Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

AGC Chemicals Europe Limited

AGC Chemicals Europe, Hillhouse
PO Box 4
York House
Hillhouse International
Thornton Cleveleys
FY5 4QD

Variation application number

EPR/BU5453IY/V004

Permit number

EPR/BU5453IY

AGC Chemicals Europe, Hillhouse
Permit number EPR/BU5453IY

Introductory note

This introductory note does not form a part of the notice

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. All the conditions of the permit have been varied and are subject to the right of appeal.

Purpose of this variation

This variation is required for the addition of a thermal treatment plant required to treat the off-gases and a specific liquid residue stream, produced at the installation during the production process.

The thermal treatment plant is a Schedule 1 listed activity:

Section 5.1 Part A(1)(c) – incineration of gaseous compounds containing halogens.

The thermal treatment plant is subject to the requirements of Chapter IV of the Industrial Emissions Directive (IED) because liquid waste is burned as well as gaseous waste.

Exhaust gases are cleaned by wet scrubbing prior to release via a 25 metre stack. Emission limits have been set in accordance with Chapter IV of the IED at air emission point A14.

The effluent from the wet scrubbing is treated in the existing on-site effluent treatment plant (ETP) prior to discharge to the River Wyre at emission point W1. This will not result in any changes to the existing permit emission limit values from the existing ETP final discharge at W1. Emission limits have been set in accordance with Chapter IV of the IED for the effluent discharge from the scrubber, defined as W4.

The main features of the installation

The manufacturing process has two main product streams:

Polytetrafluoroethylene (PTFE) - capacity up to 4000 tonnes per year; and

Ethylene-Tetrafluoroethylene (ETFE) - capacity up to 2000 tonnes per year.

The processes include the manufacture of Tetrafluoroethylene (TFE) from chlorodifluoromethane which is a Schedule 1 listed activity:

Section 4.1 Part A(1)(a)(vi) - Producing organic chemicals such as - organic compounds containing halogens, such as halocarbons, halogenated aromatic compounds and acid halides.

TFE is polymerised to produce the finished product, which is a Schedule 1 listed activity:

Section 4.1 Part A(1)(a)(viii) - Producing organic chemicals such as - plastic materials, such as polymers, synthetic fibres and cellulose-based fibres.

A laboratory scale plant is used primarily to carry out polymerisation work on PTFE and ETFE polymers but is also used for work on fluorinated polymers.

Emissions to air occur primarily from the pyrolysis and distillation sections of the plant and are minimised by process design and control and by the thermal treatment plant. The thermal treatment plant is a Schedule 1 listed activity:

Section 5.1 Part A(1)(c) – incineration of gaseous compounds containing halogens.

Emissions to surface water from the process (including scrubber effluent from cleaning exhaust gases from the thermal treatment plant) are treated at the on-site ETP, prior to being released to the River Wyre at emission point W1. Emission limits have been set in accordance with Chapter IV of the IED for the effluent discharge from the scrubber, defined as W4.

Ecological studies carried out on the River Wyre have demonstrated that the effluent from the operations is not having a discernable effect on the estuary.

The manufacturing operations have appropriate operational and maintenance procedures in place. The site Environmental Management System is certified to ISO 14001.

Steam for the process is supplied by boilers, two with a capacity of 7.5 MWth and a smaller unit, with a capacity of 4.5 MWth, fired by natural gas. The Operator has a Climate Change Levy Agreement, which sets targets to reduce Specific Energy Consumption.

The Wyre Estuary is designated as a Site of Special Scientific Interest (SSSI) and is located approximately 0.8 kilometres from the installation. Morecambe Bay is a designated Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar Site also located approximately 0.8 kilometres from the installation. Liverpool Bay is a SPA and is located approximately 4 kilometres from the installation.

The schedules specify the changes made to the permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/BU5453IY/A001	Duly made 31/03/06	
Additional information from applicant	Dated 10/11/06	
Permit issued EPR/BU5453IY	12/12/06	
Variation application EPR/BU5453IY/V002	Duly made 30/05/12	A number of changes including abatement system at emission point A6, increased suspended solids limit at emission point W1 and changes to monitoring.
Variation determined EPR/BU5453IY/V002	17/07/12	Varied and consolidated permit issued.
Environment Agency initiated variation EPR/BU5453IY/V003	Duly made 31/05/13	To add Schedule 1 listed activity references for the operation of the existing effluent treatment plant.
Variation determined EPR/BU5453IY/V003	01/08/13	
Variation application EPR/BU5453IY/V004	Duly made 10/05/17	To add a thermal treatment plant to treat off-gases and liquid residues produced at the installation.
Request for further information sent by email 22/05/17	31/05/17 05/06/17	Noise Impact Assessment
Request for further information sent by email 23/05/17	05/06/17	Monitoring of effluent from cleaning of waste gases.
Request for further information sent by email 06/06/17	06/06/17	Abnormal operation emission concentrations.
Request for further information sent by email 03/07/17	05/07/17	Liquid/high boilers waste stream and suspended solids and W1.

Status log of the permit		
Description	**Date**	**Comments**
Further information provided by email	06/07/17	Combustion conditions, residence time and temperature.
Further information provided by email	10/07/17	Specification of α pinene.
Variation determined EPR/BU5453IY/V004	19/07/17	Varied and consolidated permit issued in modern format. (Billing Ref: MP3638YP)

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

Permit number

EPR/BU5453IY

Issued to

AGC Chemicals Europe Limited ("the operator")

whose registered office is

PO Box 4
York House
Hillhouse International
Thornton Cleveleys
FY5 4QD

company registration number **03825057**

to operate a regulated facility at

AGC Chemicals Europe, Hillhouse
PO Box 4
York House
Hillhouse International
Thornton Cleveleys
FY5 4QD

to the extent set out in the schedules.

The notice shall take effect from 19/07/2017

Name	Date
SIMON HEWITT	**19/07/2017**

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of the application made by the operator.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/BU5453IY

This is the consolidated permit referred to in the variation and consolidation notice for application **EPR/BU5453IY/V004** authorising,

AGC Chemicals Europe Limited ("the operator"),

whose registered office is

PO Box 4
York House
Hillhouse International
Thornton Cleveleys
FY5 4QD

company registration number **03825057**

to operate an installation at

AGC Chemicals Europe, Hillhouse
PO Box 4
York House
Hillhouse International
Thornton Cleveleys
FY5 4QD

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

Name	Date
SIMON HEWITT	**19/07/2017**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 The operator shall:

(a) take appropriate measures to ensure that energy is recovered with a high level of energy efficiency and energy is used efficiently in the activities.

(b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.1.2 Waste authorised by this permit shall be clearly distinguished from any other waste on the site.

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(a) the nature of the process producing the waste;

(b) the composition of the waste;

(c) the handling requirements of the waste;

(d) the hazardous property associated with the waste, if applicable; and

(e) the waste code of the waste.

2.3.5 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.3.6 For the thermal treatment plant, the operator shall burn only those hazardous wastes where the throughputs, calorific values and pollutant compositions are within the ranges specified in table S2.2 of schedule 2.

2.3.7 Liquid waste shall not be charged to the thermal treatment plant, or shall cease to be charged, if:

(a) the combustion chamber temperature is below, or falls below, 1100°C; or

(b) any continuous emission limit value in schedule 3 table S3.2(a) is exceeded; or

(c) any continuous emission limit value in schedule 3 table S3.2 is exceeded, other than under abnormal operating conditions; or

(d) monitoring results required to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.2 are unavailable other than under abnormal operating conditions.

2.3.8 For the thermal treatment plant, the operator shall have at least one auxiliary burner which shall be operated at start up, shut down and as required during operation to ensure that the operating temperature specified in condition 2.3.7 is maintained as long as incompletely burned waste is present in the combustion chamber. Unless the temperature specified in condition 2.3.7 is maintained in the combustion chamber, such burner(s) shall be fed only with fuels which result in emissions no higher than those arising from the use of gas oil, liquefied gas or natural gas.

2.3.9 For the thermal treatment plant, the operator shall record the beginning and end of each period of “abnormal operation”.

2.3.10 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.

2.3.11 Where, during “ abnormal operation”, of the thermal treatment plant, any of the following situations arise, liquid waste shall cease to be charged until normal operation can be restored:

(a) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.2 due to stoppages, disturbances or failures of the abatement plant, or continuous emission monitor(s) or continuous effluent monitoring device(s) are out of service, as the case may be, for a total of 4 hours uninterrupted duration;

(b) the cumulative duration of “ abnormal operation” periods over 1 calendar year has reached 60 hours;

(c) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.2(a).

(d) continuous emission monitors or alternative techniques to demonstrate compliance with the emission limit values for particulates, TOC and / or CO in schedule 3 table S3.2(a) are unavailable.

2.3.12 The operator shall interpret the end of the period of “abnormal operation” as the earliest of the following:

(a) when the failed equipment is repaired and brought back into normal operation;

(b) when the operator initiates a shut down of the waste combustion activity, as described in the application or as agreed in writing with the Environment Agency;

(c) when a period of four hours has elapsed from the start of the “abnormal operation”;

(d) when, in any calendar year, an aggregated period of 60 hours “abnormal operation” has been reached.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2 and S3.3 except in “abnormal operation”, when there shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2(a) and S3.3.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 Total annual emissions from the emission points set out in tables schedule 3 S3.1, S3.2 and S3.3 of a substance listed in schedule 3 table S3.5 shall not exceed the relevant limit in table S3.5.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.2.4 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) point source emissions specified in tables S3.1, S3.2, S3.2(a) and S3.3; and

(b) process monitoring specified in table S3.6.

3.5.2 The operator shall maintain records of all monitoring required by this permit including 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.

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Environment Agency. 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 schedule 3 table S3.2. 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.

3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2, S3.2(a) and S3.3 unless otherwise agreed in writing by the Environment Agency.

3.5.5 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.2; the Continuous Emission Monitors shall be used such that;

(a) the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed the following percentages of the emission limit values:

- Carbon monoxide 10%
- Sulphur dioxide 20%
- Oxides of nitrogen (NO & NO_2 expressed as NO_2) 20%
- Particulate matter 30%
- Total organic carbon (TOC) 30%
- Hydrogen chloride 40%

(b) valid half-hourly average values or 10-minute averages shall be determined within the effective operating time (excluding the start up and shut down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.5.5 (a);

(c) where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour or 10 minute period , the half-hourly average or 10-minute average shall in any case be considered valid if measurements are available for a minimum of 20 minutes or 7 minutes during the half-hour or 10-minute period respectively. The number of half-hourly or 10-minute averages so validated shall not exceed 5 or 15 respectively per day;

(d) daily average values shall be determined as the average of all the valid half-hourly average or 10-minute average values within a calendar day. The daily average value shall be considered valid if no more than five half-hourly average or 15 10-minute average values in any day have been determined not to be valid;

(e) no more than ten daily average values per year shall be determined not to be valid.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the annual production /treatment data set out in schedule 4 table S4.2; and

(c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

(d) the functioning and monitoring of the thermal treatment plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Chapter IV of the Industrial Emissions Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

4.3.1 In the event:

(a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—

(i) inform the Environment Agency,

(ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and

(iii) take the measures necessary to prevent further possible incidents or accidents;

(b) of a breach of any permit condition the operator must immediately—

(i) inform the Environment Agency, and

(ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

(c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) 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 of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made “immediately”, in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity Ref.	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
A1	**Section 4.1 Part A(1)(a)(vi)** Producing organic chemicals such as - organic compounds containing halogens, such as halocarbons, halogenated aromatic compounds and acid halides	Production of Tetrafluoroethylene (TFE)	From receipt of raw materials to the use of the finished product in the polymerisation process
A2	**Section 4.1 Part A(1)(a)(viii)** Producing organic chemicals such as - plastic materials, such as polymers, synthetic fibres and cellulose-based fibres	Polymerisation of TFE for the production of Polytetrafluoroethylene (PTFE) and Ethylene-Tetrafluoroethylene (ETFE)	From receipt of TFE to the production of PTFE and ETFE
A3	**Section 5.1 Part A(1)(c)** The incineration, other than incidentally in the course of burning landfill gas or solid or liquid waste, of any gaseous compound containing halogens	Thermal treatment plant for off-gases and liquid residue from the production process i.e. activities A1 and A2 identified in this table.	From receipt of the off- gases and liquid residue to emission of exhaust gas and discharge of effluent
A4	**Section 5.3 Part A(1)(a)(ii)** Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment	Waste acid neutralisation (WAN)	From receipt of effluent in WAN plant to transfer to the West Effluent Pit (WEP)
A5	**Section 5.4 Part A(1)(a)(ii)** Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving physico-chemical treatment	Solids removal and pH adjustment	From receipt of effluent from the WEP and thermal treatment plant to discharge from the final effluent pit; and collection of filter cake for off-site disposal

Table S1.1 activities			
Activity Ref.	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
Directly Associated Activities			
Semi tech plant		Laboratory scale plant	Experimental polymerisation and finishing work on polymers and reactions of fluorinated monomers
Refrigeration plant		Ammonia used as primary and trichloroethylene used as secondary refrigerant	Process cooling and chilled water
Raw materials storage		Raw materials storage areas, including bulk storage tanks	From receipt of raw materials to the dedicated storage areas to despatch to process
Demineralised water unit and package boilers		2 x 7.5 MWth 1 x 4.5 MWth Fired on natural gas	Supply of demineralised water for use in the process, boiler feed and regeneration of the water treatment unit
Finished product storage		Finished product storage areas	From receipt of finished product to the dedicated storage areas to despatch
Waste storage		Waste storage areas	From receipt of waste product to the dedicated storage areas to despatch

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application EPR/BU5453IY/A001	The responses to sections B2.1 and B2.2 of the Application form, given in sections B2.1 and B2.2 of the Application supporting information.	31/03/06
Additional information to the application EPR/BU5453IY/A001	Item 9, BAT Assessment by specific emission points, provided with the additional information dated 10/11/06.	10/11/06
Information supplied in support of variation application EPR/BU5453IY/V002	Permit Variation Supporting Document AGCPVSI and supplementary Annexes 3 to 15.	30/05/12
Information supplied in support of variation application EPR/BU5453IY/V004	The responses to section 3 Technical Standards in Part C3 of the Application form. Section 3 Operations, of the Application Technical Supporting Information (Ref: 34321 Final Report 17045i2)	10/05/17

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC1	The Operator shall submit a written report to the Environment Agency on the commissioning of the thermal treatment plant. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the application. The report shall also include a review of the performance of the thermal treatment plant against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions. Confirmation shall also be provided that the Environmental Management System (EMS) and the installation Emergency Plan, have been updated accordingly.	Within 4 months of the completion of commissioning
IC2	The Operator shall carry out checks to verify the residence time, minimum temperature and oxygen content of the exhaust gases in the combustion chamber of the thermal treatment plant whilst operating under the anticipated most unfavourable operating conditions. The results shall be submitted in writing to the Environment Agency and include a comparison with the computational fluid dynamic (CFD) modelling submitted with PO2.	Within 4 months of the completion of commissioning
IC3	The Operator shall submit a written summary report to the Environment Agency to confirm by the results of calibration and verification testing that the performance of Continuous Emission Monitors for parameters as specified in Table S3.2 and Table S3.2(a) complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.	Initial calibration report to be submitted to the Environment Agency within 3 months of completion of commissioning Full summary evidence compliance report to be submitted within 18 months of completion of commissioning

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC4	The Operator shall submit a written summary report to the Environment Agency setting out how the concentration of pollutants in the effluent from the cleaning of gases at the thermal treatment plant (defined as W4 in Table S3.4 of this permit) comply with emission limit values in Part 5 of Annex VI of the IED. The report shall include: • The emissions monitoring data approved by PO1 in Table S1.4 of this permit. • A comparison of suspended solids concentrations for baseline (prior to thermal treatment plant) and operational scenarios including effluent from the thermal treatment plant. This shall include where possible, an estimate of the contribution of suspended solids from the thermal treatment plant. Where an estimate of suspended solids is not possible, a justification shall be provided. • A review of the results from metals monitoring and a comparison against baseline data obtained prior to operation of the thermal treatment plant.	Within 4 months of the completion of commissioning

Table S1.4 Pre-operational measures	
Reference	**Pre-operational measures**
PO1	Prior to the commencement of commissioning, the Operator shall provide a written commissioning plan, including timelines for completion, for approval by the Environment Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. It shall also include a programme of monitoring to be undertaken at emission point W1, as defined in Table S3.3 of this permit. The purpose of the monitoring programme is to demonstrate that concentrations of pollutants in the effluent from the cleaning of gases at the thermal treatment plant (defined as emission point W4) are in accordance with emission limit values set out in Part 5 of Annex VI of the IED. Commissioning shall be carried out in accordance with the commissioning plan as approved.
PO2	After completion of furnace design and at least three calendar months before commencement of commissioning; the Operator shall submit a written report to the Environment Agency of the details of the computational fluid dynamic (CFD) modelling. The report shall demonstrate whether the design combustion conditions comply with the residence time and temperature requirements as defined by Chapter IV and Annex VI of the IED.

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
-	-

Table S2.2 Permitted waste types and quantity for thermal treatment plant – Activity A3			
Waste type - produced by installation - Activities A1 and A2	**Nominal composition**	**Typical calorific value (CV) range**	**Typical Throughput** Note 1
Liquid Waste Waste by-product from TFE manufacture - high boiler liquid residues produced at the installation	Mixture of α-Pinene (47.6%) and various fluorocarbons including perfluoroisobutene (PFIB) (1.3%)	Net CV ~23 MJ/kg	28 kg/hour
Gaseous Waste Low boiler stack – gaseous residues produced at the installation	Carbon monoxide (49.1%) and a mixture of various fluorocarbons including TFE (36.6%)	-	22.4 kg/hour
Gaseous Waste Waste acid stack – gaseous residues produced at the installation	Primarily air (89.42%) and a mixture of various fluorocarbons including chlorodifluoromethane (HCFC 22) (7.85%)	-	10.76 kg/hour
Gaseous Waste ETFE purge – gaseous residues produced at the installation	Primarily TFE (70%) and ethylene (20%)	-	9.52 kg/hour
Note 1: The maximum throughput is 70.68 kg/hr. The values highlighted in Table S2.2 are typical throughput values. However, during the operation of the thermal treatment plant the throughput values and combination of the four identified waste types will vary. The maximum throughput value will not be affected.			

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements – Producing Organic Chemicals - Activities A1 and A2						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring frequency** Note 1	**Monitoring standard or method**
SOURCE EMISSIONS FROM THE PTFE PROCESS						
A1 [Point 8 on drawing number 60529901/ENV/PPC 000a, Release points to air]	Carbon monoxide	Low Boiler Stack	No limit set	A period of stable operation	Weekly	In-house method
A1 [Point 8 on drawing number 60529901/ENV/PPC 000a, Release points to air]	Tetrafluoroethylene Class B Volatile Organic Compounds (VOC)	Low Boiler Stack and release from purge recovery process	2 kg/hour Note 2	A period of stable operation	Weekly	In-house method
A1 [Point 8 on drawing number 60529901/ENV/PPC 000a, Release points to air]	Trifluoromethane Class A VOC	Low Boiler Stack	500 g/hour Note 2	A period of stable operation	Weekly	In-house method
A1 [Point 8 on drawing number 60529901/ENV/PPC 000a, Release points to air]	Difluoromethane Class A VOC	Low Boiler Stack	100 g/hour Note 2	A period of stable operation	Weekly	In-house method
A1 [Point 8 on drawing number 60529901/ENV/PPC 000a, Release points to air]	Trifluoroethylene Class B VOC	Low Boiler Stack	2 kg/hour Note 2	A period of stable operation	Weekly	In-house method
A1 [Point 8 on drawing number 60529901/ENV/PPC 000a, Release points to air]	Pentafluoroethane Class A VOC	Low Boiler Stack	100 g/hour Note 2	A period of stable operation	Weekly	In-house method
A1 [Point 8 on drawing number 60529901/ENV/PPC 000a, Release points to air]	Chlorodifluoromethane Class A VOC	Low Boiler Stack	100 g/hour Note 2	A period of stable operation	Weekly	In-house method

Table S3.1 Point source emissions to air – emission limits and monitoring requirements – Producing Organic Chemicals - Activities A1 and A2						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring frequency** Note 1	**Monitoring standard or method**
A2 [Point 9 on drawing number 60529901/ENV/PPC 000a, Release points to air]	Tetrafluoroethylene Class B VOC	Waste Acid Stack	2 kg/hour Note 2	A period of stable operation	Weekly	In-house method
A2 [Point 9 on drawing number 60529901/ENV/PPC 000a, Release points to air]	Hexafluoropropylene Class B VOC	Waste Acid Stack	2 kg/hour Note 2	A period of stable operation	Weekly	In-house method
A2 [Point 9 on drawing number 60529901/ENV/PPC 000a, Release points to air]	Chlorodifluoromethane Class A VOC	Waste Acid Stack	800 g/hour Note 2	A period of stable operation	Weekly	In-house method
A3	No parameters set	All other Process Vents from PTFE process	No limit set	--	--	--
A4	Hydrogen Fluoride	Lubricant Oven	No limit set	Sample to be collected when lubricant oven is in operation	6 monthly	In-house method
A5 [Point 19 on drawing number 60529901/ENV/PPC 000a, Release points to air]	SAA-1000	Abated release from Dispersion Ovens	No limit set	A period of stable operation	To be agreed with the Environment Agency	In-house method
SOURCE EMISSIONS FROM THE ETFE PROCESS						
A6 [Drawing number 60529901/ENV/PPC 000a, Release points to air]	Tetrafluoroethylene	Reactors purge vent, via collection point 3.	No limit set	A period of stable operation	Quarterly	Calculation

Table S3.1 Point source emissions to air – emission limits and monitoring requirements – Producing Organic Chemicals - Activities A1 and A2						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring frequency** Note 1	**Monitoring standard or method**
A7 [Drawing number 60529901/ENV/PPC 000a, Release points to air]	No parameters set	Release from carbon adsorption unit (Solvent recovery)	No limit set	--	--	--
A8 [Drawing number 60529901/ENV/PPC 000a, Release points to air]	No parameters set	Extruder cooling extract	No limit set	--	--	--
A9	No parameters set	All other Process Vents from ETFE process	No limit set	--	--	--
SOURCE EMISSIONS FROM COMBUSTION PROCESSES						
A10 [Drawing number 60529901/ENV/PPC 000a, Release points to air]	No parameters set	Boiler 1 7.5 MWth	No limit set	--	--	--
A11 [Drawing number 60529901/ENV/PPC 000a, Release points to air]	No parameters set	Boiler 2 7.5 MWth	No limit set	--	--	--
A12 [Drawing number 60529901/ENV/PPC 000a, Release points to air]	No parameters set	Boiler 3 4.5 MWth	No limit set	--	--	--
A13 [Drawing number 60529901/ENV/PPC 000a, Release points to air]	No parameters set	Superheater flues (SP1 and SP2)	No limit set	--	--	--
Note 1: Monitoring frequency may be reduced by prior agreement in writing by the Environment Agency. Note 2: Class A VOCs to be expressed as individual VOCs and Class B VOCs to be expressed as carbon.						

Table S3.2 Point source emissions to air - emission limits and monitoring requirements- Thermal Treatment Plant – Activity A3						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard) or methods**
A14	Particulate matter	Thermal Treatment Plant	30 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A14	Particulate matter		10 mg/m^3	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A14	Total Organic Carbon		20 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A14	Total Organic Carbon		10 mg/m^3	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A14	Hydrogen chloride		60 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A14	Hydrogen chloride		10 mg/m^3	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A14	Hydrogen fluoride		4 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A14	Hydrogen fluoride		1 mg/m^3	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A14	Carbon monoxide		150 mg/m^3	95% of all 10-minute averages in any 24-hour period	Continuous measurement	BS EN 14181 and BS EN 15267-3
A14	Carbon monoxide		50 mg/m^3	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A14	Sulphur dioxide		100 mg/m^3	periodic over minimum 1-hour period	Quarterly in first year. Then Bi-annual Note 1	BS EN 14791

Table S3.2 Point source emissions to air - emission limits and monitoring requirements- Thermal Treatment Plant – Activity A3						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard) or methods**
A14	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	Thermal Treatment Plant	400 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A14	Oxides of nitrogen (NO and NO_2 expressed as NO_2)		200 mg/m^3	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A14	Cadmium & thallium and their compounds (total)		0.05 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual Note 2	BS EN 14385
A14	Mercury and its compounds		0.05 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual Note 2	BS EN 13211
A14	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)		0.5 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual Note 2	BS EN 14385
A14	Dioxins / furans (I-TEQ)		0.1 ng/m^3	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual Note 3	BS EN 1948 Parts 1, 2 and 3
A14	Dioxins / furans (WHO-TEQ Humans / Mammals)		-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A14	Dioxins / furans (WHO-TEQ Fish)		-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3

Table S3.2 Point source emissions to air - emission limits and monitoring requirements- Thermal Treatment Plant – Activity A3						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard) or methods**
A14	Dioxins / furans (WHO-TEQ Birds)	Thermal Treatment Plant	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A14	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)		-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
A14	Dioxin-like PCBs (WHO-TEQ Fish)		-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
A14	Dioxin-like PCBs (WHO-TEQ Birds)		-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
A14	Specific individual poly-cyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.		-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS ISO 11338 Parts 1 and 2.
A15	No parameters set	Emergency generator	No limits set	-	-	-

Note 1: Monitoring frequency may be reduced by prior agreement in writing by the Environment Agency.

Note 2: Monitoring frequency may be reduced by prior agreement in writing by the Environment Agency, to once every two years if the emissions are below 50% of the emission limit.

Note 3: Initial sampling and monitoring to be undertaken within the first month of operation.

Table S3.2(a) Point source emissions to air during abnormal operation of the Thermal Treatment Plant – Activity A3 – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A14	Particulate matter	Thermal Treatment Plant	150 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure
A14	Total Organic Carbon		20 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure
A14	Carbon monoxide		150 mg/m^3	10 minute average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure

Table S3.3 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location Note 5	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency** Note 1	**Monitoring standard or method**
Monitoring requirements relevant to the effluent release from the thermal treatment plant scrubber						
W1 Discharge to the **River Wyre**	Cadmium and thallium and their compounds expressed as cadmium/thallium	On-site effluent treatment plant: Neutralised waste acids, process effluent, effluent from the thermal treatment plant scrubber and surface water from main plant areas	Limit applicable to the effluent from the thermal treatment plant scrubber outlet, defined as W4 in Table S3.4 of this permit	Flow proportional sample Note 6	Monthly	BS EN ISO 15586
W1 Discharge to the **River Wyre**	As, Pb, Cr, Cu, Ni and Zn and their compounds	On-site effluent treatment plant: Neutralised waste acids, process effluent, effluent from the thermal treatment plant scrubber and surface water from main plant areas			Monthly	BS EN ISO 15586
W1 Discharge to the **River Wyre**	Dioxins and furans	On-site effluent treatment plant: Neutralised waste acids, process effluent, effluent from the thermal treatment plant scrubber and surface water from main plant areas			Quarterly in first year. Then Bi-annual	BS ISO 18073

Table S3.3 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location Note 5	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency** Note 1	**Monitoring standard or method**
Emission limits and monitoring requirements relevant to the effluent releases from the installation						
W1 Discharge to the **River Wyre**	Suspended Solids	On-site effluent treatment plant: Neutralised waste acids, process effluent, effluent from the thermal treatment plant scrubber and surface water from main plant areas	150 mg/l Note 2	Flow weighted composite sample Note 3	Daily	In-house method Note 7
W1 Discharge to the **River Wyre**	Chemical Oxygen Demand	On-site effluent treatment plant: Neutralised waste acids, process effluent, effluent from the thermal treatment plant scrubber and surface water from main plant areas	No limit set	Spot sample	Weekly	In-house method based on BS ISO 15705:2002, BS 6068-2.80:2002
W1 Discharge to the **River Wyre**	Fluoride (expressed as Fluorides)	On-site effluent treatment plant: Neutralised waste acids, process effluent, effluent from the thermal treatment plant scrubber and surface water from main plant areas	No limit set	Flow weighted composite sample Note 3	Monthly	Ion chromatography
W1Discharge to the **River Wyre**	Octylphenolethoxylate	On-site effluent treatment plant: Neutralised waste acids, process effluent, effluent from the thermal treatment plant scrubber and surface water from main plant areas	No limit set	Flow weighted composite sample Note 3	Monthly	In-house method
W1 Discharge to the **River Wyre**	SAA-1000	On-site effluent treatment plant: Neutralised waste acids, process effluent, effluent from the thermal treatment plant scrubber and surface water from main plant areas	No limit set	Flow weighted composite sample Note 3	Monthly	In-house method

Table S3.3 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location Note 5	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency** Note 1	**Monitoring standard or method**
W1 Discharge to the **River Wyre**	Mercury (trace in sodium hydroxide)	On-site effluent treatment plant: Neutralised waste acids, process effluent, effluent from the thermal treatment plant scrubber and surface water from main plant areas	Limit applicable to the effluent from the thermal treatment plant scrubber outlet, defined as W4 in Table S3.4 of this permit	Flow proportional sample Note 6	Monthly	BS EN ISO 17852
W1 Discharge to the **River Wyre**	pH minimum pH maximum	On-site effluent treatment plant: Neutralised waste acids, process effluent, effluent from the thermal treatment plant scrubber and surface water from main plant areas	5 8.5	Daily average Note 4	Continuous	pH meter
W1 Discharge to the **River Wyre**	Temperature maximum	On-site effluent treatment plant: Neutralised waste acids, process effluent, effluent from the thermal treatment plant scrubber and surface water from main plant areas	40°C		Continuous	Temperature sensor
W1 Discharge to the **River Wyre**	Flow Maximum	On-site effluent treatment plant: Neutralised waste acids, process effluent, effluent from the thermal treatment plant scrubber and surface water from main plant areas	No limit set	Daily average	Continuous	MCERTS Flow meter

Table S3.3 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location Note 5	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency** Note 1	**Monitoring standard or method**
W2 Discharge to **Hillylaid Pools**	No parameters set	Uncontaminated surface water and roof water from the Permitted Installation	No limit set	--	--	--
W3 Discharge to **Royles Brook**	No parameters set	Overflow from the west effluent pit under conditions of very high rainfall.	No limit set	--	--	--

Note 1: Monitoring frequency may be reduced by prior agreement in writing by the Environment Agency.

Note 2: A limit of 250mg/l is effective during maintenance of the on-site effluent treatment processes. This limit can be applied for a maximum of 28 days during a year.

Note 3: A flow-weighted composite sample is composed of daily samples collected from the flow proportional sampler analysed for the parameters indicated. When appropriate, alternative arrangements may be agreed in writing by the Environment Agency.

Note 4: The pH of the release shall be determined from the daily composite samples collected using the flow-proportional sampler. When appropriate, alternative arrangements may be agreed in writing by the Environment Agency.

Note 5: Drawing number 60529901/ENV/PPC 003 A, point source emissions to water.

Note 6: Representative sample of the discharge collected over a 24 hour period.

Note 7: In-house method validated, refer to IP12 in the original permit. Periodic evaluation shall take place as agreed in writing with the Environment Agency.

Table S3.4 Emission limits for effluent release from the Thermal Treatment Plant scrubber – Activity A3 – discharging to the on-site effluent treatment plant						
Effluent release point	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
W4 Discharge from thermal treatment plant scrubber to the on-site effluent treatment plant discharging at **W1**	Total Suspended Solids	Thermal treatment plant scrubber effluent	30 mg/l Note 2	As set out in Table S3.3 of this permit Notes 1 and 5		
			45 mg/l Note 3			
W4 Discharge from thermal treatment plant scrubber to the on-site effluent treatment plant discharging at **W1**	Mercury and its compounds, expressed as mercury	Thermal treatment plant scrubber effluent	0.03 mg/l Note 4	As set out in Table S3.3 of this permit Note 1		
W4 Discharge from thermal treatment plant scrubber to the on-site effluent treatment plant discharging at **W1**	Cadmium and thallium and their compounds expressed as cadmium/thallium	Thermal treatment plant scrubber effluent	0.05 mg/l Note 4	As set out in Table S3.3 of this permit Note 1		
W4 Discharge from thermal treatment plant scrubber to the on-site effluent treatment plant discharging at **W1**	As and its compounds expressed as As	Thermal treatment plant scrubber effluent	0.15 mg/l Note 4	As set out in Table S3.3 of this permit Note 1		
W4 Discharge from thermal treatment plant scrubber to the on-site effluent treatment plant discharging at **W1**	Pb and its compounds expressed as Pb	Thermal treatment plant scrubber effluent	0.20 mg/l Note 4	As set out in Table S3.3 of this permit Note 1		
W4 Discharge from thermal treatment plant scrubber to the on-site effluent treatment plant discharging at **W1**	Cr and its compounds expressed as Cr	Thermal treatment plant scrubber effluent	0.50 mg/l Note 4	As set out in Table S3.3 of this permit Note 1		
W4 Discharge from thermal treatment plant scrubber to the on-site effluent treatment plant discharging at **W1**	Cu and its compounds expressed as Cu	Thermal treatment plant scrubber effluent	0.50 mg/l Note 4	As set out in Table S3.3 of this permit Note 1		

Table S3.4 Emission limits for effluent release from the Thermal Treatment Plant scrubber – Activity A3 – discharging to the on-site effluent treatment plant						
Effluent release point	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
W4 Discharge from thermal treatment plant scrubber to the on-site effluent treatment plant discharging at **W1**	Ni and its compounds expressed as Ni	Thermal treatment plant scrubber	0.50 mg/l Note 4	As set out in Table S3.3 of this permit Note 1		
W4 Discharge from thermal treatment plant scrubber to the on-site effluent treatment plant discharging at **W1**	Zn and its compounds expressed as Zn	Thermal treatment plant scrubber	1.50 mg/l Note 4	As set out in Table S3.3 of this permit Note 1		
W4 Discharge from thermal treatment plant scrubber to the on-site effluent treatment plant discharging at **W1**	Dioxins and furans	Thermal treatment plant scrubber	0.30 ng/l Note 4	As set out in Table S3.3 of this permit Note 1		

Note 1: Monitoring carried out at W1 as specified in table S3.3 of this permit shall be used to determine compliance with the limits at W4 as defined in IC4 in Table S1.3 of this permit.

Note 2: Compliance is achieved when 95% of the measurements do not exceed the limit.

Note 3: Compliance is achieved when 100% of the measurements do not exceed the limit.

Note 4: Compliance is achieved when no more than one measurement per year exceeds the limit.

Note 5: Reporting will be against the W1 limit of 150 mg/l.

Table S3.5 Annual Limits		
Substance	**Medium**	**Limit (including unit)** Note 1
Carbon monoxide **(A1)**	Air	25 tonnes in a year
Tetrafluoroethylene **(A1)**	Air	7 tonnes in a year Note 2
Tetrafluoroethylene **(A2)**	Air	5 tonnes in a year Note 2
Trifluoroethylene **(A1)**	Air	5 tonnes in a year Note 2
Hexafluoropropylene **(A2)**	Air	5 tonnes in a year Note 2
Hydrogen fluoride **(A4)**	Air	250 kg in a year
Mercury (trace in sodium hydroxide)	Water	1 kg in a year Note 3
Total Organic Carbon **(A14)**	Air	No limit applies Note 4

Note 1: To be calculated by multiplying the average emissions of the substance per hour by the number of operating hours.

Note 2: Class A VOCs to be expressed as individual VOCs and Class B VOCs to be expressed as carbon.

Note 3: Compliance based on mass balance calculation defined in Schedule 7 of this permit.

Note 4: Tonnes in a year to be calculated by multiplying the average emissions of the substance per hour by the number of operating hours.

Table S3.6 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Location close to the thermal treatment plant combustion chamber inner wall or as identified and justified in Application.	Temperature (° C)	Continuous	Traceable to national standards	As agreed in writing with the Environment Agency
A14	Exhaust gas temperature	Continuous	Traceable to national standards	As agreed in writing with the Environment Agency
A14	Exhaust gas pressure	Continuous	Traceable to national standards	As agreed in writing with the Environment Agency
A14	Exhaust gas oxygen content	Continuous	BS EN 15267-3 BS EN 14181	
A14	Exhaust gas water vapour content	Continuous	BS EN 15267-3 BS EN 14181	

Schedule 4 – Reporting

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

Table S4.1 Reporting of monitoring data			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Emissions to air Parameters as required by condition 3.5.1	A1, A2, A4, A5 and A6	6 monthly	1 Jan
Emissions to air Parameters as required by condition 3.5.1	A14	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
Emissions to water Parameters as required by condition 3.5.1	W1 and W4	6 monthly	1 Jan
Functioning and monitoring of the thermal treatment plant as required by condition 4.2.2		Annually	1 Jan

Table S4.2: Annual production/treatment	
Parameter	**Units**
Total plant production	tonnes
Recovered TFE per tonne of ETFE	tonnes
Total liquid waste thermally treated on-site	tonnes
Availability of the thermal treatment plant	% of installation production hours

Table S4.3 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Water usage (mains)	Annually	m^3
Energy usage (electricity and gas)	Annually	MWh
Total bulk raw material used	Annually	tonnes
Waste disposal and/or recovery	Annually	tonnes
Tetrafluoroethylene (TFE) released to air per tonne of product	Annually	TFE kg/t
Hydrogen fluoride (HF) released to air per tonne of product	Annually	HF kg/t
Suspended Solids (SS) released to the River Wyre per tonne of product	Annually	SS kg/t
Chemical Oxygen Demand (COD) released to the River Wyre per tonne of product	Annually	COD kg/t
Octylphenolethoxylate (OP10) released to the River Wyre per tonne of product	Annually	OP10 kg/t
SAA-1000 released to the River Wyre per tonne of product	Annually	SAA-1000 kg/t
Fluoride (F) released to the River Wyre per tonne of product	Annually	F kg/t
Total number of days where the limit of 250mg/l was effective during maintenance of the on-site effluent treatment process	Annually	days
Caustic soda usage at thermal treatment plant	Annually	tonnes
Periods of abnormal operation of thermal treatment plant	Annually	No of occasions and cumulative hours for current calendar year
Periods of venting via air emission points A1, A2 and A6 when the thermal treatment plant is not operational	Annually	No of occasions and cumulative hours for current calendar year

Table S4.4 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Air	Forms Air 1 to Air 8 or other form as agreed in writing by the Environment Agency	2017
Water	Form Water 1 or other form as agreed in writing by the Environment Agency	2017
Energy usage	Form Energy 1 or other form as agreed in writing by the Environment Agency	2017
Other performance indicators	Form Performance 1 or other form as agreed in writing by the Environment Agency	2017

Schedule 5 – Notification

These pages outline the information that the operator must provide.

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 EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

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 which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“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 emissions into the air and the discharges of waste water may exceed the prescribed emission limit values

“accident” means an accident that may result in pollution.

“annually” means once every year.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“bi-annual” means twice per year with at least five months between tests;

“CEM” Continuous emission monitor

“CEN” means Commité Européen de Normalisation

“Commissioning” means testing of the new thermal treatment plant that involves any operation of the furnace.

“daily average” for releases of substances to air means the average of valid half-hourly averages or 10 minute averages for CO over a calendar day during normal operation.

“dioxin and furans” means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

“disposal”. Means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

“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.

‘Hazardous property’ has the meaning in Annex lll of the Waste Framework Directive

‘Hazardous waste’ has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005 (as amended)

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions

“ISO” means International Standards Organisation.

'List of Wastes' means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

"Mass balance calculation" means that for the purposes of demonstrating compliance or non-compliance with a specified limit the release shall be calculated. The annual mass release for mercury shall be calculated from the maximum potential concentration of the metal present as contamination in the chemical (i.e. caustic/sodium hydroxide) multiplied by the volume of that chemical used on site during the year. An allowance may be deducted for any proportion of the chemicals used that can be demonstrated not to have reached the emission point. The concentration of mercury shall be calculated from the annual mass release and the volume of effluent discharged during the year.

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

"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 the table below.

"quarter" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"recovery" means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"shut down" is any period where the plant is being returned to a non-operational state.

"start up" is any period, where the plant has been non-operational, after igniting the auxiliary burner until waste has been fed to the plant to initiate steady-state conditions.

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

"Waste Framework Directive" or "WFD" means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

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.

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

(a) in relation to emissions 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

(b) in relation to emissions 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;

(c) in relation to gases from the thermal treatment plant 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;

(d) where hazardous wastes are burned in plant covered by Schedule 13 of Environmental Permitting Regulations 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 (a) – (c) above. In other cases, the measured emissions shall be standardised only for moisture, pressure and temperature.

"year" means calendar year ending 31 December.

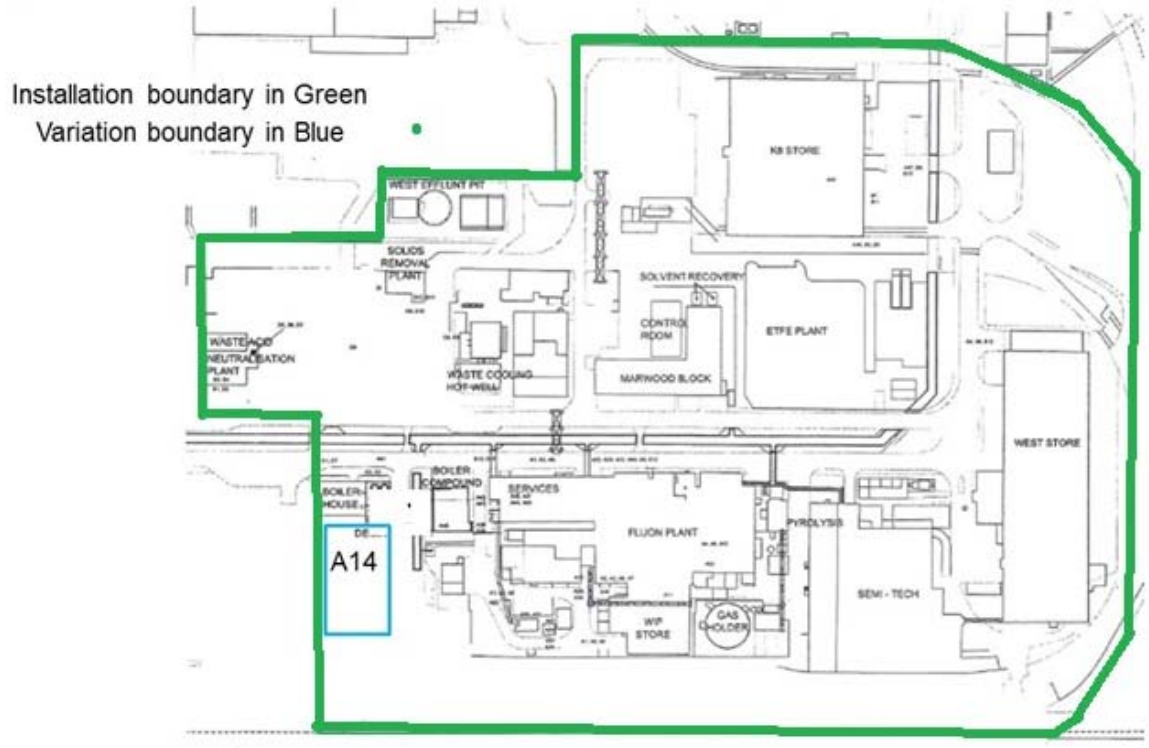
For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing. When reporting on measurements of dioxins/furans and dioxin-like PCBs, the toxic equivalence concentrations should 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. However the minimum value should be used when assessing compliance with the emission limit value in table S3.1.

TEF schemes for dioxins and furans				
Congener	**I-TEF**	**WHO-TEF**		
	1990	**2005**	**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	0.0003	-	-
Furans				
2,3,7,8-TCDF	0.1	0.1	0.05	1
1,2,3,7,8-PeCDF	0.05	0.03	0.05	0.1
2,3,4,7,8-PeCDF	0.5	0.3	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	0.0003	0.0001	0.0001

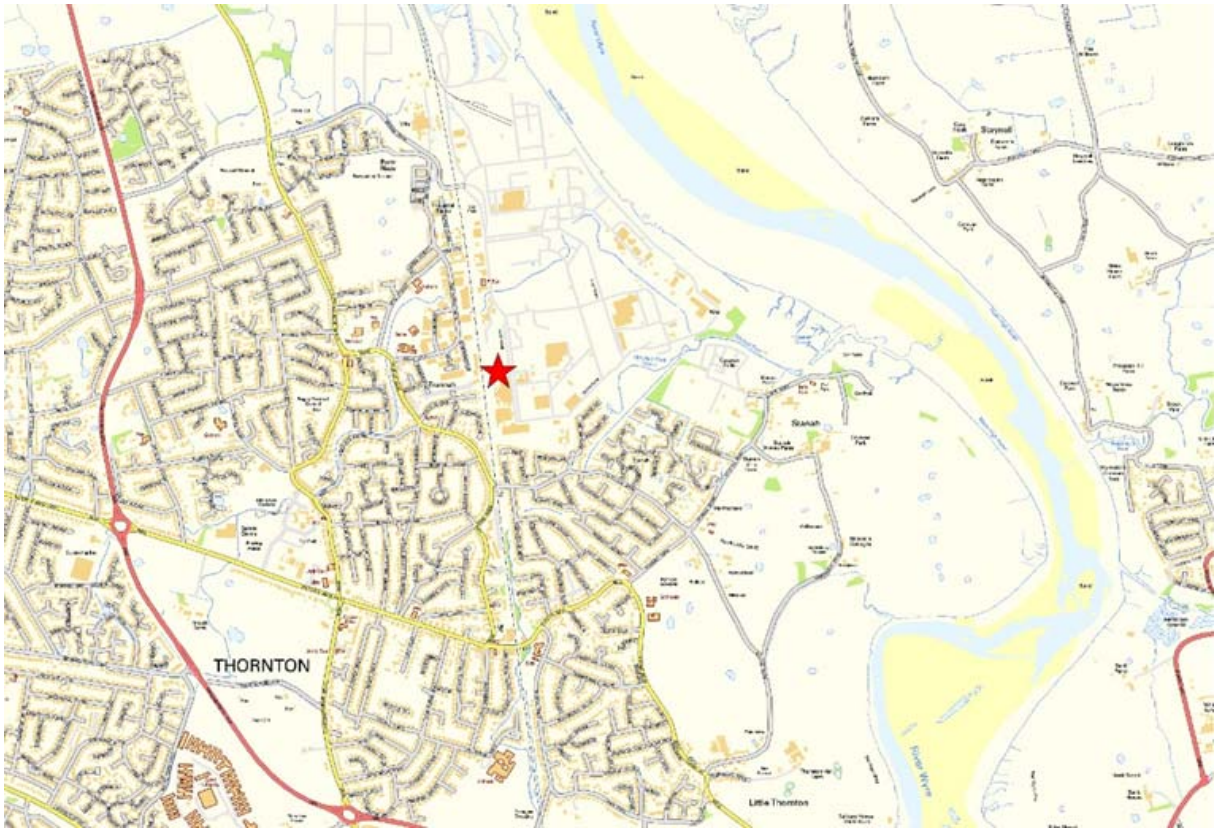
TEF schemes for dioxin-like PCBs			
Congener	**WHO-TEF**		
	2005	**1997/8**	
	Humans / mammals	**Fish**	**Birds**
Non-ortho PCBs			
3,4,4',5-TCB (81)	0.0001	0.0005	0.1
3,3',4,4'-TCB (77)	0.0003	0.0001	0.05
3,3',4,4',5 - PeCB (126)	0.1	0.005	0.1
3,3',4,4',5,5'-HxCB(169)	0.03	0.00005	0.001
Mono-ortho PCBs			
2,3,3',4,4'-PeCB (105)	0.00003	<0.000005	0.0001
2,3,4,4',5-PeCB (114)	0.00003	<0.000005	0.0001
2,3',4,4',5-PeCB (118)	0.00003	<0.000005	0.00001
2',3,4,4',5-PeCB (123)	0.00003	<0.000005	0.00001
2,3,3',4,4',5-HxCB (156)	0.00003	<0.000005	0.0001
2,3,3',4,4',5'-HxCB (157)	0.00003	<0.000005	0.0001
2,3',4,4',5,5'-HxCB (167)	0.00003	<0.000005	0.00001
2,3,3',4,4',5,5'-HpCB (189)	0.00003	<0.000005	0.00001

Schedule 7 – Site plan

Site plan showing layout and installation boundary



Site plan showing location of the installation



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