

# Notice of variation and consolidation with introductory note

**The Environmental Permitting (England & Wales) Regulations 2016**

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AstraZeneca UK Limited

Macclesfield Works

Charter Way

Silk Road Business Park

Macclesfield

Cheshire

SK10 2NA

**Variation application number**

EPR/BP3731SR/V005

**Permit number**

EPR/BP3731SR

# Macclesfield Works

## Permit number EPR/BP3731SR

### 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) (EPR) 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.

This variation (EPR/BP3731SR/V005) consolidates the 2007 permit (variation NP3034UB) with the two administrative variations issued in 2010 and 2016 and also updates the permit to the current chemicals sector template conditions. This variation updates the consolidated permit in line with the changes to the limits of the activities that have taken place over recent years as a result of demolition of a number of buildings, the decommissioning and demolishing of the single purpose production plant and two of the multi-purpose plants, and decommissioning of a further three of the multi-purpose plants. The changes to production facilities have resulted in a significant reduction in capacity and limits pharmaceutical production to 5 tonnes per annum as actual product. There are no changes to the actual activities undertaken as a result of the changes to the site, although the description of the effluent treatment facility has changed from a directly associated activity to a scheduled activity. The varied and consolidated permit allows the operator to perform the following EPR activities:

- Schedule 1 S4.5 Part A(1)(a) Producing pharmaceutical products i.e. production of active pharmaceutical ingredients (API) under a multi-product protocol (MPP) in the following multi-purpose plants (DA1, DA3, DPF Unit 1 and DHP) to a maximum limit of 5 tonnes per annum of product, including development and commercial products.
- Schedule 1 S5.4 Part A(1)(a)(ii) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving physico-chemical treatment i.e. balancing, settlement and pH adjustment of potentially contaminated surface waters and waste waters arising from development and production areas in an on-site effluent treatment plant (ETP) which discharges to sewer under the terms of a Trade Effluent consent with maximum daily throughput of 5,454 m<sup>3</sup>.
- Schedule 14 Use of solvents in manufacturing of pharmaceutical products exceeding the solvent consumption threshold of 50 tonnes/year.

API includes pharmaceutical intermediates and actual products.

The permit also allows the operator to perform the following directly associated activities which support the production of pharmaceuticals:

- Storage and handling of raw materials, finished products and other materials
- Operation of air abatement equipment

The installation comprises the multi-purpose plants (DA1, DA3, DPF Unit 1 and DHP), chemical and solvent storage areas, nitrogen plant, waste handling and storage pending off-site recovery/disposal, trade effluent treatment and surface water balancing tanks and a storm water holding tank. The effluent is discharged to Macclesfield Waste Water treatment works under consent with United Utilities. Emissions to sewer may include nitrogen containing compounds including ammonia, toluene, methyl tertiary-butyl ether (MTBE), amines, copper, zinc and drug substances. Surface water is discharged with process effluent to waste water treatment works.

The installation gives rise to point source emissions to air of volatile organic compounds (solvents), hydrogen chloride, hydrogen bromide, oxides of sulphur and ammonia. Where appropriate, condensers are utilised to minimise releases of volatile organic compounds and scrubber units are used to remove acid gases. High Efficiency Particulate Air (HEPA) filters with continuous liners are in place where active ingredients are being charged to vessels or discharged from filters to prevent emissions of active ingredients or other particulates.

The pharmaceutical product development and production produces a number of waste streams including solvent contaminated wastes which are sent off-site for recovery/disposal.

There is an onsite Combined Heat and Power (CHP) plant which provides energy, however this is covered by a separate EPR permit reference BK0647IG.

The installation is situated in the north-eastern part of the AstraZeneca Macclesfield facility. The installation is located on the north-eastern outskirts of Macclesfield. The installation covers an area of approximately 6.5 hectares. The installation sits on an industrial estate and is bounded by farm land and to the west of the site a road and beyond that extensive residential development.

The following Habitats Directive sites are located within 5.7 km of the installation: South Pennine Moors Special Area of Conservation (SAC) and Peak District Moors (South Pennine Moors Phase 1) Special Protection Area (SPA). The Environment Agency has assessed that the operation has no adverse effect on these sites and it is not considered to have an adverse effect on any important ecological sites. There are no sites of special scientific interest (SSSI) within 2 km of the installation.

The AstraZeneca Macclesfield site which includes the EPR permitted installation is a Lower Tier COMAH installation and operates to a Major Accident Prevention Policy (MAPP).

The operator has an Environmental Management System which is independently certified to ISO 14001:2015. The operator also has an Energy Management System which is independently certified to ISO 50001:2018 covering the installation and wider site.

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.

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application BP3731SR	Duly made 21/03/06	IPPC permit.
Additional information received	31/08/06	
Additional information received	13/10/06	
Permit determined BP3731SR	21/12/06	Permit issued to AstraZeneca UK Limited.
Permit varied and consolidated EPR/BP3731SR/V002 (reference NP3034UB)	21/05/07	Variation notice and consolidated permit issued to AstraZeneca UK Limited. Permit varied to correct errors in monitoring and reporting requirements.
Received notification of change of operator's registered office address	04/11/10	
Permit varied EPR/BP3731SR/V003	11/11/10	Variation notice issued to AstraZeneca UK Limited to show change of operator's registered office address to: 2 Kingdom Street, London, W2 6BD.
Notified of change of company registered office address	22/04/16	

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Variation issued EPR/BP3731SR/V004	18/05/16	Variation notice issued to AstraZeneca UK Limited to show change to operator's registered office address to: 1 Francis Crick Avenue, Cambridge Biomedical Campus, Cambridge, CB2 0AA.
Application EPR/BP3731SR/V005 (variation and consolidation)	Duly made 13/07/18	Application to vary, consolidate and update the permit to modern conditions. This variation covers the changes to the limits of the activities that have taken place as a result of demolition of a number of buildings, the decommissioning and demolishing of the single purpose production plant facility (No.1 Plant Crude's/Semi Pures) and two of the multi-purpose plants (SSMF and DA2) and decommissioning of a further three of the multi-purpose plants (SRP, NPP, DPF Unit 2). There are no changes to the actual activities undertaken as a result of the changes to the site, although the status of the effluent treatment facility has changed from a directly associated activity to a scheduled activity.
Additional information received by email in response to Schedule 5 Notice issued 05/11/18	29/11/18	Confirmation of status of the improvement programme (document EA Schedule 5 Notice Action 3 Response – Nov 2018). Fire Prevention Plan Appendix C2 5.1 Fire Risk Assessment. New site drainage plan MW-000-MECH-0001. Revised permit boundary plan MW-000-02-080287 amended version App C2 3.30 (no change to installation boundary). Revised version of Figure 5 (Areas of the permit where the decommissioning and demolition have been undertaken) of section 4a of part e2 of the V005 application, highlighting the current status of areas of the installation with respect to decommissioning and demolition.
Additional information received by email in response to Schedule 5 Notice issued 05/11/18	03/12/18	Colour key for Site drainage plan MW-000-MECH-0001, document reference Drawing management – Utilities Services Drawings Procedure LDMS_001_00086095 v 2.
Additional information received by email in response to Schedule 5 (2) Notice issued 19/12/18	23/01/19	Multi-product protocol (MPP) document reference MPP AZDoc0116277.
Additional information received by email in response to Schedule 5 (2) Notice issued 19/12/18 and email dated 28/01/19.	30/01/19	Revised SOP for MPP Emissions to Atmosphere Compliance reference LDMS_001_00018995 to address inaccuracies in version submitted in response to the Schedule 5 Notice issued 19/12/18.
Additional information received by email in response to Schedule 5 (3) Notice issued 16/01/19	30/01/19	Revised version of parts C2, C3 and E2 of the application report which updates these sections to address inconsistencies, and incorporates amendments including those required by the Schedule 5 Notice issued 05/11/18. Confirmation of the status of the effluent treatment plant activity and limits.

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
		Confirmation that any future production of Fulvestrant and Acalabrutinib products will be within the remaining multi-purpose plants under the MPP.
Additional information received by email in response to Schedule 5 Notice issued 05/11/18 and email dated 04/02/19	12/04/19	Revised Appendix C3 3.34 of the variation application: Figure MW - 000 - 02 – 142728 (Environmental Monitoring Vent Points DSM Buildings) referenced in section 4b of part c3 of the V005 application report, revised to correct plant item reference numbers and to identify the locations of emissions points referenced in Table S3.1 of the varied permit.
Variation determined EPR/BP3731SR (PAS Billing ref: GP3235QD)	21/06/2019	Varied and consolidated permit issued in modern condition format to AstraZeneca UK Limited.

<b>Other Part A installation permits relating to this installation</b>		
<b>Operator</b>	<b>Permit number</b>	<b>Date of issue</b>
Veolia Energy & Utility Services UK Plc	BK0647IG	24/06/02

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/BP3731SR**

### Issued to

**AstraZeneca UK Limited** (“the operator”)

whose registered office is

**1 Francis Crick Avenue  
Cambridge Biomedical Campus  
Cambridge  
CB2 0AA**

company registration number 03674842

to operate a regulated facility at

**Macclesfield Works  
Charter Way  
Silk Road Business Park  
Macclesfield  
Cheshire  
SK10 2NA**

to the extent set out in the schedules.

The notice shall take effect from 21/06/2019

Name	Date
Claire Roberts	21/06/2019

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/BP3731SR**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BP3731SR/V005 authorising,

**AstraZeneca UK Limited** (“the operator”),

whose registered office is

**1 Francis Crick Avenue  
Cambridge Biomedical Campus  
Cambridge  
CB2 0AA**

company registration number 03674842

to operate an installation at

**Macclesfield Works  
Charter Way  
Silk Road Business Park  
Macclesfield  
Cheshire  
SK10 2NA**

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

Name	Date
Claire Roberts	21/06/2019

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 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.

## **1.5 Multi product protocol**

- 1.5.1 Where the operator proposes to make a change under a multi-product protocol that is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) the Environment Agency shall be notified of the proposed change;
  - (b) the notification shall contain a description of the change including: an assessment of its environmental impact; any relevant supporting assessments and drawings; and the proposed implementation date;
  - (c) the change shall not be implemented unless approved in writing by the Environment Agency;
  - (d) as from any approved implementation date, the operator shall operate in accordance with the changed multi product protocol in place of the previously approved version.

## **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”).

### **2.2 The site**

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in blue 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 or other documentation (“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.

## **2.4 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.

## **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 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Total annual emissions from the emission point(s) set out in schedule 3 tables S3.1 and S3.2 of a substance listed in schedule 3 table S3.3 shall not exceed the relevant limit in table S3.3.
- 3.1.4 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.

### **3.2 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.

### **3.3 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 and S3.2.

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), where available, unless otherwise agreed in writing by the Environment Agency.

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 and S3.2 unless otherwise agreed in writing by the Environment Agency.

## **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.

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.

4.2.5 The operator shall submit an annual solvent management plan in order to demonstrate compliance with the requirements of the Industrial Emissions Directive, by 31 January each year in respect of the previous year.

## 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.
- 4.3.7 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:
- (a) a decision by the Secretary of State not to re-certify the agreement;
  - (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
  - (c) any subsequent decision by the Secretary of State to re-certify such an agreement.

## **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

<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
AR1	S4.5 Part A(1)(a)	Producing pharmaceutical products using a chemical process: production of active pharmaceutical ingredients (API) in multi-purpose plants under a multi-product protocol (MPP).	From receipt of raw materials to production of API using chemical processing, to dispatch of finished product (warehouse not included in installation boundary). Including releases to air and effluent. Production of API to a maximum limit of 5 tonnes per annum, as actual product, in the following multi-purpose plants only: DA1, DA3, DPF Unit 1 and DHP. Includes production of commercial and development products within the multi-purpose plants as defined in the MPP. API includes pharmaceutical intermediates and actual products.
AR2	S5.4 A1 (a) (ii) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving physico-chemical treatment	Physico-chemical treatment of non-hazardous aqueous waste in an on-site effluent treatment plant (ETP) exceeding 50 tonnes per day.	Containment, balancing, settlement and pH adjustment of potentially contaminated surface waters and waste waters arising from development and production areas in an on-site effluent treatment plant (ETP) which discharges to sewer under the terms of a Trade Effluent consent with maximum daily throughput of 5,454 m <sup>3</sup> .
<b>Activity listed in Schedule 14 of the EP Regulations</b>			
AR3	Schedule 14 solvent emission activity	Manufacturing of pharmaceutical products exceeding a solvent consumption threshold of 50 tonnes per year (with 'consumption' as defined in Article 57 of the Industrial Emissions Directive (IED)).	From receipt of raw materials to the emission of solvents to atmosphere.
<b>Directly Associated Activity</b>			
AR4	Materials handling	Storage and handling of raw materials, finished	Includes receipt, storage and handling of raw materials and storage,



<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
		products and other materials.	handling, milling, micronising and dispatch of finished goods (warehouse not included in installation boundary). This also includes the transfer, storage, handling and disposal of wastes (including waste solvent for offsite recovery).
AR5	Air abatement	Air abatement equipment.	Includes a total of 5 packed scrubber column/carbon drums units for abatement of acid gases and volatile organic compounds (VOC) condensers for abatement of VOCs.

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application	The responses to Section B2.1 In Process Controls (pages 2-104); Section B2.2 Emissions control and abatement (pages 4-99, 135-140, 149-158); Section B2.10 Monitoring (pages 2-8, 14-15) and Appendix B2.1A Multiple Product Protocol (pages 1-18) within the application	21/03/06
Receipt of additional information to the application		13/10/06, 17/07/06 and 31/08/06
Application variation and consolidation EPR/BP3731SR/V005	Part EPR 4.02 of the variation application (assessment of installation activities against indicative BAT).	Duly made 13/07/18
Response to Schedule 5 (2) Notice dated 19/12/18	Response to question 1 providing a revised multi-product protocol (MPP) document reference MPP AZDoc0116277.	23/01/19
Response to Schedule 5 (3) Notice dated 16/01/19	Revised parts C2, C3 and E2 of the application report submitted in response to the Schedule 5 Notice dated 16/01/19: <ul style="list-style-type: none"> <li>Table 2 (Vent points which have been removed via decommissioning/demolition) of section 2b of part c2, revised to correct certain vent reference numbers. Submitted in response to part C2, 2b (Changes or additions to existing activities) of the application form.</li> <li>Table 9 (Emissions to air, water and land) of section 2.0 of part c3, provided in response to Part C3, 2.0 (Emissions to air, water and land) of the application form.</li> <li>Table 12 (Section C3 3A, Table 3) of section 3a of part c3, provided in response to Part C3, 3A (Technical standards) of the application form.</li> </ul>	30/01/19

<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
	<ul style="list-style-type: none"> <li>Table 20 (Measures for monitoring emissions) of section 4a of part c3, provided in response to Part C3, 4 (Monitoring) of the application form.</li> </ul> <p>Confirmation that any future production of Fulvestrant and Acalabrutinib products will be within the remaining multi-purpose plants managed under the revised MPP (received 23/01/19).</p>	
Response to Schedule 5 (2) Notice dated 19/12/18 and email dated 28/01/19.	Response to question 2 of the Schedule 5 Notice dated 19/12/18 providing a revised SOP for MPP Emissions to Atmosphere Compliance reference LDMS_001_00018995, with additional revisions as required in the email dated 28/01/19. This SOP outlines techniques for compliance with Chapter V and Annex VII of the Industrial Emission Directive 2010/75/EU.	30/01/19

<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IP1	The Operator shall submit in writing their proposals for complying with the Solvent Emissions Directive (SED), in relation to their use of solvents.	Completed
IP2	<p>The operator shall carry out a review of the ammonia scrubber (LS0147) for emission point to air A80 in line with BAT requirements detailed within the requirements of Sections 2.2.2 of Sector Guidance Note S4.02. Where appropriate the plan shall contain dates for the implementation of individual improvements.</p> <p>The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the plan.</p>	Completed
IP3	<p>A written plan shall be submitted to the Agency for approval detailing the results of a review of containment facilities for:</p> <ul style="list-style-type: none"> <li>Santotherm, glycol and dowtherm tanks within the DA1 plant,</li> <li>Storage of chemicals in external dump tank within DA1 plant,</li> <li>DSP1&amp;2 scrubber tank and scrubber receiver tank- process effluent,</li> <li>DPF scrubber tank,</li> <li>DA3 scrubber tanks – process effluent,</li> <li>SSMF scrubber tank and solvent tank,</li> <li>No.1 plant dump tank and HCC header tank.</li> </ul> <p>The measures shall comply with the requirements of Sections 2.2.5 of Sector Guidance Note S4.02. Where appropriate the plan shall contain dates for the implementation of individual improvements. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the plan.</p> <p>The plan shall be implemented by the operator from the date of approval by the Agency.</p>	Completed
IP4	A written plan shall be submitted to the Agency for approval detailing the review of methods used to monitor emissions of VOCs from the condensers and the scrubbers within the multi-product plants. This shall consider, as a minimum, the effectiveness of the abatement equipment. Where appropriate the plan shall contain dates for the implementation of individual measures. The notification requirements of condition 2.5.2 shall	Completed

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
	be deemed to have been complied with on submission of the plan. The plan shall be implemented by the operator from the date of approval by the Agency.	
IP5	The Operator shall submit a report to the Agency detailing the replacement of the current sodium hydroxide with an alternative 'low mercury' sodium hydroxide. This report shall include proposed implementation dates for the 'low mercury' caustic.	Completed
IP6	The Operator shall undertake a review of operations to identify potential sources of Copper to the effluent stream within the installation. Where appropriate the plan shall contain dates for the implementation of individual improvements. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the plan.  The plan shall be implemented by the operator from the date of approval by the Agency.	Completed
IP7	The Operator shall carry out a review of the condensers, considering the proposed abatement equipment performance and operating temperature of the condensers.  The operator shall comply with the requirements of sections 2.2.1 and 2.2.2 of Sector Guidance Note S4.02. Where appropriate the plan shall contain dates for the implementation of individual improvements. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the plan.  The plan shall be implemented by the operator from the date of approval by the Agency.	Completed
IP8	The Operator shall carry out a review of cleaning measures in line with BAT for both multi-product and single product manufacturing. The measures shall comply with the requirements of Sections 2.2.4, 2.25 and 2.4.3 of Sector Guidance Note S4.02. Where appropriate the plan shall contain dates for the implementation of individual improvements. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the plan.  The plan shall be implemented by the operator from the date of approval by the Agency.	Completed
IP9	The Operator shall carry out a review of the disposal of all established product aqueous effluent streams and make recommendations for improvements. This shall consider the provision of additional routings at the effluent tanks to allow collection for specific disposal routes. The measures shall comply with the requirements of Sections 2.2.4, 2.2.5 and 2.6 of Sector Guidance Note S4.02. Where appropriate the plan shall contain dates for the implementation of individual improvements. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the plan.  The plan shall be implemented by the operator from the date of approval by the Agency.	Completed
IP10	The Operator shall undertake a waste minimisation audit.  The options shall comply with the requirements of Sections 2.4.2 of Sector Guidance Note S4.02. Where appropriate the plan shall contain	Completed

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
	<p>dates for the implementation of individual improvements. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the plan.</p> <p>The plan shall be implemented by the operator from the date of approval by the Agency.</p>	
IP11	The Operator shall review their written Site Closure Plan with regard to the requirements set out in Section 2.11 of the Agency Guidance Note IPPC S6.11, October 2003. Upon completion of the plan a summary of the document shall be submitted to the Agency in writing.	Completed
IP12	<p>The Operator shall agree in writing with the Environment Agency the format and content of the notification documentation required by condition 1.5.1 and the multi-product protocol (MPP) with respect to the intention to produce active pharmaceutical ingredients (API) for commercial purposes within the multi-purpose plants.</p> <p>The Operator shall submit a written plan to the Environment Agency for approval. The plan must contain a summary of the information to be provided to the Environment Agency to meet the notification requirements of condition 1.5.1 and in accordance with our guidance on multi-product protocol (MPP) report reference GEHO0511BTUN-E-E).</p> <p>The plan shall be implemented by the operator from the date of approval by the Agency.</p>	Prior to production of API for commercial purposes
IP13	<p>The operator shall submit a written plan to the Environment Agency for technical assessment and approval. The plan must detail the proposed changes to make a permanent access point for monitoring emissions to air from emission reference point A148 (vent V7555): Batch Processing DA1 DSP3 (Packed Scrubber Column/ Carbon Drums DP01212). The proposed changes must meet the standards outlined in our guidance: TGN M1 Sampling requirements for stack emissions monitoring.</p> <p>The plan shall be implemented by the operator from the date of approval by the Agency.</p>	01/09/19

# Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
–	–

## Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Chemical Stores						
A110 (vent V3000)	Batch Processing Chemical Stores Misc. HEPA filtration CS0956	Particulate matter	No limit set	--	--	
A111 (vent V3001)	Batch Processing Chemical Stores Misc. Particulate filtration CS0023.	Particulate matter	No limit set	--	--	
A112 (vent V3002)	Batch Processing Chemical Stores Misc. Particulate filtration CS0024.	Particulate matter	No limit set	--	--	
Development Area 1 Development Scale Plant 1 (DA1 DSP1)						
A113 (vent V7000)	Batch Processing DA1 DSP1 plant condensation DP0105 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A114 (vent V7003)	Batch Processing DA1 DSP1 plant condensation DP0106 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A115 (vent V7005)	Reagent charging DA1 DSP1 plant (Charged by	VOC/Acid Gas	Annual total mass release and IED	--	--	Calculation [Note 3]

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
	residual vacuum therefore breathing only)		Annex VII Part 4 limits [Note 2]			
A116 (vent V7006)	Batch Processing DA1 DSP1 plant condensation (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A117 (vent V7008)	Reagent charging DA1 DSP1 plant (Charged by residual vacuum therefore breathing only)	VOC/Acid Gas	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A118 (vent V7009)	Batch Processing DA1 DSP1 plant condensation using DP0153 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A120 (vent 7041)	Batch Processing DA1 DSP1 Packed Scrubber Column/ Carbon Drums DP0912	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
		Total amines (expressed as dimethylamine)	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Ammonia [Note 6]	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Benzene	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Bromine [Note 7]	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Carbon disulphide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Carbon monoxide	1 kg/h	Batch average	Note 4	Note 5
		Chlorine	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		1,2 Dichloroethane	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Formaldehyde	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen bromide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen chloride	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen cyanide	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen fluoride [Note 7]	0.8 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen iodide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen sulphide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Iodine	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Phosgene	1 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Mercury and its compounds (expressed as mercury) [Note 6]	0.05 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Total acid forming gases of nitrogen (expressed as NO <sub>2</sub> ) [Note 7]	55 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Organic sulphides and mercaptans (expressed as methyl mercaptan)	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Oxides of sulphur (expressed as SO <sub>2</sub> ) [Note 7]	50 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Total phenols, cresols and xylols (expressed as phenol)	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5



<b>Table S3.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location [Note 1]</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
		Trimethylamine	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
A121 (vent V7094)	Batch Processing DA1 DSP1 plant condensation using DP0155 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A122 (vent V7786)	Solids Handling DA1 DSP1 HEPA Filtration DP0183	Particulate matter	No limit set	--	--	
A123 (vent V7790)	Solids Handling DA1 DSP1 HEPA Filtration 68	Particulate matter	No limit set	--	--	
A124 (vent V7792)	Solids Handling DA1 DSP1 HEPA Filtration DP0172	Particulate matter	No limit set	--	--	
<b>Development Area 1 Development Scale Plant 2 (DA1 DSP2)</b>						
A125 (vent V7023)	Batch Processing DA1 DSP2 plant (Vacuum pump exhaust DP0908– Vented direct to building roof)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A126 (vent V7050)	Batch Processing DA1 DSP2 plant condensation using DP0205 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A127 (vent V7053)	Batch Processing DA1 DSP2 plant condensation using DP0206 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A128 (vent V7055)	Reagent charging DA1 DSP2 plant	VOC/Acid Gas	Annual total mass release	--	--	Calculation [Note 3]

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location [Note 1]</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
	(Charged by residual vacuum therefore breathing only)		and IED Annex VII Part 4 limits [Note 2]			
A129 (vent V7056)	Batch Processing DA1 DSP2 plant condensation using DP0207 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A130 (vent V7058)	Reagent charging DA1 DSP2 plant DP0210 (Charged by residual vacuum therefore breathing only)	VOC/Acid Gas	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A131 (vent V7763)	Batch Processing DA1 DSP2 plant condensation using DP0253 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A132 (vent V7769)	Batch Processing DA1 DSP2 plant condensation using DP0255 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A133 (vent V7770)	Reagent charging DA1 DSP2 plant (Charged by residual vacuum therefore breathing only)	VOC/Acid Gas	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A134 (vent V7783)	Batch Processing DA1 DSP2 (Packed Scrubber Column/ Carbon Drums DP0187)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		Total amines (expressed as dimethylamine)	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Ammonia [Note 6]	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Benzene	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Bromine [Note 7]	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Carbon disulphide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Carbon monoxide	1 kg/h	Batch average	Note 4	Note 5
		Chlorine	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		1,2 Dichloroethane	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Formaldehyde	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen bromide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen chloride	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen cyanide	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen fluoride [Note 7]	0.8 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen iodide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen sulphide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Iodine	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Phosgene	1 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Mercury and its compounds (expressed as mercury) [Note 6]	0.05 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Total acid forming gases of nitrogen (expressed as NO <sub>2</sub> )	55 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		[Note 7]				
		Organic sulphides and mercaptans (expressed as methyl mercaptan) [Note 7]	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Oxides of sulphur (expressed as SO <sub>2</sub> ) [Note 7]	50 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Total phenols, cresols and xylols (expressed as phenol)	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Trimethylamine	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
A135 (vent V7784)	Solids Handling DA1 DSP2 HEPA Filtration DP0272.	Particulate matter	No limit set	--	--	
Development Area 1, Development Scale Plant 1 or 2 (DA1 DSP 1/2)						
A119 (vent V7025)	Batch Processing DA1 DSP1/2 plant (Vacuum pump exhaust DP0909 – vented direct to building roof)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A136 (vent V7028)	Batch Processing DA1 DSP1/2 plant condensation using DP0959 (Vacuum pump exhaust - Condensation using Glycol at ~5°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A137 (vent V7029)	Batch Processing DA1 DSP1/2 (Vacuum pump exhaust –	VOC	Annual total mass release and IED Annex VII Part 4	--	--	Calculation [Note 3]

<b>Table S3.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location [Note 1]</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
	Vented direct to building roof)		limits [Note 2]			
A138 (vent V7049)	Batch Processing DA1 DSP1/2 (Direct to atmosphere/ Vertical high stack)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A139 (vent V7922)	Solids Handling DA1 DSP1/2 HEPA Filtration DP0100	Particulate matter	No limit set	--	--	
A194 (vent V7936)	DA1 DSP1/2 Hydrogenator DP0820 Process Vent	VOC/Acid Gases	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A195 (vent V7937)	DA1 DSP1/2 Hydrogenator DP0820 Process Vent	VOC/Acid Gases	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
<b>Development Area 1 Development Scale Plant 3 (DA1 DSP 3)</b>						
A140 (vent V7501)	Reagent charging DA1 DSP3 plant (Charged by residual vacuum therefore breathing only)	VOC/Acid Gases	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A141 (vent V7503)	Reagent charging DA1 DSP3 plant (Charged by residual vacuum therefore breathing only)	VOC/Acid Gases	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A142 (vent V7507)	Reagent charging DA1 DSP3 plant	VOC/Acid Gases	Annual total mass release	--	--	Calculation [Note 3]

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
	(Charged by residual vacuum therefore breathing only)		and IED Annex VII Part 4 limits [Note 2]			
A143 (vent V7509)	Reagent charging DA1 DSP3 plant (Charged by residual vacuum therefore breathing only)	VOC/Acid Gases	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A144 (vent V7517)	Batch Processing DA1 DSP3 plant condensation using DP0359 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A145 (vent V7520)	Batch Processing DA1 DSP3 plant condensation using DP0305 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A146 (vent V7527)	Batch Processing DA1 DSP3 plant condensation using DP0306 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A147 (vent V7528)	Batch Processing DA1 DSP3 plant condensation using DP0307 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A148 (vent V7555) [Note 8]	Batch Processing DA1 DSP3 (Packed Scrubber Column/ Carbon Drums DP01212).	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		Total amines (expressed as dimethylamine)	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Ammonia [Note 6]	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Benzene	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Bromine [Note 7]	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Carbon disulphide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Carbon monoxide	1 kg/h	Batch average	Note 4	Note 5
		Chlorine	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		1,2 Dichloroethane	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Formaldehyde	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen bromide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen chloride	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen cyanide	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen fluoride [Note 7]	0.8 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen iodide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen sulphide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Iodine	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Phosgene	1 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Mercury and its compounds (expressed as mercury) [Note 6]	0.05 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Total acid forming gases of nitrogen (expressed as NO <sub>2</sub> )	55 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		[Note 7]				
		Organic sulphides and mercaptans (expressed as methyl mercaptan)	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Oxides of sulphur (expressed as SO <sub>2</sub> ) [Note 7]	50 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Total phenols, cresols and xylols (expressed as phenol)	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Trimethylamine	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
A149 (vent V7794)	Solids Handling DA1 DSP3 HEPA Filtration DP0357	Particulate matter	No limit set	--	--	
A150 (vent V7795)	Solids Handling DA1 DSP3 Room Extract HEPA Various Filters	Particulate matter	No limit set	--	--	
A151 (vent V7799)	Batch Processing DA1 DSP3 – membrane unit vent direct to building roof.	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
Development Area 1, Development Scale Plant 4 (DA1 DSP4)						
A152 (vent V7962)	Solids Handling DA3 HEPA Filtration AT0103, 0203,0311	Particulate matter	No limit set	--	--	



**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location [Note 1]</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A153 (vent V7963)	Batch Processing DA1 DSP4 plant condensation using DP4102 (Condensation using 40% Glycol @ 0 to 5°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A154 (vent V7964)	Batch Processing DA1 DSP4 plant condensation using DP4202 (Condensation using 40% Glycol @ 0 to 5°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A155 (vent V7965)	Batch Processing DA1 DSP4 plant condensation using DP4302 (Condensation using 40% Glycol @ 0 to 5°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A156 (vent V7966)	Batch Processing DA1 DSP4 plant condensation using DP4402 (Condensation using 40% Glycol @ 0 to 5°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A157 (vent V7967)	Reagent charging DA1 DSP4 plant (Charged by residual vacuum therefore breathing only)	VOC/Acid Gas	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A158 (vent V7968)	Reagent charging DA1 DSP4 plant (Charged by residual vacuum therefore breathing only)	VOC/Acid Gas	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]

<b>Table S3.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location [Note 1]</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A159 (vent V7548)	Batch Processing DA1 DSP3/4 (Vacuum pump exhaust – Vented direct to building roof)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A160 (vent V7556)	Batch Processing DA1 DSP3/4. Capped vent not in use – vacuum pump exhaust vented to scrubber DP1212.	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
<b>Development Area 3 (DA3)</b>						
A161 (vent V7592)	AT011 unabated booth vapour	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A163 (vent V7601)	Batch Processing DA3 (Direct to atmosphere/ vertical high stack)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A167 (vent V7613)	Batch Processing DA3 (Directed to building roof)	Process Hydrogen	No limit set	--	--	
A168 (vent V7614)	Solids Handling DA3 HEPA Filtration AT0804, 0805	Particulate matter	No limit set	--	--	
A169 (vent V7621)	Batch Processing DA3 (Packed Scrubber Column/ Carbon Drums AT0926).	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		Total amines (expressed as dimethylamine)	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Ammonia [Note 6]	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Benzene	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Bromine [Note 7]	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Carbon disulphide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Carbon monoxide	1 kg/h	Batch average	Note 4	Note 5
		Chlorine	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		1,2 Dichloroethane	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Formaldehyde	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen bromide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen chloride	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen cyanide	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen fluoride [Note 7]	0.8 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen iodide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen sulphide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Iodine	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Phosgene	1 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Mercury and its compounds (expressed as mercury) [Note 6]	0.05 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Total acid forming gases of nitrogen (expressed as NO <sub>2</sub> )	55 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		[Note 7]				
		Organic sulphides and mercaptans (expressed as methyl mercaptan)	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Oxides of sulphur (expressed as SO <sub>2</sub> ) [Note 7]	50 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Total phenols, cresols and xylols (expressed as phenol)	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Trimethylamine	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
A170 (vent V7638)	Solids Handling DA3 HEPA Filtration AT0980	Particulate matter	No limit set	--	--	
Development Area 3 Development Hydrogenation Plant (DA3 DHP)						
A172 (vent V7656)	Batch Processing DA3 DHP -HY0774 (Condensing using Santotherm at ~ -30°C)	Process Hydrogen	No limit set	--	--	
Development Area 1 Development Pures Facility (DA1 DPF)						
A174 (vent V7809)	Breathing DPF Plant - small inventory present	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A175 (vent V7810)	Batch Processing DPF Condensation DP0436 (Condensation using 40% Glycol @ 0 to 5°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A176 (vent V7811)	Batch Processing DPF (Direct to atmosphere/ vertical high stack)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A177 (vent V7815)	Batch Processing DPF Condensation DP0404 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A178 (vent V7816)	Batch Processing DPF Condensation DP0403 (Condensation using cooling water at ~20°C)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A179 (vent V7819)	Reagent Charging DPF (Charged by residual vacuum therefore breathing only)	VOC/ Acid Gas	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A183 (vent V7903) [Note 9]	Batch Processing DPF (Packed Scrubber Column/ Carbon Drums DP0690).	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
		Total amines (expressed as dimethylamine)	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Ammonia [Note 6]	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Benzene	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Bromine [Note 7]	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Carbon disulphide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location [Note 1]</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
		Carbon monoxide	1 kg/h	Batch average	Note 4	Note 5
		Chlorine	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		1,2 Dichloroethane	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Formaldehyde	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen bromide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen chloride	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen cyanide	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen fluoride [Note 7]	0.8 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen iodide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Hydrogen sulphide	5 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Iodine	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Phosgene	1 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Mercury and its compounds (expressed as mercury) [Note 6]	0.05 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Total acid forming gases of nitrogen (expressed as NO <sub>2</sub> ) [Note 7]	55 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Organic sulphides and mercaptans (expressed as methyl mercaptan)	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Oxides of sulphur (expressed as SO <sub>2</sub> ) [Note 7]	50 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		Total phenols, cresols and xylols (expressed as phenol)	10 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
		Trimethylamine	2 mg/Nm <sup>3</sup>	Batch average	Note 4	Note 5
A186 (vent V7906)	Batch Processing DPF Vacuum pump exhaust (Vented direct to building roof)	VOC	Annual total mass release and IED Annex VII Part 4 limits [Note 2]	--	--	Calculation [Note 3]
A189 (vent V7979)	Solids Handling DPF HEPA Filtration DP0418	Particulate matter	No limit set	--	--	
A190 (vent V7980)	Solids Handling DPF HEPA Filtration DP0413	Particulate matter	No limit set	--	--	
A191 (vent V7302)	Particle Size reduction (PSR) plant HEPA filtration DP0413	Particulate matter	No limit set	--	--	
A192 (vent V7303)	Particle Size Reduction (PSR) plant HEPA filtration LD1506	Particulate matter	No limit set	--	--	
A193 (vent V7304)	Solids Handling Particle Size Reduction (PSR) Plant HEPA Filtration Various Filters	Particulate matter	No limit set	--	--	
Emergency and pressure relief vents – all areas						
Emergency and pressure relief vents identified in Table 9 of	Emergency and pressure relief vents	No parameters set	No limit	--	--	

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [Note 1]	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
section 2.0 Part C3 of the revised variation application report received 30/01/19 (vents: V7004, V7007, V7091, V7092, V7093, V7927, V7928, V7929, V7930, V7931, V7956, V7957, V7772, V7775, V7953, V7031, V7767, V7923, V7054, V7057, V7771, V7027, V7030, V7940, V7048, V7973, V7974, V7916, V7935, V7500, V7502, V7506, V7508, V7518, V7526, V7969, V7970, V7798, V7550, V7549, V7977, V7972, V7599, V7618, V7600, V7594, V7596, V7598, V7643, V7644, V7645, V7646, V7647, V7648, V7602, V7603, V7606, V7619, V7608, V7609, V7615, V7640, V7658, V7822, V7823, V7808, V7913, V7914, V7975).						
<p>Note 1: Emission point reference and location as identified in Figure MW-000-02-142728 additional information received 12/04/19.</p> <p>Note 2: Annual total mass release limits specified in Table S3.3 and the following Industrial Emissions Directive (IED) Annex VII limits:</p> <ul style="list-style-type: none"> <li>• Total emission limit value (including fugitive and point source emissions) of 5% of solvent input (with 'input' as defined in Article 57 of the IED)</li> <li>• Emission limit values for VOCs specified in Article 58 of the IED</li> </ul>						



<b>Table S3.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location [Note 1]</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
						<ul style="list-style-type: none"> <li>○ 2 mg/Nm<sup>3</sup> for emissions of VOCs with the following hazard statements H340, H350, H350i, H360D or H360F where the mass flow of the sum of the compounds is greater than, or equal to, 10 g/h.</li> <li>○ 20 mg/Nm<sup>3</sup> for emissions of halogenated VOCs with the hazard statements H341 or H351, where the mass flow of the sum of the compounds causing the hazard statements H341 or H351 is greater than, or equal to, 100 g/h.</li> </ul> <p>In the case where the combined mass flows do not exceed the thresholds of 10 g/h or 100 g/h the operator may agree in writing with the Environment Agency a higher ELV provided the operator can justify that exceedance of this limit, does not threaten to breach significance thresholds for long or short term impacts.</p> <p>Note 3: As dictated by the revised SOP LDMS_001_00018995 document received 30/01/19 in response to Schedule 5 Notice issued 19/12/18.</p> <p>Note 4: As dictated by the revised MPP AZDoc0116277 document received 23/01/19 in response to Schedule 5 Notice issued 19/12/18.</p> <p>Note 5: Monitoring standard or method identified in the M2 Technical Guidance Note (TGN) to lowest appropriate limit of detection.</p> <p>Note 6: Emissions of ammonia and mercury and its compounds are restricted to an average of one abatement stack source emitting over the course of a year unless otherwise agreed in writing with the Environment Agency.</p> <p>Note 7: Emissions of this parameter are restricted to a single abatement stack source emitting at any one time unless otherwise agreed in writing with the Environment Agency.</p> <p>Note 8: Temporary means of access to be made permanent on delivery of IP13.</p> <p>Note 9: Permanent means of access is not required</p>

<b>Table S3.2 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (incl. Unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
S1 (Grid reference SJ923755) discharge to sewer	Site effluent treatment plant	Mercury and its compounds, expressed as mercury (Total Hg)	20µg/l	Daily composite sample blended into monthly sample.	Monthly	BS EN 12846 or BS EN ISO 17852 or method to be agreed in writing with the Environment Agency.
S1 (Grid reference SJ923755) discharge to sewer	Site effluent treatment plant	Copper	0.1mg/l	Daily composite sample blended into	Quarterly	BS EN ISO 11885 or BS EN ISO 17294 or alternative agreed in

**Table S3.2 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements**

Emission point ref. & location	Source	Parameter	Limit (incl. Unit)	Reference period	Monitoring frequency	Monitoring standard or method
				monthly sample.		writing with the Environment Agency.
S1 (Grid reference SJ923755) discharge to sewer	Site effluent treatment plant	Flow rate	-	-	-	Note 1
S1 (Grid reference SJ923755) discharge to sewer	Site effluent treatment plant	pH	-	-	-	Note 1
S1 (Grid reference SJ923755) discharge to sewer	Site effluent treatment plant	Total Organic Carbon (TOC)	-	-	-	Note 1
S1 (Grid reference SJ923755) discharge to sewer	Site effluent treatment plant	Chemical Oxygen Demand (COD)	-	-	-	Note 1
S1 (Grid reference SJ923755) discharge to sewer	Site effluent treatment plant	Total oxidisable nitrogen	-	-	-	Note 1
S1 (Grid reference SJ923755) discharge to sewer	Site effluent treatment plant	Suspended solids	-	-	-	Note 1
S1 (Grid reference SJ923755) discharge to sewer	Site effluent treatment plant	Metals (cadmium, chromium, copper, lead, nickel, tin, zinc)	-	-	-	Note 1

Note 1: Monitoring frequency and method as agreed with sewerage undertaker in accordance with the Trade Effluent Discharge consent.

<b>Table S3.3 Annual limits</b>		
<b>Substance</b>	<b>Medium</b>	<b>Limit (including unit)</b>
Acetonitrile	Air	3 tonnes per year
Dichloromethane	Air	1 tonnes per year
Total mass release of Class A solvents	Air	5 tonnes per year
Total mass release of Class B solvents	Air	35 tonnes per year
Total mass emissions of VOCs (including fugitive and point source waste gas emissions)	Air	5% of solvent input [Note 1]
Note 1: As defined in Part 7 of Annex VII of the Industrial Emissions Directive 2010/75/EU (IED).		

## Schedule 4 – Reporting

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

<b>Table S4.1 Reporting of monitoring data</b>			
<b>Parameter</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Emissions to air. Parameters as required by condition 3.5.1.	A120, A134, A148, A169, A183, all other emission points emitting VOCs in the Development area.	Every 12 months	1 January
Emission to air. Total acetonitrile (by calculation).	A120, A134, A148, A169, A183, all other emission points emitting VOCs in the Development area.	Every 12 months	1 January
Emissions to air. Total dichloromethane (by calculation).	A120, A134, A148, A169, A183, all other emission points emitting VOCs in the Development area.	Every 12 months	1 January
Emissions to air. Parameter as required by condition 3.5.1. Total mass emissions of VOCs as a percentage of solvent input.	A120, A134, A148, A169, A183, all other emission points emitting VOCs in the Development area and fugitive emissions.	Every 12 months	1 January
Emission to air. Total mass release of Class A solvents from all emission points.	A120, A134, A148, A169, A183, all other emission points emitting VOCs in the Development area.	Every 12 months	1 January
Emission to air. Total mass release of Class B solvents from all emission points.	A120, A134, A148, A169, A183, all other emission points emitting VOCs in the Development area.	Every 12 months	1 January
Emissions to sewer. Parameters as required by condition 3.5.1	S1	Every 12 months	1 January

<b>Table S4.2: Annual production/treatment</b>	
<b>Parameter</b>	<b>Units</b>
Product for commercial purpose [Note 1]	tonnes
Product for development purpose [Note 1]	tonnes
Note 1: As defined in the Environment Agency Guidance RGN 2.	

<b>Table S4.3 Performance parameters</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Water usage	Annually	tonnes

<b>Table S4.3 Performance parameters</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Energy usage	Annually	MWh
Use of toluene (raw material)	Annually	tonnes
Use of dichloromethane (raw material)	Annually	tonnes
Use of acetonitrile (raw material)	Annually	tonnes
Use of sulphuric acid (raw material)	Annually	tonnes
Use of Class A solvents (raw material)	Annually	tonnes
Use of Class B solvents (raw material)	Annually	tonnes
Use of hydrogen peroxide (raw material)	Annually	tonnes
Use of sodium hypochlorite (raw material)	Annually	tonnes
Use of methyl t-Butyl ether (raw material)	Annually	tonnes

<b>Table S4.4 Reporting forms</b>		
<b>Media/parameter</b>	<b>Reporting format</b>	<b>Date of form</b>
Air	Forms air 1, air 2, air 3, air 4 and air 5 or other form as agreed in writing by the Environment Agency	21/06/19
Sewer	Form sewer 1 or other form as agreed in writing by the Environment Agency	21/06/19
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	23/04/07
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	23/04/07
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	21/06/19

# 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	

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

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

<b>Time periods for notification following detection of a breach of a limit</b>	
<b>Parameter</b>	<b>Notification period</b>

<b>(c) Notification requirements for the detection of any significant adverse environmental effect</b>	
<b>To be notified within 24 hours of detection</b>	
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

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

“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.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154, as amended, 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.

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

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“Multi-product protocol” (MPP) - means a procedure written by an operator and approved by the Environment Agency, which is referenced in the operational techniques table of this permit. It describes the operator’s management process which can be used to request changes, within the limits in that document only, to the original permit without the need for a formal permit variation application.

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.

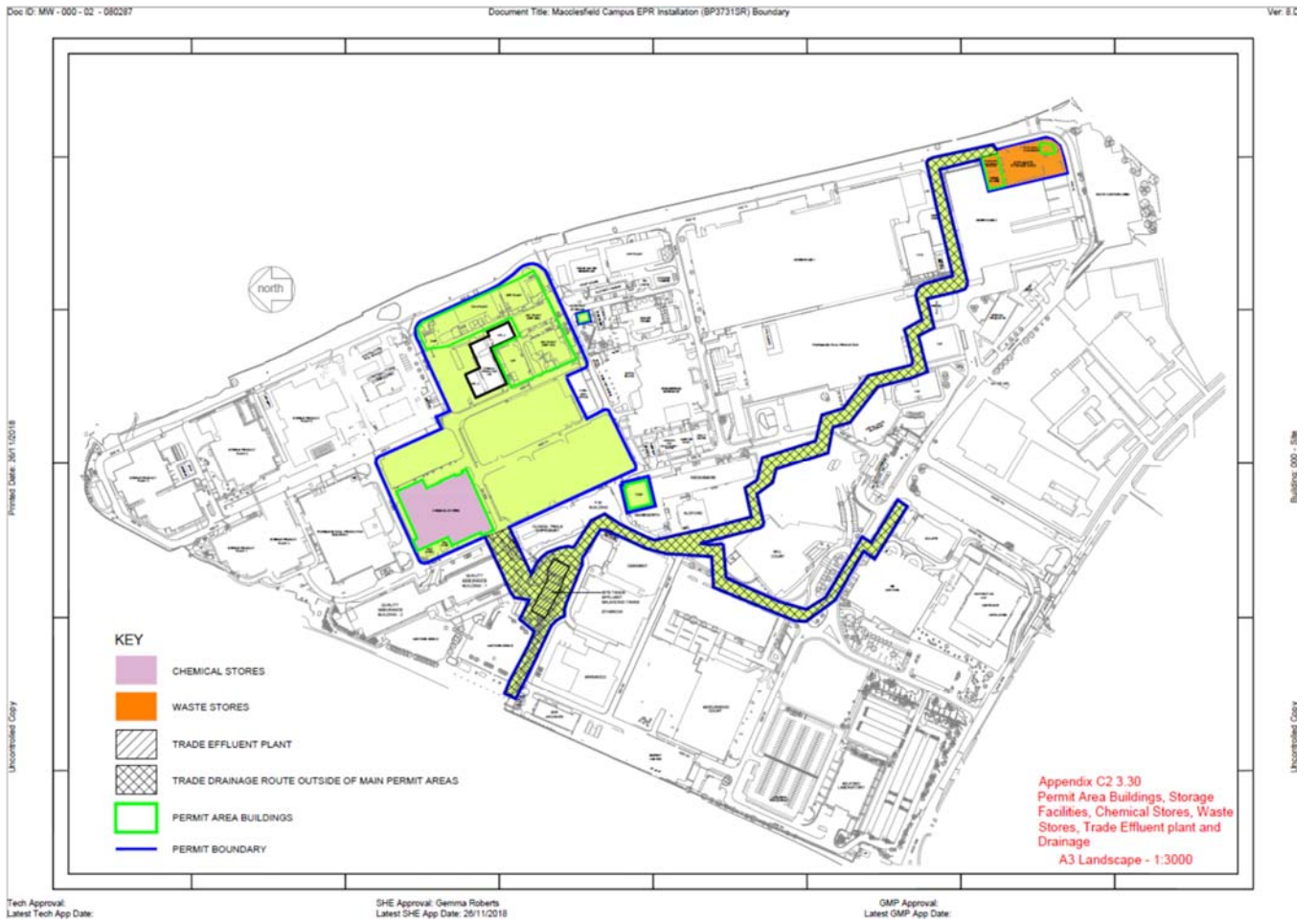
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- 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
- 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.

“year” means calendar year ending 31 December.



# Schedule 7 – Site plan



END OF PERMIT