



ENVIRONMENT
AGENCY

Variation Notice with introductory note

Pollution Prevention and Control (England & Wales) Regulations 2000

Billingham Fertilizer Works

GrowHow UK (East) Limited
GrowHow Production Centre
Billingham Fertilizer Works
PO Box 81
Billingham
TS23 1XT

Variation Notice Number
GP3132XR

Permit number
BX3287IK

Billingham Fertilizer Works

Permit Number GP3132XR

Introductory note

This introductory note does not form a part of the permit

The following notice is issued under regulation 17 of The Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I.2000 No. 1973 (as amended) (the Regulations) to vary the conditions of a permit issued under the Regulations to operate an installation. The notice comprises schedule 1 containing conditions to be deleted, schedule 2 conditions to be amended and schedule 3 conditions to be added.

The operator is to modify their plant such that all air from the Prill Tower is passed through a fibre filter for scrubbing before being vented to atmosphere. This change will remove the emission points P1-P4, which will be replaced by emission point P5 and P6. In addition to this the new plant configuration will allow recovery of contaminated condensate and as a consequence reduce the amount of ammoniacal and nitrate nitrogen that has been historically discharged to the Tees Estuary via Billingham Beck.

Status Log of the permit		
Detail	Date	Response Date
Permit BX3287IK	30/09/05	
Variation Notice NP3034LV	01/08/2006	
Application GP3132XR	Duly made 15/04/2008	
Additional Information received		27/05/2008
Permit determined	13/03/2009	
Variation notice GP3132XR issued	20/03/2009	

Other PPC permits relating to this installation		
Operator	Permit Number	Date of Issue
Dalkia Utility Services plc	BX3296IU	31/08/05

Superseded or Partially Superseded Licences/Authorisations/Consents relating to this installation			
Holder	Reference Number	Date of Issue	Fully or Partially Superseded
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 IPC WRA Consent	254/X/0674	21/08/87	

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	02/08/1999

End of Introductory Note

Pollution Prevention and Control
(England and Wales) Regulations 2000

Variation Notice

Permit number

BX3287IK

Variation number

GP3132XR

The Environment Agency (the Agency) in exercise of its powers under Regulation 17 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (SI 2000 No 1973) hereby varies the permit held by you

GrowHow UK (East) Limited ("the operator"),

of/ whose registered office is

Ince

Chester

Cheshire

CH2 4LB

company registration number 3455690

to operate an installation at

Billingham Site

GrowHow Production Centre

Billingham Fertilizer Works

PO Box 81

Billingham

TS23 1XT

to the extent set out in schedules 1 to 3 of this variation notice .

The notice shall take effect from 23rd March 2009

Signed

Date

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Howard Stuttard

Authorised to sign on behalf of the Agency

SCHEDULE 1 – CONDITIONS TO BE DELETED

None

SCHEDULE 2 – CONDITIONS TO BE AMENDED

The following conditions are amended as follows :

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 January 2007
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 January 2007
3	The Operator shall provide, in writing, a protocol 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 January 2007
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. A proposed programme for improvements to be submitted by January 2007	(i) 01 July 2006 (ii) 01 March 2007
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.	01 July 2006

Table 1.4.1: Improvement programme

Reference	Requirement	Date
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 2007
	Nitram	
8	The operator shall investigate methods to reduce effluent discharge to release point BB09(W1), concentrating primarily on Ammoniacal Nitrogen, Suspended Solids and pH. The assessment shall be sent to the Agency together with a timetable to implement any necessary improvements identified.	01 January 2008
	An interim report to be provided by 01 February 2007	01 March 2007
10	The Operator shall undertake a review of options to reduce particulate emissions and the plume visibility from release points P1, P2, P3 and P4 The operator shall submit a written report to the Agency, with a proposed programme of activities	01 January 2008
	An interim report to be provided by 01 February 2007	01 March 2007
18	The operator shall undertake monitoring of air emission points P6 and P7 for particulates and ammonia. The results of the monitoring shall be used to review the particulate air emissions and ammonia emissions from monitoring locations P6 and P7, with a view to establishing particulate emission limits for both P6 and P7. The operator shall submit a written report to the Environment Agency of the results of the air emission monitoring, proposed emission limits for P6 and P7 and an appropriate environmental impact assessment for these air emissions.	31 st January 2010
19	The operator shall undertake monitoring of aqueous emission point W1a for ammomiactal nitrogen, nitrate N and suspended solids . The results of the monitoring shall be used to review the emissions from W1a (ammomiactal nitrogen, nitrate N and suspended solids) with a view to establishing revised emission limits for this release location. The operator shall submit a written report to the Environment Agency with the results of the aqueous emission monitoring, proposed revised emission limits and an appropriate environmental impact assessment for the substances monitored.	31 st January 2010
20	The operator shall undertake a review of the options to reduce emissions of magnesium nitrate from release point W1a. A written report shall be submitted to the Environment Agency detailing the options and a timetable for implementing the preferred option.	31 st January 2010
	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)	01 January 2007
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.	01 August 2007

	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.	
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

Table 1.4.1: Improvement programme

Reference	Requirement	Date
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 June 2007
15	The Operator shall develop a suitable monitoring programme to characterise the emission of Nitrous Oxide from release point B4. The equipment shall meet MCERTS requirements unless otherwise agreed in writing by The Agency. The Operator shall submit a written proposal to the Agency detailing the proposed technique and monitoring frequency.	01 March 2007
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

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 reference description	point or	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.
P5		Magnesite Reaction Vessel Vent	Point P5 on Figure IPPC/TB/M2(f) Portrack Site, revised 2008
P6		Fluid bed cooler cyclone ducting	Point P6 on Figure IPPC/TB/M2(f) Portrack Site, revised 2008. Note 2
P7		Fibre filter exhaust gases ducting	Point P7 on Figure IPPC/TB/M2(f) Portrack Site, revised 2008. Note 2
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.

Note 2: emission points P6 and P7 combine into a single new stack

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 Sensor (Lancom)
B1	Oxides of Nitrogen (as NO ₂)	1500 mg/m ³ hourly average	continuous	Infra Red Analyser
B4	Oxides of Nitrogen (as NO ₂)	600 mg/m ³ hourly average (no SCR)	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
P6	Particulates - Ammonium Nitrate	45 mg/Nm ³ hourly average	Note 4	Based on BSEN 13284-1:2002 and MID 13284-1
P7	Particulates - Ammonium Nitrate	25 mg/Nm ³ hourly average	Note 4	Based on BSEN 13284-1:2002 and MID 13284-1

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

Note 4: Interim limits for P6 and P7 will apply until new limits are set by permit variation after completion of improvement condition 18. Emission monitoring will be monthly for the first six months from the date of issue of variation GP3132XR, then as agreed in writing with the Environment Agency

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 from plant effluent pit (monitoring point W1a, on figure IPPC/TB/M2(f)(Revised may 2008).) 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.

Table 2.2.5 : Emission limits to water and monitoring

Emission point reference	Parameter	Limit (including Reference Period) Note1	Monitoring frequency	
W1a (note 3)	Ammoniacal Nitrogen (as N)	3.0te/Day (note 1)	Daily composite	Spectrophotometric
W1a (note 3)	Nitrate N	3.0te/Day (note 1)	Daily composite	Spectrophotometric
W1a (note 3)	pH	2.0-10.5 (note 2)	Weekly Spot	
W1a (note 3)	Suspended Solids	2.0 te/Day (note 1)	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. For W1a composite, flow is by continuous flow meter.

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

Note 3. The emission limit values for emission point reference W1a are interim and will be amended by variation after completion of improvement programme item 19.

2.10 On-site Monitoring

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
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	
P6	Ammonia	Monthly	Colorimetric Tube	
P7	Ammonia	Monthly	Colorimetric Tube	
W1a	Flow	continuously	Flow meter	Flow meter shall be MCERTS accredited.
Benfield Sump	Volume discharged per batch	Each Batch	Calculation	
WNA Plant running	On-time	Continual on operation	Timing.	

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 Maximum Hourly. mg m ⁻³	B1,B4, B5, B6	Every 6 months	01/07/05
Oxides of nitrogen Maximum Daily and Day. mg m ⁻³	B1,B4, B5, B6	Every 6 months	01/07/05
Oxides of nitrogen. Monthly Average. mg m ⁻³	B1,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	P6, P7	Every 6 months	01/02/09
pH Max, Min	W1a	Every 6 months	01/07/05
Ammoniacal N. Maximum Daily Average kg/day	W1a	Every 6 months	01/07/05
Ammoniacal N. Monthly Average kg/day	W1a	Every 6 months	01/07/05
Nitrate. Maximum Daily Average kg/day	W1a	Every 6 months	01/07/05
Nitrate. Monthly Average kg/day	W1a	Every 6 months	01/07/05
Suspended Solids. Maximum Daily Average kg/day	W1a	Every 6 months	01/07/05
Suspended Solids. Monthly Average kg/day	W1a	Every 6 months	01/07/05
Ammoniacal N mg/l	W3	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
Water usage		Annually	01/01/05
Energy usage		Annually	01/01/05
Waste disposal and/or recovery.		Annually	01/01/05

SCHEDULE 3 – CONDITIONS TO BE ADDED

1.6 Pre-Operational Conditions

1.6.1 The operator shall ensure and record that all new pipework, connections, storage tanks are appropriately leak tested and any leaks are appropriately corrected prior to any process and or waste streams utilise the equipment.

1.6.2 The operator shall ensure that all new bunding, drains and impervious infrastructure have been appropriately inspected and approved by a competent engineer to ensure protection of land and controlled waters.

1.6.3 The operator shall ensure that appropriate operating instructions, including emergency procedures, have been written and issued prior to process materials being used in the modified plant and process effluent is handled in the modified plant.

1.6.4 The operator shall ensure that all relevant personnel have been appropriately trained in relation to operating the modified plant and emergency procedures.

