guidance:

2.10.10.1 collect the site reference data identified in the Site Protection and Monitoring Programme submitted under condition 4.1.7, and

2.10.10.2 report that site reference data to the Agency,

- unless otherwise agreed in writing by the Agency.

2.11 Closure and Decommissioning

- 2.11.1 The Operator shall maintain and operate the Permitted Installation so as to prevent or minimise any pollution risk, including the generation of waste, on closure and decommissioning in particular by:-
- 2.11.1.1 attention to the design of new plant or equipment;
 - 2.11.1.2 the maintenance of a record of any events which have, or might have, impacted on the condition of the site along with any further investigation or remediation work carried out; and
 - 2.11.1.3 the maintenance of a site closure plan to demonstrate that the installation can be decommissioned avoiding any pollution risk and returning the site of operation to a satisfactory state.
- 2.11.2 Notwithstanding condition 2.11.1 of this Permit, the Operator shall carry out a full review of the Site Closure Plan at least every 4 years.
- 2.11.3 The site closure plan shall be implemented on final cessation or decommissioning of the Permitted activities or part thereof.
- 2.11.4 The Operator shall give at least 30 days written notice to the Agency before implementing the site closure plan.

2.12 Multiple Operator installations

- 2.12.1 There are no conditions as a result of the interactions of the Permits covering this installation

2.13 Transfer to effluent treatment plant

- 2.13.1 No transfers to effluent treatment plant are controlled under this part of this Permit.
- 2.13.2 No condition applies.

3 Records

- 3.1** The Operator shall ensure that all records required to be made by this Permit and any other records made by it in relation to the operation of the Permitted Installation shall:-
- 3.1.1** be made available for inspection by the Agency at any reasonable time;
 - 3.1.2** be supplied to the Agency on demand and without charge;
 - 3.1.3** be legible;
 - 3.1.4** be made as soon as reasonably practicable;
 - 3.1.5** indicate any amendments which have been made and shall include the original record wherever possible;
 - 3.1.6** be retained at the Permitted Installation, or other location agreed by the Agency in writing, for a minimum period of 4 years from the date when the records were made, unless otherwise agreed in writing; and
 - 3.1.7** where they concern the condition of the site of the Installation or are related to the implementation of the Site Protection and Monitoring Programme, be kept at the Permitted Installation, or other location agreed by the Agency in writing, until all parts of the Permit have been surrendered.

4 Reporting

- 4.1.1 All reports and written and or oral notifications required by this Permit and notifications required by Regulation 16 of the PPC Regulations shall be made or sent to the Agency using the contact details notified in writing to the Operator by the Agency.
- 4.1.2 The Operator shall, unless otherwise agreed in writing, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:-
- 4.1.2.1 in respect of the parameters and emission points specified in Table S2 to Schedule 2;
 - 4.1.2.2 for the reporting periods specified in Table S2 to Schedule 2 and using the forms specified in Table S3 to Schedule 3;
 - 4.1.2.3 giving the information from such results and assessments as may be required by the forms specified in those Tables; and
 - 4.1.2.4 to the Agency within 28 days of the end of the reporting period.
- 4.1.3 The Operator shall submit to the Agency a report on the performance of the Permitted Installation over the previous year, by 31 January each year, providing the information listed in Tables S4.1 and S4.2 of Schedule 4, assessed at any frequency specified therein, and using the form specified in Table S3 to Schedule 3.
- 4.1.4 The Operator shall review fugitive emissions, having regard to the application of Best Available Techniques, on an annual basis, or such other period as shall be agreed in writing by the Agency, and a summary report on this review shall be sent to the Agency detailing such releases and the measures taken to reduce them within 3 months of the end of such period.
- 4.1.5 Where the Operator has a formal environmental management system applying to the Permitted Installation which encompasses annual improvement targets the Operator shall, not later than 31 January in each year, provide a summary report of the previous year's progress against such targets.
- 4.1.6 The Operator shall, within 6 months of receipt of written notice from the Agency, submit to the Agency a report assessing whether all appropriate preventive measures continue to be taken against pollution, in particular through the application of the best available techniques, at the installation. The report shall consider any relevant published technical guidance current at the time of the notice which is either supplied with or referred to in the notice, and shall assess the costs and benefits of applying techniques described in that guidance, or otherwise identified by the Operator, that may provide environmental improvement.
- 4.1.7 The Operator shall, within two months of the date of this permit, submit a detailed Site Protection and Monitoring Programme, in accordance with and using the appropriate template format given in the Land Protection Guidance. The Operator shall implement and maintain the Site Protection and Monitoring Programme (SPMP) submitted under condition 4.1.7, and shall carry out regular reviews of it at a minimum frequency of every 2 years. The results of such reviews and any changes made to the SPMP shall be reported to the Agency within 1 month of the review or change.

5 Notifications

5.1.1 The Operator shall notify the Agency **without delay** of:-

- 5.1.1.1 the detection of an emission of any substance which exceeds any limit or criterion in this Permit specified in relation to the substance;
- 5.1.1.2 the detection of any fugitive emission which has caused, is causing or may cause significant pollution;
- 5.1.1.3 the detection of any malfunction, breakdown or failure of plant or techniques which has caused, is causing or has the potential to cause significant pollution; and
- 5.1.1.4 any accident which has caused, is causing or has the potential to cause significant pollution.

5.1.2 The Operator shall submit written confirmation to the Agency of any notification under condition 5.1.1, by sending:-

- 5.1.2.1 the information listed in Part A of Schedule 1 to this Permit within 24 hours of such notification; and
- 5.1.2.2 the more detailed information listed in Part B of that Schedule as soon as practicable thereafter;

and such information shall be in accordance with that Schedule.

5.1.3 The Operator shall give written notification as soon as practicable prior to any of the following:-

- 5.1.3.1 permanent cessation of the operation of part or all of the Permitted Installation;
- 5.1.3.2 cessation of operation of part or all of the Permitted Installation for a period likely to exceed 1 year; and
- 5.1.3.3 resumption of the operation of part or all of the Permitted Installation after a cessation notified under condition 5.1.3.2.

5.1.4 The Operator shall notify the Agency, as soon as reasonably practicable, of any information concerning the state of the Site which adds to that provided to the Agency as part of the Application or to that in the Site Protection and Monitoring Programme submitted under condition 4.1.7 of this Permit

5.1.5 The Operator shall notify the following matters to the Agency in writing within 14 days of their occurrence:-

5.1.5.1 where the Operator is a registered company:-

- any change in the Operator's trading name, registered name or registered office address;
- any change to particulars of the Operator's ultimate holding company (including details of an ultimate holding company where an Operator has become a subsidiary)
- any steps taken with a view to the Operator going into administration, entering into a company voluntary arrangement or being wound up;

5.1.5.2 where the Operator is a corporate body other than a registered company:

- any change in the Operator's name or address;
- any steps taken with a view to the dissolution of the Operator.

5.1.5.3 In any other case: -

- the death of any of the named Operators (where the Operator consists of more than one named individual);

- any change in the Operator's name(s) or address(es);
- any steps taken with a view to the Operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case them being in a partnership, dissolving the partnership;

5.1.6 Where the Operator has entered into a Climate Change Agreement with the Government, the Operator shall notify the Agency within one month of:-

5.1.6.1 a decision by the Secretary of State not to re-certify that Agreement.

5.1.6.2 a decision by either the Operator or the Secretary of State to terminate that agreement.

5.1.6.3 any subsequent decision by the Secretary of State to re-certify such an Agreement.

5.1.7 Where the Operator has entered into a Direct Participant Agreement in the Emissions Trading Scheme which covers emissions relating to the energy consumption of the activities, the Operator shall notify the Agency within one month of:-

5.1.7.1 a decision by the Operator to withdraw from or the Secretary of State to terminate that agreement.

5.1.7.2 a failure to comply with an annual target under that Agreement at the end of the trading compliance period.

6 Interpretation

6.1.1 In this Permit, the following expressions shall have the following meanings:-

"Application" means the application for this Permit, together with any response to a notice served under Schedule 4 to the PPC Regulations and any operational change agreed under the conditions of this Permit.

"background concentration" means such concentration of that substance as is present in:

- water supplied to the site; or
- where more than 50% of the water used at the site is directly abstracted from ground or surface water on site, the abstracted water; or
- where the Permitted Installation uses no significant amount of supplied or abstracted water, the precipitation on to the site.

"BAT" means best available techniques means the most effective and advanced stage of development of activities and their methods of operation which indicates the practical suitability of particular techniques to prevent and where that is not practicable to reduce emissions and the impact on the environment as a whole. For these purposes: "available techniques" means "those techniques which have been developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the cost and advantages, whether or not the techniques are used or produced inside the United Kingdom, as long as they are reasonably accessible to the operator"; "best" means "in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole" and "techniques" "includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned". In addition, Schedule 2 of the PPC Regulations has effect in relation to the determination of BAT.

"Fugitive emission" means an emission to air or water (including sewer) from the Permitted Installation which is not controlled by an emission or background concentration limit under conditions 2.2.1.3, 2.2.2.4, 2.2.2.5, 2.2.2.8 or 2.2.2.9 of this Permit.

"Groundwater" means all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"Land Protection Guidance" means the version of the Agency guidance note "H7 - Guidance on the Protection of Land under the PPC Regime: Application Site Report and Site Protection and Monitoring Programme", including its appended templates for data reporting, which is current at the time of issue of the Permit.

" $L_{Aeq,T}$ " means the equivalent continuous A-weighted sound pressure level in dB determined over time period, T.

" $L_{A90,T}$ " means the A-weighted sound pressure level in dB exceeded for 90% of the time period, T.

" L_{AFmax} " means the maximum A weighted sound level measurement in dB measured with a fast time weighting.

"MCERTS" means the Environment Agency's Monitoring Certification Scheme.

"Monitoring" includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests and surveys.

"Permitted Installation" means the activities and the limits to those activities described in Table 1.1.1 of this Permit.

"PPC Regulations" means the Pollution, Prevention and Control (England and Wales) Regulations SI 2000 No.1973 (as amended) and words and expressions defined in the PPC Regulations shall have the same meanings when used in this Permit save to the extent they are specifically defined in this Permit.

"Sewer" means sewer within the meaning of section 219(1) of the Water Industry Act 1991.

"Staff" includes employees, directors or other officers of the Operator, and any other person under the Operator's direct or indirect control, including contractors.

"Year" means calendar year ending 31 December.

Additional

"Quarterly" for reporting/sampling means after/during each 3 month period, January to March; April to June; July to September and October to December and, when sampling, with at least 4 weeks between each sampling date.

"6 monthly" for reporting/sampling means after/during each 6 month period, January to June; July to December and, when sampling, with at least 8 weeks between each sampling date.

"Annual" for reporting/sampling means after/during each year and, when sampling, with at least 4 months between each sampling date.

"Daily" means, for sampling purposes, a 24 hour period starting at 7.30 am.

"Daily composite sample" means a sample obtained by continually taking a sample of 25 millilitre from the effluent every 5 minutes.

"Week" means, for sampling purposes, a period of 7 days starting each Monday at 7.30 am.

"Weekly composite sample" means a blend of 500 millilitre aliquots taken from each daily composite sample.

"Hourly average" means the average value from continuous monitoring over each 60 minute period starting on the hour at 1.00, 2.00 etc.

"24 hour rolling average" means the average of the previous 24 hourly averages and is determined each hour at 1.00, 2.00 etc.

"Daily average" means the average of continuous monitoring with a data logging interval of 10 seconds over a day, 00.00 to 24.00.

"Monthly average" means the average of all daily averages obtained during a calendar month.

"Class A or Class B" in relation to volatile organic compounds is as defined in Agency Guidance for Speciality Organic Chemicals S4.02, Appendix 3.

"Biochemical Oxygen Demand" means biochemical oxygen demand measured after 5 days at 20°C with nitrification suppressed by the addition of allyl-thiourea.

"Chemical Oxygen Demand" means chemical oxygen demand from a settled sample determined in the presence of acidified potassium dichromate.

"Suspended Solids" means those suspended solids measured after drying at 105°C.

"mg/m³" means milligramme per cubic metre.

"g/s" means gramme per second.

"kg/h" means kilogramme per hour.

" $\mu\text{g/l}$ " means microgramme per litre.

" mg/l " means milligramme per litre.

" g/l " means gramme per litre.

" kg " means kilogramme.

" t " means tonne.

" MWh " means megawatt hour.

6.1.2 Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

6.1.3 Unless otherwise stated, any references in this Permit to concentrations of substances in emissions into air means:-

6.1.3.1 in relation to gases from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or

6.1.3.2 in relation to gases from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content

6.1.4 Where any condition of this Permit refers to the whole or parts of different documents, in the event of any conflict between the wording of such documents, the wording of the document(s) with the most recent date shall prevail to the extent of such conflict.

Schedule 1 - Notification of abnormal emissions

This page outlines the information that the Operator must provide to satisfy conditions 5.1.1 and 5.1.2 of this Permit.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the PPC Regulations.

Part A

Permit Number	
Name of Operator	
Location of Installation	
Location of the emission	
Time and date of the emission	

Substance(s) emitted	Media	Best estimate of the quantity or the rate of emission	Time during which the emission took place

Measures taken, or intended to be taken, to stop the emission	
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Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment or harm which has been or may be caused by the emission	
The dates of any unauthorised emissions from the installation in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of Terra Nitrogen (UK) Ltd

Schedule 2 - Reporting of monitoring data

Parameters for which reports shall be made, in accordance with conditions 4.1.2 and 4.1.3 of this Permit, are listed below.

Table S2: Reporting of monitoring data

Parameter	Emission point	Reporting period	Period begins
Carbon Monoxide mg m ⁻³	B1	Every 6 months	01/07/05
Oxides of nitrogen. mg m ⁻³	B1	Every 6 months	01/07/05
Oxides of nitrogen Maximum Hourly. mg m ⁻³	B4, B5, B6	Every 6 months	01/07/05
Oxides of nitrogen Maximum Daily and Day. mg m ⁻³	B4, B5, B6	Every 6 months	01/07/05
Oxides of nitrogen. Monthly Average. mg m ⁻³	B4, B5, B6	Every 6 months	01/07/05
Nitrous Oxide Maximum Hourly. mg m ⁻³	B5, B6	Every 6 months	01/07/05
Nitrous Oxide Maximum Daily and Day. mg m ⁻³	B5, B6	Every 6 months	01/07/05
Nitrous Oxide. Monthly Average. mg m ⁻³	B4, B5, B6	Every 6 months	01/07/05
Particulates mg m ⁻³	P1, P2, P3, P4	Every 6 months	01/07/05
pH Max, Min	W1	Every 6 months	01/07/05
Ammoniacal N. Maximum Daily Average kg/day	W1	Every 6 months	01/07/05
Ammoniacal N. Monthly Average kg/day	W1	Every 6 months	01/07/05
Nitrate. Maximum Daily Average kg/day	W1	Every 6 months	01/07/05
Nitrate. Monthly Average kg/day	W1	Every 6 months	01/07/05
Suspended Solids. Maximum Daily Average kg/day	W1	Every 6 months	01/07/05
Suspended Solids. Monthly Average kg/day	W1	Every 6 months	01/07/05
Ammoniacal N mg/l	W3	Every 6 months	01/07/05
Nitrate. Maximum Daily Average kg/day	S1	Every 6 months	01/07/05
Nitrate. Monthly Average kg/day	S1	Every 6 months	01/07/05
Vanadium. Maximum Daily Average kg/day	S1	Every 6 months	01/07/05
Vanadium. Monthly Average Kg/day	S1	Every 6 months	01/07/05
Ammoniacal N Maximum Daily Average kg/day	S1	Every 6 months	01/07/05
Ammoniacal N Monthly Average kg/day	S1	Every 6 months	01/07/05
Methanol Maximum Daily Average kg/day	S1	Every 6 months	01/07/05
Methanol Monthly Average kg/day	S1	Every 6 months	01/07/05
Ammoniacal N Maximum Daily Average kg/day	S2	Every 6 months	01/07/05
Ammoniacal N Monthly Average kg/day	S2	Every 6 months	01/07/05
Nitrate. Maximum Daily Average kg/day	S2	Every 6 months	01/07/05
Nitrate. Monthly Average kg/day	S2	Every 6 months	01/07/05
Water usage		Annually	01/01/05
Energy usage		Annually	01/01/05
Waste disposal and/or recovery.		Annually	01/01/05

Schedule 3 - Forms to be used

Table S3: Reporting Forms		
Media / parameter	Form Number	Date of Form
Air	A1	June 05
Water (excluding sewer)	W1	June 05
Energy	E1	June 05
Waste Return	R1	June 05
Water usage	WU1	June 05
Performance indicators	PI1	June 05

Schedule 4 - Reporting of performance data

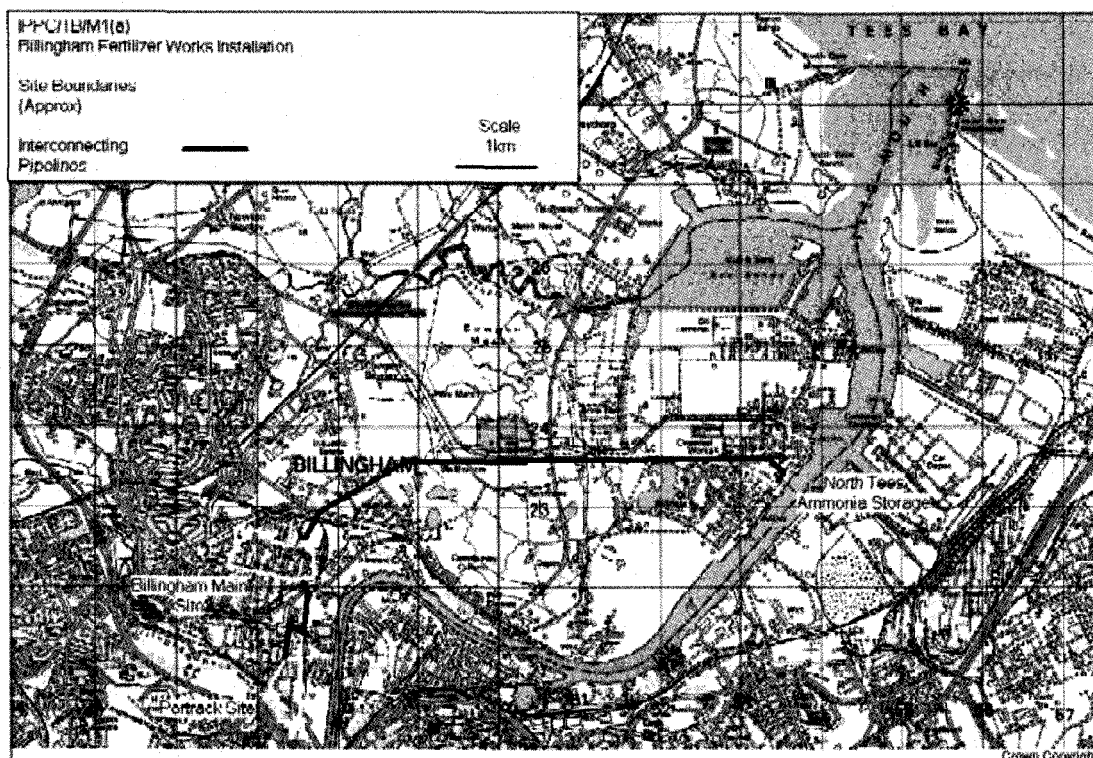
Data required to be recorded and reported by Condition 4.1.3. The data should be assessed at the frequency given and reported annually to the Agency.

Table S4.1: Annual Production/Treatment	
Production of Ammonia	x (tonnes)
Production of Nitric Acid	y (tonnes)
Production of Ammonium Nitrate.	Z (tonnes)

Table S4.2: Performance parameters		
Parameter	Frequency of assessment	Performance indicator
Oxides of Nitrogen	Quarterly	tonnes/t Ammonia
Oxides of Nitrogen	Quarterly	tonnes/t Nitric Acid
Nitrous Oxide	Quarterly	tonnes/t Nitric Acid
Particulates	Quarterly	tonnes/t Ammonium Nitrate
ammoniacal N	Quarterly	tonnes/t Ammonia
ammoniacal N	Quarterly	tonnes/t Ammonium Nitrate
Potable water use	Quarterly	m ³ /t
Non potable water use	Quarterly	m ³ /t
WNA Plant 1 run time	Annual	Hours

Schedule 5 - Site Plan

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END OF PERMIT