ENVIRONMENT AGENCY

Variation Notice with introductory note

Pollution Prevention and Control Regulations 2000

Warwick International Limited
Dock Road
Mostyn
Holywell
Flintshire
CH8 9HE

Variation Notice number

AP3436SJ

Permit number

BU2537

Introductory note

This introductory note does not form a part of the Variation Notice.

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 Permit number BU2357 (the "Permit") issued under the Regulations to operate the Mostyn Organic Chemicals organic chemical manufacturing process (the "Installation").

The Notice comprises: Schedule A containing conditions to be deleted; Schedule B conditions to be amended; and Schedule C conditions to be added. The Notice is subject to the express conditions set out in Schedules A to C.

The Permit, as amended by this Variation Notice, contains conditions which have to be complied with. It should be noted that aspects of the operation of the Installation which are not regulated by those conditions are subject to the condition implied by Regulation 12(10) of the Regulations, that 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.

This variation is to comply with the requirements of the Waste Incineration (England and Wales) Regulations 2002 (SI 2002 No. 2980) (The WI Regulations) and the Pollution Prevention and Control (Waste Incineration Directive) (England and Wales) Direction 2002, which together implement the requirements of the Waste Incineration Directive (Directive EC 2000/76/EC on the Incineration of Waste (WID)). The Installation regulated under this Permit contains an existing Waste Incineration Installation (as defined in the WI Regulations) in which the incineration of waste in an incineration plant is carried out. Conditions delivering the corresponding requirements of the relevant articles of the Waste Incineration Directive have been incorporated into this variation to the Permit.

The main purpose of the activities at the Installation is the production of a bleaching activator; a directly associated activity within the installation involves the incineration of liquid waste resulting from the manufacturing processes. The Warwick International Mostyn Installation produces up to 50,000 tonnes per year of tetra acetyl ethylene diamine (TAED), a bleaching activator used in the formulation of domestic washing powders. This scale of operation is in the medium range for bulk production of speciality organic chemicals. The Installation consists of a continuous process plant producing the intermediate diacetyl ethylene diamine (DAED) by reacting acetic acid with ethylene diamine. Further reaction of DAED with acetic anhydride completes conversion to TriAED and TAED in the last stage of the continuous process and in three batch plants respectively. Finished product formulations are made by granulation of TAED with binder additives such as surfactants and polymers. Liquid process residues containing Acetic Acid are burnt in an on-site incinerator to recover heat by raising steam. This incinerator is regulated under the stringent requirements of the Waste Incineration Directive.

Other PPC Permits relating to this Installation		
Permit holder	**Permit Number**	**Date of Issue**
Not Applicable		

Superseded Licenses/Consents/Authorisations relating to this Installation		
Holder	**Reference Number**	**Date of Issue**
Warwick International Limited IPC Authorisation	AK6365	28/02/94

Talking to us

If you contact the Agency about this Permit please quote the Permit Number.

The Operator should use the Emergency Hotline telephone number (0800 80 70 60) or any other number notified to it to give a notification under condition 5.1.1 of the Permit.

Confidentiality

The Permit/Variation requires the Operator to provide information to the Agency. The Agency will place the information onto the public registers in accordance with the requirements of the PPC Regulations. If the Operator considers that any information provided is commercially confidential, it may apply to the Agency to have such information withheld from the register as provided in the PPC Regulations. To enable the Agency to determine whether the information is commercially confidential, the Operator should clearly identify the information in question and should specify clear and precise reasons.

Variations to the permit

This Permit may be varied in the future. The Status Log within the Introductory Note to any such variation will include summary details of the 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. For the applicant to be successful, they would have to be able to demonstrate to the Agency, in accordance with Regulation 19 of the PPC Regulations, 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, a joint application to transfer the Permit has to be made by both the existing and proposed holders, in accordance with Regulation 18 of the PPC Regulations. 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 ensure compliance with the conditions of the transferred Permit. If the Permit authorises the carrying out of a specified waste management activity, then there is a further requirement that the transferee is considered to be a "fit and proper person" to carry out that activity.

Status Log

Detail	Date	Comment
Application BU2357	Received 29/08/03	Duly Made 16/09/03
Request to extend determination	Request dated 22/12/03	Request accepted 05/01/04
Response to request for information	Request dated 10/03/04	Response dated 14/04/04
Permit BU2357	Issued 14/05/04	Permit for operation of Installation under PPC Regime
Application for variation AP3634SJ	Received 18/03/2005	
Response to Schedule 7 notice.	Schedule 7 dated 15/06/2005	Response dated 28/07/05
Response to request for further information	Request dated 30/11/2005	Response dated 12/12/2005
Variation AP3634SJ	Issued 16/12/2005	Variation issued to comply with the Waste Incineration (England and Wales) Regulations 2002 (SI 2002 No. 2980) (The WI Regulations) and the Pollution Prevention and Control (Waste Incineration Directive) (England and Wales) Direction 2002

End of introductory Note

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ENVIRONMENT AGENCY

Variation Notice

Permit number

BU2357 (the "Permit")

Variation Notice number
AP3634SJ

The Environment Agency in exercise of its powers under Regulation 17 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I. 2000 No. 1973) (as amended) (the "Regulations"), hereby varies the Permit held by
Warwick International Limited (the "Operator"),

Whose Registered Office is
Dock Road
Mostyn
Holywell
Flintshire
CH8 9HE

Company registration number 2386927

which relates to the operation of the Installation at
Dock Road
Mostyn
Holywell
Flintshire
CH8 9HE
(the "Installation")

to the extent set out in Schedules A to C of this Variation Notice.

Signed

M. J. Peacock
Team Leader, Strategic Permitting Group, Warrington

Authorised to sign on behalf of the Environment Agency

Date
16 DECEMBER 2005

SCHEDULE A - CONDITIONS TO BE DELETED

NONE

SCHEDULE B - CONDITIONS TO BE AMENDED

1. Condition 1.4.1 regarding the Improvement Programme is amended to read:

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
1.4.1.7	The Operator shall submit a proposal to the Agency to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission point A14, identifying the fractions within the PM_{10}, $PM_{2.5}$ and $PM_{1.0}$ ranges. The proposal shall include a timetable to carry out such tests and produce a report on the results. On receipt of written agreement by the Agency to the proposal and the timetable, the Operator shall carry out the tests and submit to the Agency a report on the results.	Proposal to be submitted to the Agency by 30/06/2006. Report on size distribution tests to be submitted to the Agency within 2 months of the end of the agreed timetable.
1.4.1.8	The Operator shall calibrate and verify the performance of Continuous Emission Monitors for release point A14 and parameters as specified in Table 2.2.2 to BS EN 14181 and submit a summary report to the Environment Agency as evidence of compliance with the requirements of BS EN 14181.	Report to be submitted to the Agency by 28/12/2006.

2. Condition 2.1 regarding Operating Conditions shall be amended to read

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 the Permit.

Table 2.1.1: Operating techniques

Description	Parts	Date Received
Application for Permit BU2357	The response to questions 2.1 and 2.2 given in pages 16-47 of section 2.1, page 47-70 of section 2.2 and Appendix 9 of the Application	29/08/04
Application for variation AP3634	The response to questions 2.1, 2.2, 2.7 and 2.10 given in pages 14-30 of Section 2.1, pages 29-30 of Section 2.2, page 39 of section 2.7, page 42-44and 50 of section 2.10 of the Application for Variation, and accompanying report Appendix 3 as referenced in these parts of the Application.	18/03/05
Response to Schedule 7 notice	The response to questions 1-4, 6 and 9.	28/07/05
Additional Information	Regarding solid waste arisings, continuous monitoring and emission limits	12/12/2005

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 4.1.8), or as otherwise agreed in writing by the Agency.

2.1.3 Only the wastes specified in Schedule 6 shall be incinerated in the Permitted Installation in quantities not exceeding those specified for the waste types specified in Table 2.1.3.

Table 2.1.3: Permitted Waste Types

Waste type	Limitations	Maximum throughput
Liquid hazardous waste (Distillation residue from production of tetra acetyl ethylene diamine generated by the Permitted Installation)		750kg/hour

2.1.4 The Operator shall incinerate only those hazardous wastes where the throughputs, calorific values and pollutant composition are within the ranges specified in the Application

2.1.5 No Condition Applies

2.1.6 No Condition Applies

2.1.7 Waste shall not be charged, or shall cease to be charged, into the incinerator if:

- the combustion chamber temperature is below or falls below 850°C; or
- the oxygen level is or falls below 6% (wet) by volume; or
- any continuous emission limit value in Table 2.2.2(a) is exceeded; or
- any continuous emission limit value in Table 2.2.2 is exceeded, other than under the abnormal operating conditions; or
- monitoring results required to demonstrate compliance with any continuous emission limit value in Table 2.2.2 are unavailable other than during a period of abnormal operation.

2.1.8 The Operator shall operate at least one auxiliary burner in each incineration line of the Installation at start-up or shut-down or whenever the operating temperature falls below that specified in condition 2.1.7, as long as incompletely burned waste is present in the combustion chamber. Unless the temperature specified in condition 2.1.7 is maintained in the combustion chamber, such burner(s) may be fed only with fuels which result in emissions no higher than those arising from the use of natural gas.

2.1.9 The Operator shall record the beginning and end of each period of abnormal operation.

2.1.10 During a period of abnormal operation, the Operator shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible.

2.1.11 Where, during abnormal operation, any of the following situations arise, the Operator shall, as soon as is practicable, cease the burning of waste until normal operation can be restored:

- continuous measurement shows that an emission exceeds any emission limit value in Table 2.2.2, or continuous emission monitor(s) are out of service, as the case may be, for a total of four hours uninterrupted duration;
- the cumulative duration of abnormal operation periods over one calendar year exceeds 60 hours on an incineration line;
- continuous measurement shows that an emission exceeds any emission limit value in Table 2.2.2 (a);
- the alternative techniques to demonstrate compliance with the abnormal operation emission limit value(s) in Table 2.2.2 (a), as detailed in the Application or as agreed in writing with the Agency, are unavailable.

2.1.12 The Operator shall interpret the end of the period of abnormal operation as the earliest of the following:

- when the failed equipment is repaired and brought back into normal operation;
- when the Operator initiates a shut-down of the waste combustion activity, as described in the Application;
- when a period of 4 hours has elapsed from the start of the abnormal operation;
- when, in any calendar year, an aggregated period of 60 hours abnormal operation has been reached for a given incineration line.

2.1.13 No Condition Applies

3. Condition 2.2.1 Emissions to Air, (including heat, but excluding Odour, Noise or Vibration) from Specified Points shall be amended to read:

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
A1	Tank Farm 1 vent	3 metre high stack
A2	Plant 5 caustic scrubber vent	15 metre high stack
A3	Plant 6 caustic scrubber vent	15 metre high stack
A4	Tank Farm 2 vent	3 metre high stack
A5	Filter Dryer plant 2 scrubber vent	26 metre high stack
A6	Silo 1-4 scrubber vent	19 metre high stack
A7	Silo 5-9 scrubber vent	21 metre high stack
A8	EDA bulk storage scrubber vent	12.9 metre high stack
A9a	Granulation 2 system filter vent (white)	16.5 metre high stack
A9b	Granulation 2 system filter vent (coloured)	9.5 metre high stack
A10	Granulation 3 system filter vent	19 metre high stack
A11	Granulation 4 system filter vent	16.5 metre high stack
A12	Warehouse 1 (25 kg bagger unit dust extraction)	2.7 metre high stack
A13	Warehouse 2 (25 kg bagger unit dust extraction)	2.7 metre high stack
A14	Distillation residue incinerator	30 metre high stack
A16	Boiler 103	30 metre high stack
A17	Boiler 201	30 metre high stack
A18	Boiler 202	30 metre high stack
A19	Boiler 301	30 metre high stack
A20	Continuous DAED plant scrubber vent	26 metre high stack
A21	Continuous DAED HT fluid heater	27 metre high stack
A22	Continuous DAED 2 plant scrubber vent	26 metre high stack
A23	Continuous DAED storage tanks scrubber vent	26 metre high 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 except during a period of abnormal operation. During a period of abnormal operation, the limits for emissions to air for the parameter(s) and emission point(s) set out in Table 2.2.2(a) shall not be exceeded

Table 2.2.2 : Emission limits to air and monitoring

Emission point reference	Parameter	Limit (including Reference Period)[Note 1]	Monitoring frequency	Monitoring method
A2, A3, A5, A6, A7, A20, A22, A23	Acetic acid and anhydride (as Acetic acid)	50 mg m^{-3} (hourly average)	Quarterly	Spot sample - see Note 2
A9a, A9b, A10, A11, A12, A13	Particulate matter	No visible release	-	-
A16, A17, A18, A19, A21	Oxides of nitrogen (as NO_2)	170 mg m^{-3} (hourly average)	Annual	Spot sample - see Note 2
A16, A17, A18, A19, A21	Carbon monoxide	70 mg m^{-3} (hourly average)	Annual	Spot sample - see Note 2
A14 see Note 11	Particulate matter	30 mg m^{-3} ½-hr average	Continuous measurement	BS EN 13284-2 – see Notes 8 & 7
A14 see Note 11	Particulate matter	10 mg m^{-3} daily average	Continuous measurement	BS EN 13284-2 – see Notes 8 & 7
A14 see Note 11	Total Organic Carbon	20 mg m^{-3} periodic half hour average – see Note 9	Quarterly Periodic measurement	
A14 see Note 11	Total Organic Carbon (TOC)	20 mg m^{-3} ½-hr average - see Note 10	Continuous measurement	BS EN 12619 – see Notes 8 & 7
A14 see Note 11	Total Organic Carbon (TOC)	10 mg m^{-3} daily average - see Note 10	Continuous measurement	BS EN 12619 – see Notes 8 & 7
A14 see Note 11	Hydrogen chloride	10 mg m^{-3} periodic over minimum 1-hour period	Bi-annual	BS EN 1911
A14 see Note 11	Hydrogen fluoride	1 mg m^{-3} periodic over minimum 1-hour period	Bi-annual	USEPA Method 26/26A
A14 see Note 11	Carbon monoxide	100 mg m^{-3} ½-hr average	Continuous measurement	ISO 12039 – see Notes 8 & 5
A14 see Note 11	Carbon monoxide	50 mg m^{-3} daily average	Continuous measurement	ISO 12039 – see Notes 8 & 5

A14 see Note 11	Sulphur dioxide	50 mg m^{-3} periodic over minimum 4 hour period, data to be reported as ½ hour averages	Bi-annual	BS 6069-4.1
A14 see Note 11	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	400 mg m^{-3} daily average	Continuous measurement	ISO 10849 – see Notes 8 & 6
A14 see Note 11	Cadmium & thallium and their compounds (total) – see Note 3	0.05 mg m^{-3} periodic over minimum 30 minute, maximum 8 hour period	Bi-annual	BS EN 14385
A14 see Note 11	Mercury and its compounds – See Note 3	0.05 mg m^{-3} periodic over minimum 30 minute, maximum 8 hour period	Bi-annual	BS EN 13211
A14 see Note 11	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total) – see Note 3	0.5 mg m^{-3} periodic over minimum 30 minute, maximum 8 hour period	Bi-annual	BS EN 14385
A14 see Note 11	Dioxins / furans (I-TEQ)	0.1 ng m^{-3} periodic over minimum 6 hours, maximum 8 hour period – see Note 4	Bi-annual	BS EN 1948

Note 1: See Section 6 for reference conditions

Note 2. Monitoring methods shall use standards in the following order of priority, unless equivalent methods have been agreed with the Environment Agency in writing:

. Comité Européen de Normalisation (CEN)
. British Standards Institution (BSI)
. International Standardisation Organisation (ISO)
. United States Environmental Protection Agency (US EPA)
. American Society for Testing and Materials (ASTM)
. Deutches Institut für Normung (DIN)
. Verein Deustcher Ingenieure (VDI)
. Association Française de Normalisation (AFNOR)

Note 3: Metals include gaseous, vapour and solid phases as well as their compounds (expressed as the metal or the sum of the metals as specified). Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V mean antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel and vanadium respectively.

Note 4: The I-TEQ sum of the equivalence factors to be reported as a range based on: All congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum.

Note 5: The Continuous Emission Monitors used shall be such that the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed 10%. Valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods if no waste is being incinerated) from the measured values after having subtracted this value of the confidence interval (10%). Where it is necessary to calibrate or maintain the monitor and this means that data is not available for a complete half-hour period, the half-hourly average shall nonetheless be considered valid if measurements are available for a minimum of 20 minutes during the half-hour period. (The number of half-hourly averages so validated shall not exceed 5 (per day). Daily average values shall be determined as the average of all the valid half-hourly average values within a calendar day. The daily average value will be considered valid if no more than five half-hourly average values in any day have been determined not to be valid. No more than ten daily average values per year shall be determined not to be valid.

Note 6: As Note 5, except that the value of the confidence interval is 20% in place of 10%.

Note 7: As Note 5, except that the value of the confidence interval is 30% in place of 10%.

Note 8: MCERTS certification to the appropriate ranges and determinands is a demonstration of compliance to the applicable standards.

Note 9: This limit shall apply until 23:59 on 27th December 2005.

Note 10: This limit shall apply from 00:00 on 28th December 2005

Note 11: During normal operation.

Table 2.2.2 (a) : Emission limits to air and monitoring during abnormal operating conditions

Emission point reference	Parameter	Limit (including Reference Period)[Note 1]	Monitoring frequency	Monitoring method
A14	Particulate matter	150 mg m^{-3} ½-hr average	Continuous measurement	BS EN 13824-2 – see Notes 4&2 during abatement plant failure or during failure of the continuous emission monitor
A14	Total Organic Carbon (TOC)	20 mg m^{-3} ½-hr average – see Note 5	Continuous measurement	BS EN 12619 – see Notes 4&2 during abatement plant failure or by continuous monitoring of carbon monoxide during failure of the continuous emission monitor
A14	Carbon monoxide	100 mg m^{-3} ½-hr average	Continuous measurement	ISO 12039 – see Notes 4 & 3 during abatement plant failure or by continuous monitoring of combustion chamber temperature and exhaust gas oxygen levels during failure of the continuous emission monitor

Note 1: See Section 6 for reference conditions

Note 2: The Continuous Emission Monitors used shall be such that the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed 30%. Valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods if no waste is being incinerated) from the measured values after having subtracted this value of the confidence interval (30%). Where it is necessary to calibrate or maintain the monitor and this means that data is not available for a complete half-hour period, the half-hourly average shall nonetheless be considered valid if measurements are available for a minimum of 20 minutes during the half-hour period. (The number of half-hourly averages so validated shall not exceed 5 per day).

Note 3: As Note 2, except that the value of the confidence interval is 10% in place of 30%.

Note 4: MCERTS certification to the appropriate ranges and determinands is a demonstration of compliance to the applicable standards.

Note 5: This limit shall apply from 00:00 on 28th December 2005

2.2.1.4. Total emissions to air in any year of a substance listed in Table 2.2.3 should not exceed the relevant limit in that Table.

Table 2.2.3 Annual limits

Substance	Limit – kg
Acetic acid (from release points A1-A7, A20, A22, A23)	15,000
Oxides of nitrogen (from release points A14, A16-19, A21)	40,000

4. Table 2.2.11 regarding equivalent parameters and technical measures shall be amended to read.

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Table 2.2.11: Equivalent parameters and technical measures

Parameter or measure	Requirement or description of measure, and frequency if relevant
Maximum Sulphur content of gas oil used at the installation	0.2% until 31st December 2007 0.1% from 1st January 2008
Maximum Mercury content of Caustic Soda used at the installation	0.15 ppm w/w
Incinerator feed and feed rate	Distillation residues produced by the TAED process operated at the installation as described in the Application up to a maximum rate of 750 kg/hour
Incinerator operation	The incinerator shall be operated such that the gas resulting from the incineration of waste is raised, after the last injection of combustion air, in a controlled and homogeneous fashion, to a temperature of at least 850°C for at least 2 seconds in the presence of at least 6% oxygen.
Calibration of incinerator continuous emission monitors	Calibration of the incinerator automated, continuous, measurement systems shall be carried out using reference measurement methods as specified by the appropriate CEN-standards.

5. Condition 2.6.1 regarding waste recovery or disposal is amended to read:

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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.

6. Condition 2.10 regarding On-site Monitoring shall be amended to read:

2.10.1 The Operator shall maintain and implement an emissions monitoring programme which ensures that emissions are monitored from the specified points, for the parameters listed in and to the frequencies and methods described in Tables 2.2.2, 2.2.2a and 2.2.5, unless otherwise agreed in writing, 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 (Note 1)	Other specifications
Incinerator combustion chamber inner wall	Gas temperature resulting from incineration of distillation residues	Continuous	As described in the Application	
A14	Moisture (Note 3)	Continuous	-	Exhaust gas after abatement
A14	Pressure	Continuous	As described in the Application	
A14	Oxygen	Continuous	As described in the Application	
A14	Temperature	Continuous	-	Exhaust gas after abatement
A14	Dioxin-like PCBs (WHO-TEQ Note 2 Humans / Mammals)	Bi-annual periodic measurement, average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)	

A14	Dioxin-like PCBs (WHO-TEQ Note 2 Fish)	Bi-annual periodic measurement, average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)
A14	Dioxin-like PCBs (WHO-TEQ Note 2 Birds)	Bi-annual periodic measurement, average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)
A14	Specific individual poly-cyclic aromatic hydrocarbons (PAHs), as defined in condition 6.1.1	Bi-annual periodic measurement, average value over sample period of between 6 and 8 hours.	Procedure shall use BS ISO 11338-1 and BS-ISO 11338-2.
A14	Dioxins / furans (WHO-TEQ Note 2 Humans / Mammals)	Bi-annual periodic measurement, average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)
A14	Dioxins / furans (WHO-TEQ Note 2 Fish)	Bi-annual periodic measurement, average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)
A14	Dioxins / furans (WHO-TEQ Note 2 Birds)	Bi-annual periodic measurement, average value over sample period of between 6 and 8 hours.	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)
Other solid residues (Fly Ash)	Metals (Cadmium, Thallium, Mercury, Lead, Chromium,	Quarterly	Sampling and analysis as per Agency ash

	Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.		sampling protocol.
Other solid residues (Fly Ash)	Total soluble fraction and metals (Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	Before use of a new disposal or recycling route	Sampling and analysis as per Agency ash sampling protocol.

Note 1: Monitoring methods shall use standards in the following order of priority, unless equivalent methods have been agreed with the Environment Agency in writing:
. Comité Européen de Normalisation (CEN)
. British Standards Institution (BSI)
. International Standardisation Organisation (ISO)
. United States Environmental Protection Agency (US EPA)
. American Society for Testing and Materials (ASTM)
. Deutches Institut für Normung (DIN)
. Verein Deustcher Ingenieure (VDI)
.Association Française de Normalisation (AFNOR)

Note 2: The TEQ sum of the equivalence factors to be reported as a range based on: All congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum.

Note 3: The continuous measurement of water vapour content shall not be necessary, provided that the sampled exhaust gas is dried before analysis.

2.10.3 No Condition Applies.

2.10.4 No Condition Applies.

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 and the environmental or other monitoring specified in condition 2.10.2 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in Table 2.2.2. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.

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.

2.10.11 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in Tables 2.2.2 and 2.2.2a, the Operator shall perform a QAL2 test as specified in BS EN 14181 at least every three years and when there are significant changes to either the process, the fuel used or to the CEMs themselves.

2.10.12 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in Tables 2.2.2 and 2.2.2a, the Operator shall perform an Annual Surveillance Test (AST) at least annually, as specified within BS EN 14181.

7. Condition 5.1.1 shall be amended to read:

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;

5.1.1.4 any accident which has caused, is causing or has the potential to cause significant pollution; and

5.1.1.5 any incident which has led to a period of abnormal operation of incineration or co-incineration plant, as defined in Section 6 Interpretation

8. Condition 5.1.2 shall be amended to read:

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;

5.1.2.3 for notifications of incidents of abnormal operations under condition 5.1.1.5, only the information listed in Part C of that Schedule;

and such information shall be in accordance with that Schedule.

9. Condition 6.1.3 regarding reference conditions shall be amended to read:

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 other than incineration plants, 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 (including waste oil), 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

6.1.3.3 in relation to gases from incineration plants other than those burning waste oil, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 11% dry.

6.1.3.4 where hazardous wastes are burned in an incineration or co-incineration plant and the emissions of pollutants are reduced by gas treatment, standardisation of the gas with respect to oxygen content shall be carried out only if the oxygen concentration measured over the same period exceeds the relevant oxygen content defined in conditions [6.1.3.1 – 6.1.3.3] above. In other cases, the measured emissions shall be standardised only for moisture, pressure and temperature.

10. Schedule 1 relating to Notification of abnormal emissions shall be amended to read:

Schedule 1 – Notification of abnormal emissions (including abnormal operations)

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.

a 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	

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.	

Part C

Permit Number	
Name of Operator	
Location of Installation	

Time at which abnormal operation commenced	
Time at which abnormal operation ceased	
Duration of this incidence of abnormal operation	
Cumulative abnormal operation duration in current year (at end of present incidence)	
Reasons for abnormal operation	
How did the abnormal operation end? (e.g. plant repaired, reaching maximum permitted duration, initiation of shutdown, etc.)	
Where the abnormal operation was caused by the failure of the particulate, CO or TOC CEM, attach a copy of the alternate data which was used to demonstrate compliance with the abnormal operation emission limit values.	

Where abatement plant has failed, give the half-hourly average emissions for pollutants of relevance during the abnormal operation in the rows below

Pollutant	1st ½ hour	2nd ½ hour	3rd ½ hour	4th ½ hour	5th ½ hour	6th ½ hour	7th ½ hour	8th ½ hour

Name*	
Post	
Signature	
Date	

Authorised to sign on behalf of Warwick International Limited

11. Table S2 of Schedule 2 relating to Reporting of Monitoring Data shall be amended to read:

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

Table S2: Reporting of monitoring data

Parameter	Emission point	Reporting period	Period begins	
Oxides of nitrogen mg m^{-3}	A16, A17, A18, A19, A21	Every 12 months	01/01/04	
Oxides of nitrogen mg m^{-3}	A14	Every 3 months	01/04/04	
Oxides of nitrogen (annual mass) kg	A14, A16-19, A21	Every 12 months	01/01/04	
Carbon monoxide mg m^{-3}	A16, A17, A18, A19, A21	Every 12 months	01/01/04	
Carbon monoxide mg m^{-3}	A14	Every 3 months	01/04/04	
Acetic acid and anhydride (as Acetic acid) mg m^{-3}	A2, A3, A5, A6, A7, A20, A22, A23	Every 12 months	01/01/04	Safe temporary means of access shall be provided upon request by the Environment Agency to enable monitoring of emission points A15 and A24.
Acetic acid (annual mass) kg	A1-A7, A20, A22, A23	Every 12 months	01/01/04	
VOCs as Total Organic Carbon (TOC) mg m^{-3}	A14	Every 3 months	01/01/2006	
Particulate matter mg m^{-3}	A14	Every 3 months	01/01/2006	
Cadmium + thallium and their compounds (in total) mg m^{-3}	A14	Every 6 months	01/01/2006	
Mercury and its compounds (in total) mg m^{-3}	A14	Every 6 months	01/01/2006	
Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V and their compounds (in total) mg m^{-3}	A14	Every 6 months	01/01/2006	
Dioxins/furans (I-TEQ) ng m^{-3}	A14	Every 6 months	01/01/2006	

Sulphur dioxide mg m $^{-3}$	A14	Every 6 months	01/01/2006	
Hydrogen Chloride mg m^{-3}	A14	Every 6 months	01/01/2006	
Hydrogen Fluoride mg m^{-3}	A14	Every 6 months	01/01/2006	
Dioxin-like PCBs (WHO-TEQ Humans/Mammals)	A14	Every 6 months	01/01/2006	
Dioxin-like PCBs (WHO-TEQ Fish)	A14	Every 6 months	01/01/2006	
Dioxin-like PCBs (WHO-TEQ Birds)	A14	Every 6 months	01/01/2006	
Polycyclic aromatic hydrocarbons (PAHs)	A14	Every 6 months	01/01/2006	
Chemical oxygen demand mg l^{-1}	W1	Every 3 months	01/04/04	
Chemical oxygen demand kg/day	W1	Every 3 months	01/04/04	
Chemical oxygen demand (annual mass) kg	W1	Every 12 months	01/01/04	Reported on Form PI1
Biochemical oxygen demand mg l^{-1}	W1	Every 3 months	01/04/04	
Suspended solids mg l^{-1}	W1	Every 3 months	01/04/04	
Ammoniacal Nitrogen mg l^{-1}	W1	Every 3 months	01/04/04	
Total hydrocarbon oil mg l^{-1}	W1	Every 3 months	01/04/04	
Halogenated organic compounds (total as AOX) mg l^{-1}	W1	Every 3 months	01/04/04	
Total cyanides (as HCN) mg l^{-1}	W1	Every 3 months	01/04/04	
Copper mg l^{-1}	W1	Every 3 months	01/04/04	
PH	W1	Every 3 months	01/04/04	
Daily discharge volume m^3	W1	Every 3 months	01/04/04	
Tidal period discharge volume m^3	W1	Every 3 months	01/04/04	
Rate of discharge l s^{-1}	W1	Every 3 months	01/04/04	
Effluent temperature °C	W1	Every 3 months	01/04/04	
Water usage	-	Every 12 months	01/01/04	
Energy usage	-	Every 12 months	01/01/04	
Waste disposal and/or recovery.	-	Every 12 months	01/01/04	
Metals (Cadmium, Thallium, Mercury, Lead, Chromium, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furan and dioxin-like PCBs	Solid Residues (Fly Ash)	Every 6 months	01/01/2006	
Total soluble fraction and metals (Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	Solid Residues (Fly Ash)	Before use of a new disposal or recycling route	01/01/2006	

12. Table S3 of Schedule 3 relating to Forms to be Used shall be amended to read:

Table S3: Reporting Forms		
Media or parameter	**Form Number**	**Date of Form**
Air (TAED process)	A1	December 2005
Air (Combustion processes)	A2	December 2005
Air (Incinerator Periodic Monitoring)	A3	December 2005
Air (Incinerator CEM Particulates)	A4	December 2005
Air (Incinerator CEM TOC)	A5	December 2005
Air (Incinerator CEM Carbon Monoxide)	A6	December 2005
Air (Incinerator CEM Oxides of Nitrogen)	A7	December 2005
Air (annual mass releases)	A8	December 2005
Water (excluding sewer)	W1	December 2005
Energy	E1	December 2005
Waste return	R1	December 2005
Water usage	WU1	December 2005
Performance indicators	PI1	December 2005
Solid Residues (Fly Ash) Composition	Ash 1	December 2005
Solid Residues (Fly Ash) solubility	Ash 2	December 2005

Schedule C Conditions to be Added

1. The following definitions shall be added to condition 6.1.1

"Abatement equipment" means that equipment dedicated to the removal of polluting substances from releases from the Installation to air or water media.

"*Abnormal operation*" means any technically unavoidable stoppages, disturbances, or failures of the abatement plant or the measurement devices, during which the concentrations in the discharges into air and the purified waste water of the regulated substances may exceed the normal emission limit values.

"*Bi-annual"* means twice per year with at least five months between tests;

"*CEM*" Continuous emission monitor

"*CEN*" means Commité Européen de Normalisation

"Daily Average" for releases of substances to air means the average of half-hourly averages over a calendar day during normal operation. Where any of abnormal operation, start-up or shut-down occur during the 24 hour period in such a way that there are less than 43 half-hourly averages recorded during normal operation, no daily average shall be recorded for that day.

"*Dioxin and Furans*" means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

"*ELV*" means emission limit value.

"*Incineration Line*" means all of the incineration equipment related to a common discharge to air location.

"*ISO*" means International Standards Organisation.

mg m^{-3} means milligrammes per cubic metre

"PAH" means Poly-cyclic aromatic hydrocarbon, and comprises Anthanthrene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[b]naph(2,1-d)thiophene, Benzo[c]phenanthrene, Benzo[ghi]perylene, Benzo[a]pyrene, Cholanthrene, Chrysene, Cyclopenta[c,d]pyrene, Dibenzo[ah]anthracene, Dibenzo[a,i]pyrene Fluoranthene, Indo[1,2,3-cd]pyrene, Naphthalene

"PCB" means Polychlorinated Biphenyl. Dioxin-like PCBs are the non-ortho and mono-ortho PCBs listed in condition 6.1.5

"PM_{10}, $PM_{2.5}$, $PM_{1.0}$," mean respectively those particulates which have mean particle diameters of 10, 2.5 and 1.0 microns (µm)

"*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 2 months between each sampling date

"*Shutdown*" is any period where the incinerator is being returned to a non-operational state and there is no waste being burned as described in the Application for Variation.

"Start-up" is any period, where the incinerator has been non-operational, after igniting the auxiliary burner until waste has been fed to the incinerator to initiate steady-state conditions as described in the Application for Variation.

"TOC" means Total Organic Carbon. In respect of releases to air, this means the gaseous and vaporous organic substances, expressed as TOC.

"Waste oil" has the same meaning as in Directive 75/439/EEC

"*Waste Incineration Directive*" means Directive 2000/76/EC on the incineration of waste.

"*WHO*" means the World Health Organisation

2. Condition 6.1.5 shall be added to Condition 6.1 relating to Interpretation.

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6.1.5 For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing.

TEF schemes for dioxins and furans				
Congener	***I-TEF(1990)***	***WHO-TEF (1997/8)***		
		Humans / Mammals	***Fish***	***Birds***
Dioxins				
2,3,7,8-TCDD	*1*	*1*	*1*	*1*
1,2,3,7,8-PeCDD	*0.5*	*1*	*1*	*1*
1,2,3,4,7,8-HxCDD	*0.1*	*0.1*	*0.5*	*0.05*
1,2,3,6,7,8-HxCDD	*0.1*	*0.1*	*0.01*	*0.01*
1,2,3,7,8,9-HxCDD	*0.1*	*0.1*	*0.01*	*0.1*
1,2,3,4,6,7,8-HpCDD	*0.01*	*0.01*	*0.001*	*<0.001*
OCDD	*0.001*	*0.0001*	-	-
Furans				
2,3,7,8-TCDF	*0.1*	*0.1*	*0.05*	*1*
1,2,3,7,8-PeCDF	*0.05*	*0.05*	*0.05*	*0.1*
2,3,4,7,8-PeCDF	*0.5*	*0.5*	*0.5*	*1*
1,2,3,4,7,8-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
1,2,3,7,8,9-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
1,2,3,6,7,8-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
2,3,4,6,7,8-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
1,2,3,4,6,7,8_HpCDF	*0.01*	*0.01*	*0.01*	*0.01*
1,2,3,4,7,8,9-HpCDF	*0.01*	*0.01*	*0.01*	*0.01*
OCDF	*0.001*	*0.0001*	*0.0001*	*0.0001*

TEF schemes for dioxin-like PCBs			
Congener	***WHO-TEF (1997/8)***		
	Humans / mammals	***Fish***	***Birds***
Non-ortho PCBs			
3,4,4',5-TCB (81)	*0.0001*	*0.0005*	*0.1*
3,3',4,4'-TCB (77)	*0.0001*	*0.0001*	*0.05*
3,3',4,4',5 - PeCB (126)	*0.1*	*0.005*	*0.1*
3,3',4,4',5,5'-HxCB(169)	*0.01*	*0.00005*	*0.001*
Mono-ortho PCBs			
2,3,3',4,4'-PeCB (105)	*0.0001*	*<0.000005*	*0.0001*
2,3,4,4',5-PeCB (114)	*0.0005*	*<0.000005*	*0.0001*
2,3',4,4',5-PeCB (118)	*0.0001*	*<0.000005*	*0.00001*
2',3,4,4',5-PeCB (123)	*0.0001*	*<0.000005*	*0.00001*
2,3,3',4,4',5-HxCB (156)	*0.0005*	*<0.000005*	*0.0001*
2,3,3',4,4',5'-HxCB (157)	*0.0005*	*<0.000005*	*0.0001*
2,3',4,4',5,5'-HxCB (167)	*0.00001*	*<0.000005*	*0.00001*
2,3,3',4,4',5,5'-HpCB (189)	*0.0001*	*<0.000005*	*0.00001*

4. Schedule 6 – List of Permitted Wastes shall be added to the Permit.

Schedule 6 – List of Permitted Wastes

Permitted Waste Types		
Description	**European Waste Catalogue Number (where available) or other specification**	**Waste type as defined in Table 2.1.3**
Wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals – other still bottoms and reaction residues	07-01-08	Liquid hazardous waste (Distillation residue from production of tetra acetyl ethylene diamine generated by the Permitted Installation)

END OF PERMIT VARIATION