SCOTTISH ENVIRONMENT PROTECTION AGENCY

Pollution Prevention and Control Act 1999

Pollution Prevention and Control (Scotland) Regulations 2012 ("the Regulations")

PERMIT TO OPERATE A 'PART A' INSTALLATION (CONSOLIDATED)

Permit Number: PPC/A/1008834

Operator: CalaChem Ltd
100 Barbirolli Square
Manchester
M2 3AB

The Scottish Environment Protection Agency ("SEPA"), in exercise of its powers under Regulation 16 of the Regulations, has decided to consolidate Permit PPC/A/1008834 (as consolidated by CP02 and then varied by VN01, VN02, VN03 and VN04) and hereby replaces that Permit with this consolidated Permit issued to CalaChem Ltd company registration number 05369235, having its registered office at 100 Barbirolli Square, Manchester, M2 3AB ("the Operator") to operate an installation, more particularly described in Schedule 1 of this Permit, on a site at Earls Road, Grangemouth, Stirlingshire, FK3 8XG, more particularly described in said Schedule 1, subject to the requirements of the Regulations and to the conditions contained in the Schedules to this Permit.

With effect from the date below this Permit replaces Permit PPC/A/1008834 (as consolidated by CP02 and then varied by VN01, VN02, VN03 and VN04).

Signed
Authorised to sign on behalf of the
Scottish Environment Protection Agency

Date: 5 June 2015

Right of Appeal
There is no right of appeal against the conditions of a Permit consolidated under Regulation 16 of the Regulations however this does not affect any existing right of appeal against any variation notice relating to the Permit(s) being replaced. For the avoidance of doubt the Permit is consolidated subject to the same conditions as the Permit(s) being replaced.

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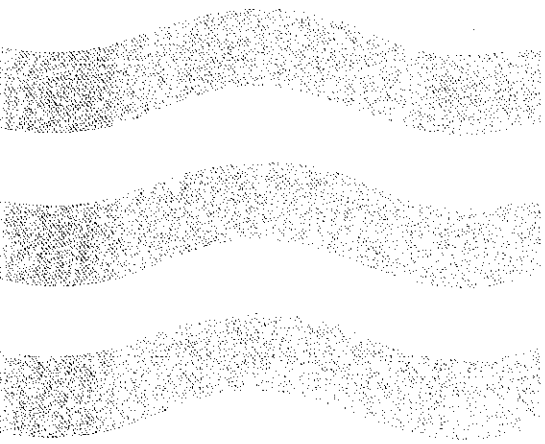

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INTERPRETATION OF TERMS

For the purposes of this Permit, and unless the context requires otherwise, the following definitions shall apply:

"Another Relevant Person" has the same meaning as in Section 74(7) of the Environmental Protection Act 1990;

"Authorised Person" means a person who is authorised in writing under Section 108 of the Environment Act 1995 to carry out duties on behalf of SEPA;

"Bypass Stream Effluent" means emissions with the destination specified as Earls Road Sewer "Bypass Stream Effluent" pipe in this permit and in permit PPC/A/1005108;

"Campaign" means the consecutive manufacture of a number of batches of the same product;

"Change In Operation" has the same meaning as in the Regulations;

"Chemical Production Process" means any chemical process for the production of chemicals which is a listed activity under any description within either Chapter 4 or Chapter 7 of Schedule 1 to the Regulations, and includes all associated plant cleaning and decontamination activities;

"Climate Change Agreement" has the same meaning as in Section 46 of the Finance Act 2000;

"Earls Road Sewer" means the private sewer network at Earls Road, Grangemouth, FK3 8XG which is routed to the Earls Road Effluent Treatment Plant;

"Emission" has the same meaning as in the Regulations;

"Incident" means any of the following situations:

- Where an accident occurs which has caused or may have the potential to cause pollution;
- Where any malfunction, breakdown or failure of plant or techniques is detected which has caused or may have the potential to cause pollution;
- Where any substance, vibration, heat or noise specified in any Condition of this Permit is detected in an emission from a source not authorised by a Condition of this Permit and in a quantity which may cause pollution;
- Where an emission of any pollutant not authorised to be released under any Condition of this Permit is detected;
- Where an emission of any substance, vibration, heat or noise is detected that has exceeded, or is likely to exceed, or has caused, or is likely to cause to be exceeded any limit on emissions specified in a Condition of this Permit.

"Listed Substances" means priority hazardous substance, priority substance, specific pollutant, certain other pollutant and substances for which environmental standards have been published, as detailed in The Scotland River Basin District (Surface Water Typology, Environmental Standards, Condition Limits and Groundwater Threshold Values) Directions 2014 and any superseding directions;

"Location Plan" means the plan attached to Schedule 1;

"pollutant" and "pollution" have the same meaning as in the Regulations;

"the Permitted Installation" is defined in Schedule 1 of this Permit and includes reference to parts of the Permitted Installation;

"the Permitted Activities" are defined in Schedule 1 of this Permit;

"the Regulations" means the Pollution Prevention and Control (Scotland) Regulations 2000 as amended;

"Sewage" means domestic sewage from any trade premises connected to the Earls Road Sewer;

"the Site Boundary" is defined in Schedule 1 of this Permit;

"Site Plan" means the plan attached to Schedule 1;

"SED" means Council Directive 99/13/EC concerning the limitation of emissions of volatile organic compounds ("The Solvent Emissions Directive")

"SED Process" means any Chemical Production Process for the production of a Pharmaceutical Product or Intermediate Pharmaceutical Product;

"SED Activity" has the same meaning as in the Regulations;

"Stage" means a series of manufacturing operations which produce an intermediate or final product;

"Strong Stream Effluent" means:

- "Third Party Waste";
- Emissions with the destination specified as Earls Road Sewer "Strong Stream Effluent" pipe in this permit and in permits PPC/A/1005108 and PPC 1008733; and
- Any other emission to the Earls Road Sewer which is not specifically permitted under permits PPC/A/1005108, PPCA/1008733 or PPC/A/1008834 ("non-routine discharge"), requires secondary treatment and has been assessed by the Operator of the Earls Road Effluent Treatment Plant as being suitable to discharge to the Water Environment after treatment;

"Substance" has the same meaning as in the Regulations;

"Surface Water" means the run-off of rainwater from roofs and any paved ground surface into the Earls Road Sewer;

"SEPA" means the Scottish Environment Protection Agency;

"Trade Effluent" means any liquid, either with or without particles of matter in suspension therein, which is wholly or in part produced in the course of any trade or industry carried on at trade premises and discharged to the Earls Road Sewer other than premises permitted under PPC/A/1005108, PPC/A/1008715, PPCA/1008733, PPC/A/1008834 and PPC/A/1008835;

"Third Party Waste" means waste brought into the Permitted Installation by road tanker;

"Volatile Organic Compound" ("VOC") has the same meaning as in the Regulations;

"Water Environment" has the same meaning as in the Water Environment and Water Services (Scotland) Act 2003 that is all surface water, groundwater and wetlands; and "surface water", "groundwater" and "wetlands" shall have the same meanings as in the Act;

"Weak Stream Effluent" means:

- "Sewage";
- "Surface Water";
- "Trade Effluent";
- Emissions with the destination specified as Earls Road Sewer "Weak Stream Effluent" drain in this permit and in permits PPC/A/1005108, PPC/A/1008715, PPC 1008733 and PPC/A/1008835; and
- Any other emission to the Earls Road Sewer which is not the usual trade effluent accepted for treatment or is not specifically permitted under permits PPC/A/1005108, PPC/A/1008715, PPCA/1008733, PPC/A/1008834 or PPC/A/1008835 ("non-routine discharge") and has been assessed by the Operator of the Earls Road Effluent Treatment Plant as being suitable to discharge to the Water Environment without further treatment;

Any reference to a group of Conditions, numbered Condition, Schedule, Table, Appendix, Figure or Paragraph is a reference to a group of Conditions, numbered Condition, Schedule, Table, Appendix, Figure or Paragraph bearing that number in this Permit;

Except where specified otherwise in this Permit:

- "day" means any period of 24 consecutive hours,
- "week" means a period of 7 consecutive days,
- "month" means a calendar month,
- "year" means any period of 12 consecutive months;

and any derived words (e.g. "monthly", "quarterly") shall be interpreted accordingly;

Except where specified otherwise in this Permit, any reference to an enactment or statutory instrument includes a reference to it as amended (whether before or after the date of this Permit) and to any other enactment, which may, after the date of this Permit, directly or indirectly replace it, with or without amendment.

1 THE PERMITTED INSTALLATION

1.1 Description of the Permitted Installation

1.1.1 The permitted installation to which this Permit applies ("the Permitted Installation) is.

1.1.1.1 The stationary technical unit specified in paragraph 1.1.4 (the Stationary Technical Unit), where the activities specified in paragraph 1.1.3 are carried out ("the Activities"), together with the directly associated activities specified in paragraph 1.1.5 ("the Directly Associated Activities").

1.1.1.2 The site of the Permitted Installation is delineated in green on the Site Plan ("the Site Boundary").

1.1.2 The general location of the Permitted Installation is as shown on the Location Plan.

1.1.3 The Activities carried out at the Stationary Technical Unit are:-

1.1.3.1 The manufacture and formulation of plant health products and biocides listed in Section 4.4 Part A paragraph (a) of Schedule 1 of the Regulations using Chemical Production Processes.

1.1.3.2 The Production of organic chemicals listed in Section 4.1 Part A paragraph (a) sub paragraph (ii), (iii), (iv), (vi) and (viii) of Schedule 1 of the Regulations.

1.1.3.3 The disposal of hazardous waste (other than by incineration or landfill) in plant with a capacity exceeding 10 tonnes per day for hazardous waste, listed in Section 5.3, Part A paragraph (a) of Schedule 1 the Regulations.

1.1.4 The Stationary Technical Unit comprises the following units:-

1.1.4.1 Facilities comprising of predominantly batch, multi-purpose and some continuous chemical plant for the toll or contract manufacture of products and intermediates in the specialty organic chemicals and agrochemicals sectors in two production areas more particularly described below:

1.1.4.1.1 Earls Road North site production facilities comprising 1.3 Plant and M1 Plant.

1.1.4.1.2 Earls Road South site production facilities comprising L2 Plant and L3 Plant. L3 Plant includes the Early Manufacturing Unit (EMU) in L3 East.

1.1.4.2 Effluent Treatment Plant for the treatment of "Weak Stream Effluent" and "Strong Stream Effluent" more particularly described below and in Schedule 1.5.

1.1.4.2.1 Primary treatment and handling in holding tank 04/170 of the "Weak Stream Effluent" which is then routed to either the: Mixing Sump and then Dalgrain Pumping Station for discharge via the outfall at location

NS 94430 84250 to the Forth Estuary; "Strong Stream Effluent" pH control; or Mixing Tank 20/281. Prior to entry into tank 04/170, "Weak Stream Effluent" may be diverted into two 3000 m3 firewater lagoons and then back into either the Weak or Strong Stream Effluent systems following Operator assessment.

1.1.4.2.2 Storage and blending of "Strong Stream Effluent" in five 400m^3 tanks, each with a dedicated blending pump and jets, to produce a homogeneous feedstock for treatment, namely:

a) Tanks 04/125, 04/121 and 04/122 for the storage and blending of hazardous "Third Party Waste"; these tanks may also receive Strong Stream Effluent other than Third Party Waste if Tanks 04/123 or 04/124 are not available and non-hazardous "Third Party Waste" if Tank 20/253 is not available.
b) Tanks 04/123 and 04/124 for the storage and blending of Strong Stream Effluent other than Third Party Waste; these tanks may also receive "Third Party Waste" if Tanks 04/125, 04/121, 04/122 or 20/253 are not available.

1.1.4.2.3 Secondary treatment of "Strong Stream Effluent" comprising:

a) Control of pH, blending "Strong Stream Effluent" with acid or alkali and "Weak Stream Effluent" as required in two parallel treatment trains with three 49m^3 tanks.
b) Primary Settlement in tanks 20/257, 20/258 and 20/253, with sludge passing to holding tanks 20/601 and/or 20/602 and "Strong Stream Effluent" into Mixing Tank 20/281 (20 m^3) for subsequent biological treatment. A bypass of biological treatment is available for emergency use only.
c) Biological treatment in tanks 21/501 and/or 21/502 (5000m^3 each) with multi-stage air blowers supplying air for the biological treatment process and chemicals added as required.
d) Secondary Settlement in tanks 21/505 and/or 21/506 (3000m^3 each). The gravity settled sludge is either returned to the biological treatment tanks to assist with maintaining a viable biomass or removed by means of a centrifuge for off-site disposal.

1.1.4.2.4 Routing of treated "Strong Stream Effluent" to the mixing sump and then Dalgrain Pumping Station for discharge via the outfall at location NS 94430 84250 to the Forth Estuary.

1.1.4.2.5 Odour abatement plant to treat off gases from the pH control, Primary Settlement, Sludge Holding, Biological Treatment and Secondary Settlement tanks consisting of a two stage biological filter, one of three activated carbon towers and one 27 meter high stack.

1.1.5 The following Directly Associated Activities are carried out on the Site:-

1.1.5.1 Operation of storage, handling and packaging facilities for all raw materials, wastes, products and intermediates.

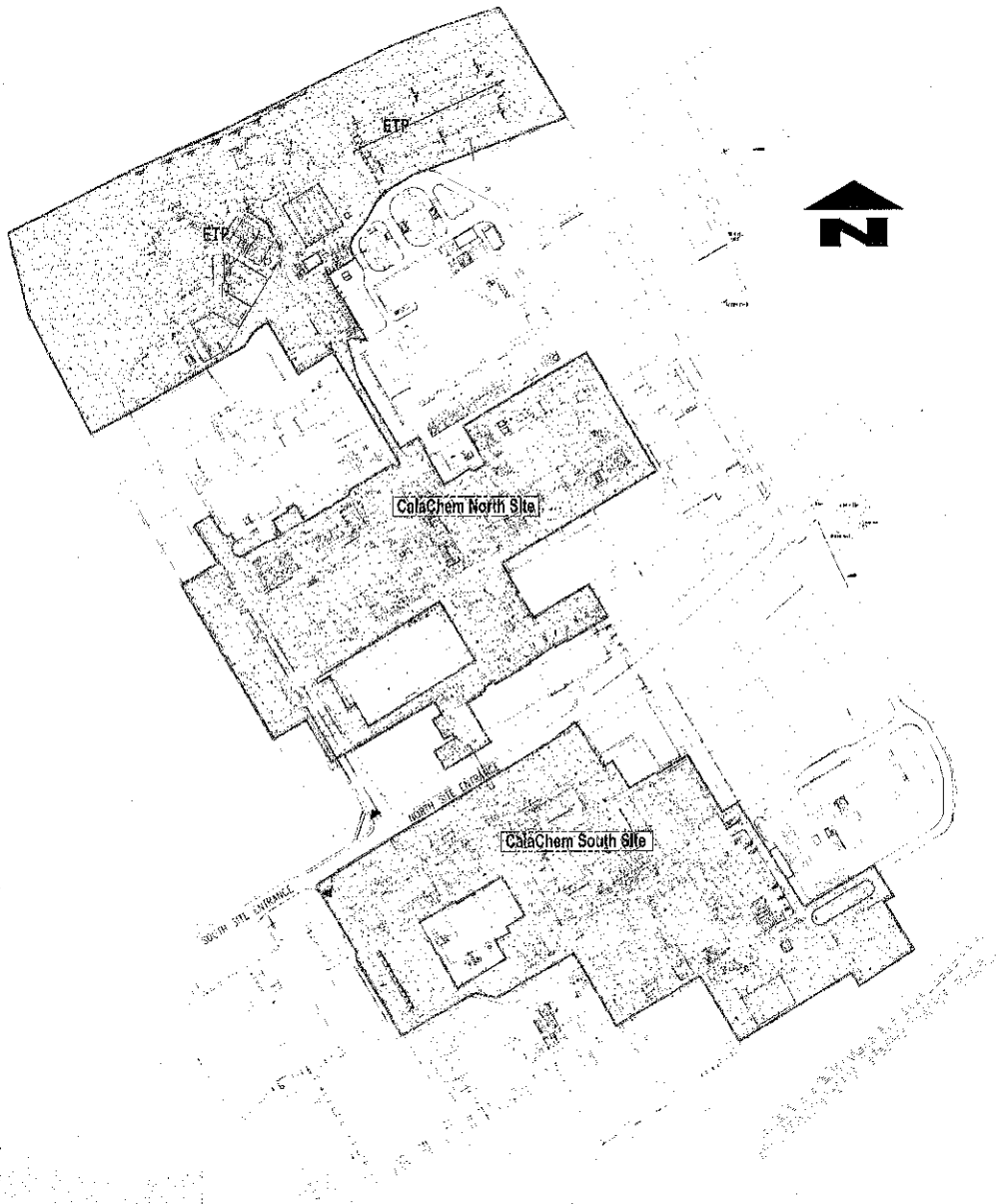
1.1.5.2 Operation of cooling plant including water towers.

1.1.5.3 Operation of refrigerant systems.

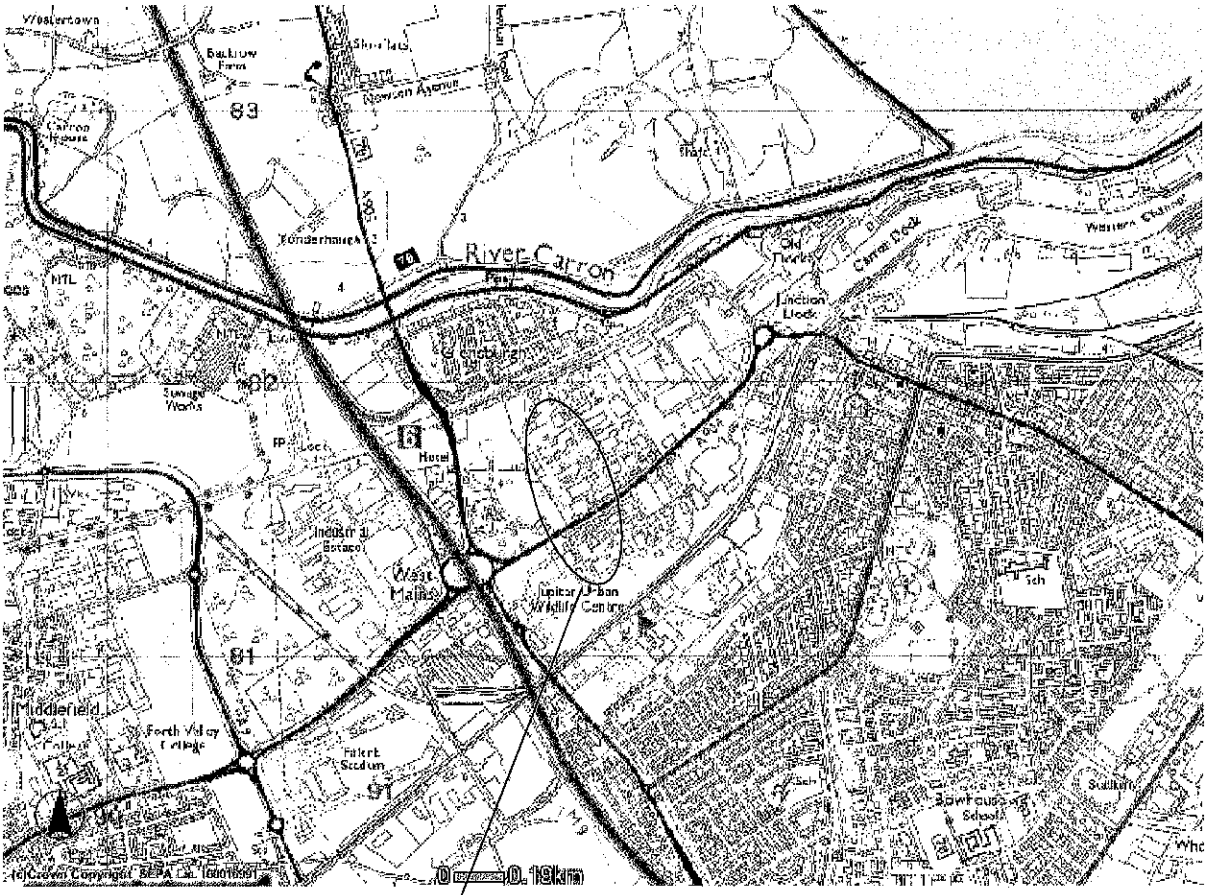
1.1.5.4 Operation of site utilities and services not described elsewhere in this Schedule including operation of compressors and a liquid nitrogen storage and vaporisation vessel with a 22m3 capacity; and the supply of compressed air, nitrogen gas and water services.

1.1.6 For the purposes of this Permit, the Activities and Directly Associated Activities shall be known together as "the Permitted Activities". The offices, laboratories, stores, staff car-parks, engineering workshops and maintenance workshops are not part of the Permitted Installation.

1.2 Site Plan

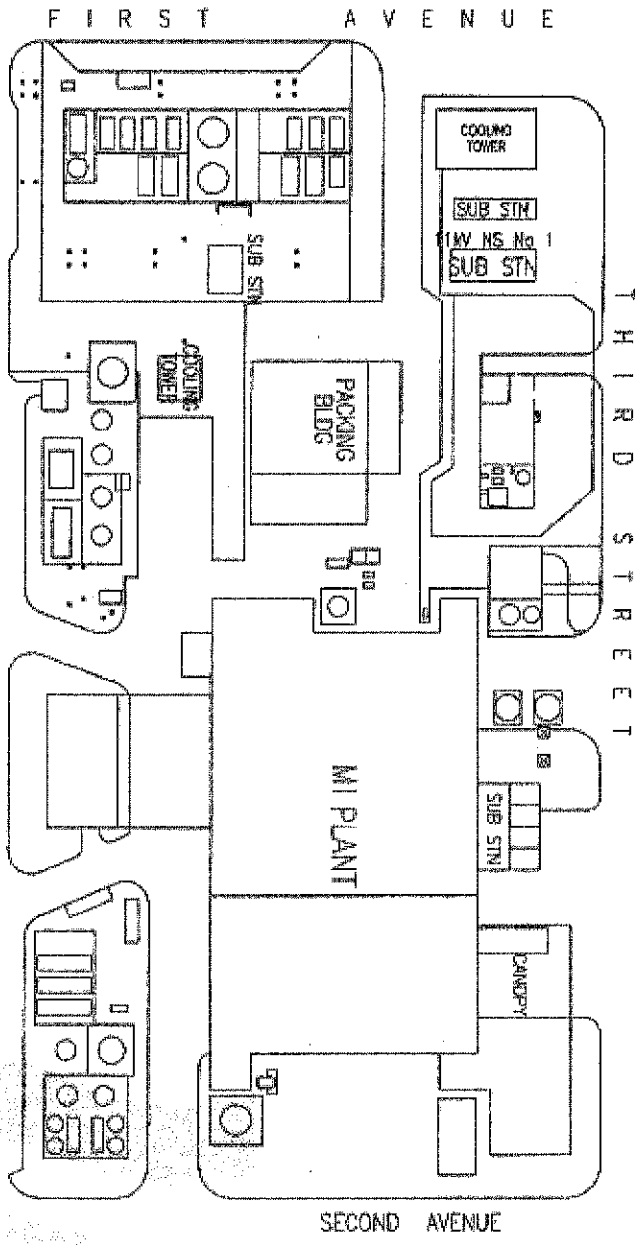


1.3 Site Location Plan

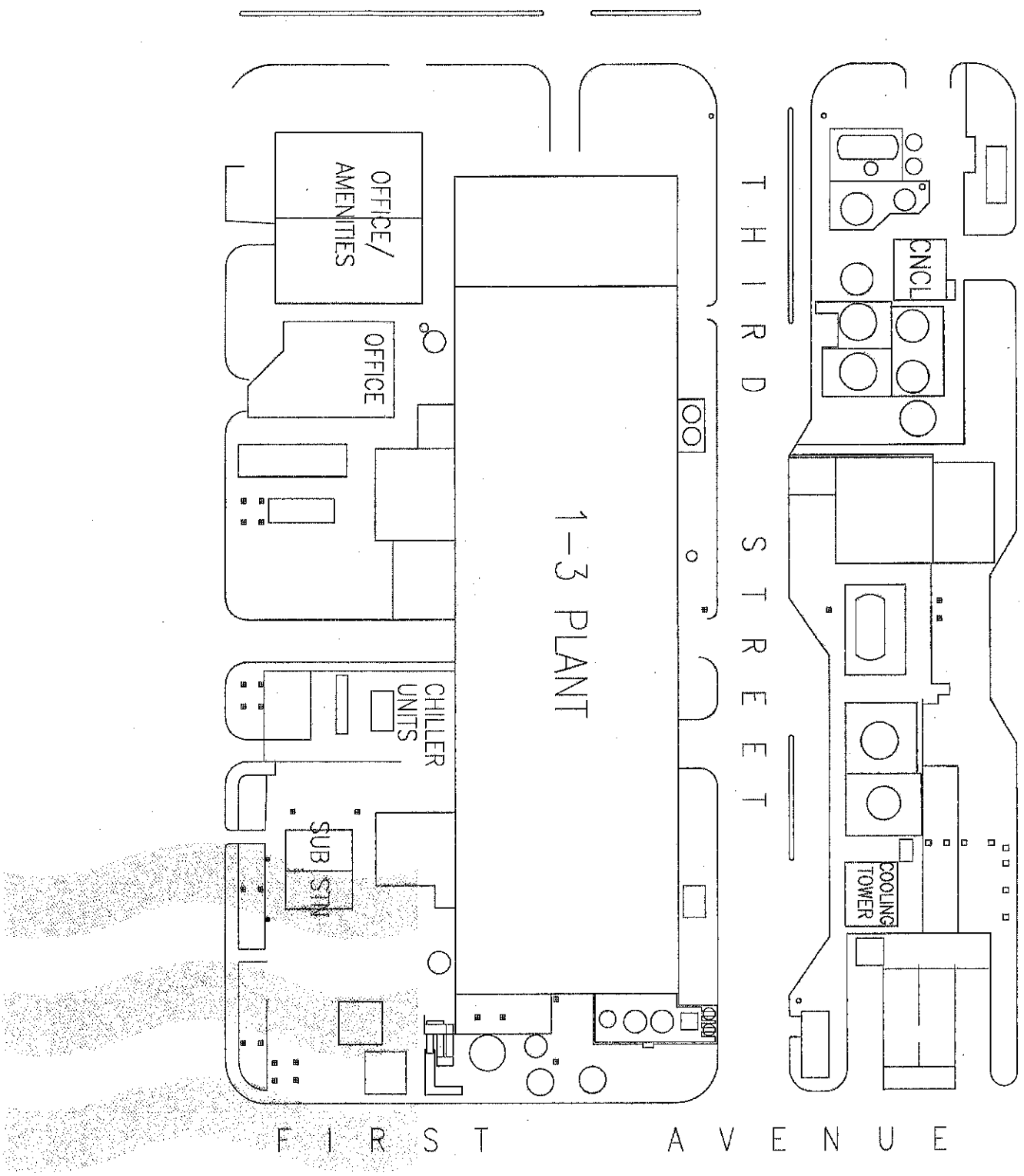


1.4 Site Layout Plans

1.4.1 Site Layout Plan (North Site) – M1 Plant

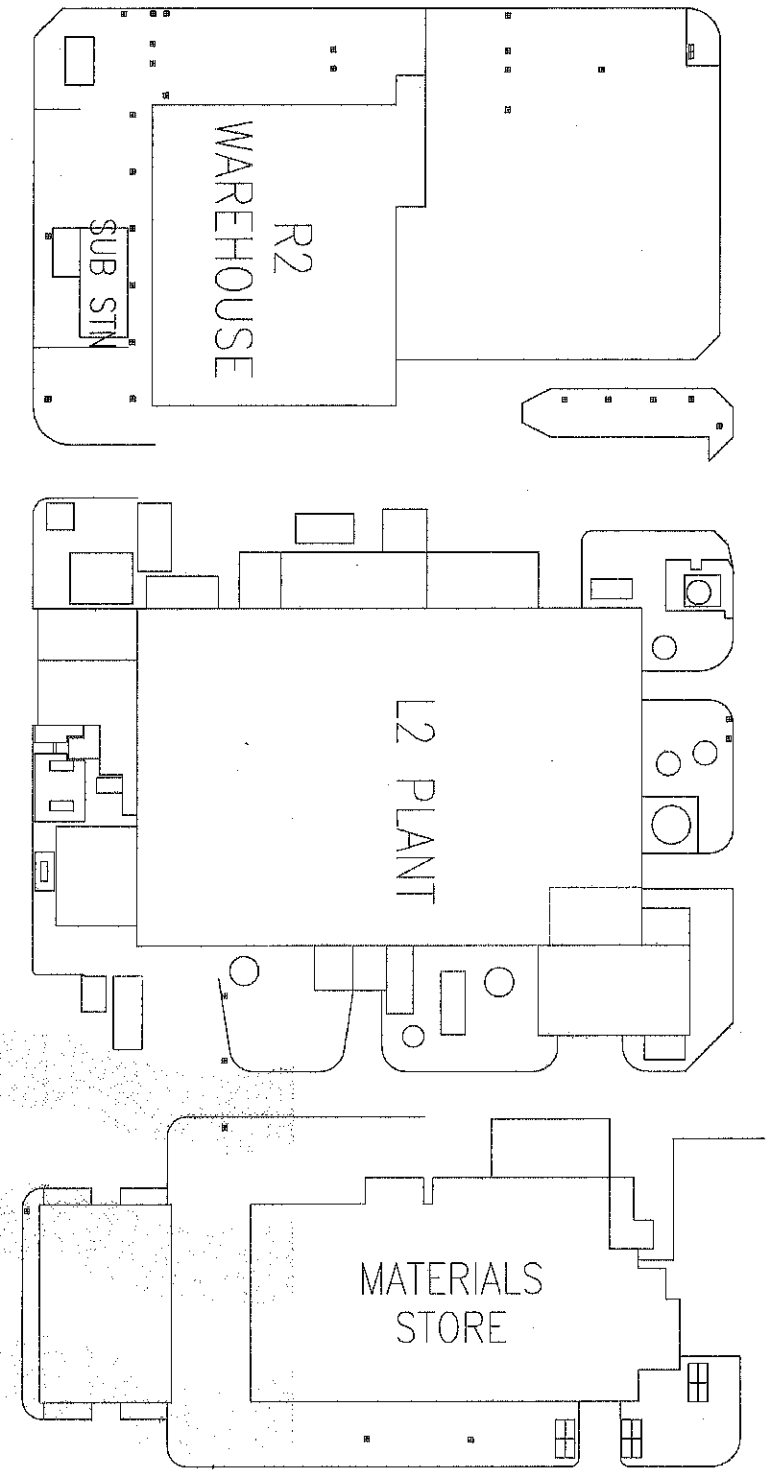


1.4.2 Site Layout Plan (North Site) – 1.3 Plant

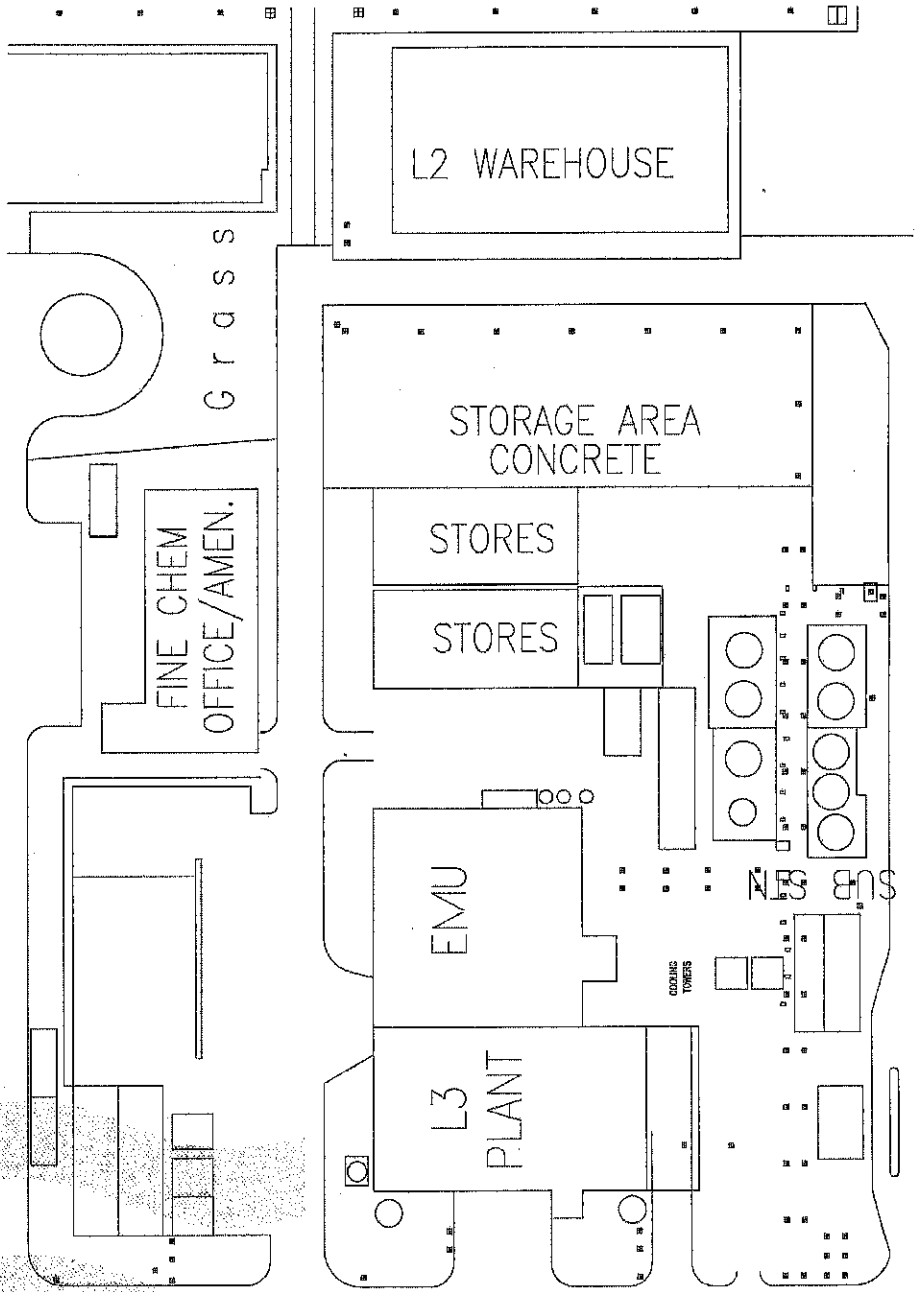


Site Layout Plan (South Site) – Fine Organics Plant

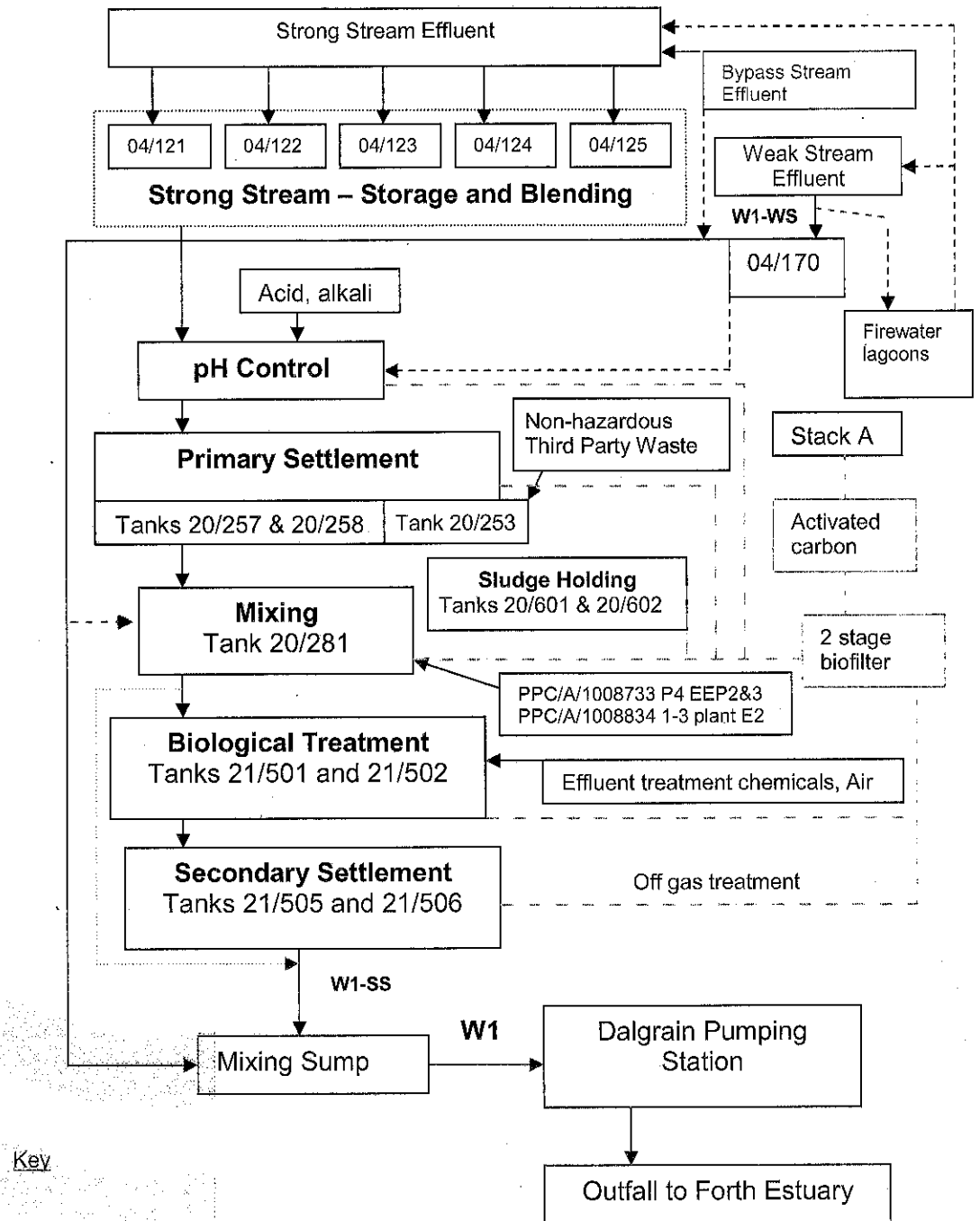
1.4.2 L2 Plant



1.4.2 L3 Plant


L2 WAREHOUSE
Grass
STORAGE AREA
CONCRETE
STORES
STORES
FINE CHEM
OFFICE/AMEN.
EMU
COOLING
TOWERS
L3
PLANT

1.5 Diagram of Effluent Treatment Plant (overview, for detail see 1.1.4.2)



Key

Strong Stream Effluent
Weak Stream Effluent
Bypass Stream Effluent
Combined Final Effluent
Emergency Biological Treatment Bypass
Off gas treatment

2 STANDARD CONDITIONS

2.1 Administration

2.1.1 The Operator shall have an appropriate person (and deputy) as the primary point of contact with SEPA, and shall notify SEPA in writing of the name of the appointed person (and deputy) within 4 weeks of the date of this Permit.

2.1.2 In the event of a different person being appointed to act as primary point of contact (or deputy) the Operator shall notify SEPA in writing of the name of the appointed person or deputy without delay.

2.1.3 A copy of this Permit shall be kept at the Permitted Installation, and shall be made readily accessible for examination by all staff.

2.1.4 Any systems or procedures used by the Operator to demonstrate compliance with a Condition of this Permit shall be recorded.

2.2 Records

2.2.1 All records made in compliance with this Permit shall be kept in a systematic manner.

2.2.2 Unless otherwise specified in a Condition of this Permit, every record made in compliance with a Condition of this Permit shall be preserved for not less than five years from the date of its being made. Every such record shall be kept at the Permitted Installation for not less than one year from the date of its being made and thereafter preserved at a location, previously notified to SEPA in writing, if that location is not the Permitted Installation.

2.2.3 All records shall be legible, and any amendment made to any record made in compliance with a Condition of this Permit shall be made in such a way as to leave the original entry clear and legible. The reason for each amendment shall be explained in the said record.

2.2.4 Without prejudice to Condition 2.2.2, all operator's records relevant to the operation or maintenance of the Permitted Installation shall be kept at the Permitted Installation for not less than one year from the end of the period to which they apply.

2.3 Reporting

2.3.1 Where any Condition of this Permit requires information to be reported, a report shall be forwarded in writing in duplicate to SEPA at the address specified in the explanatory notes attached to this Permit by the date(s) or within the period or at the frequency specified in Table 2.1 appended to this Schedule and, where appropriate, the first report shall be due on the date specified in that Table. All such reports shall include the Permit number and the name of the Operator.

2.3.2 Where the Permitted Installation has not operated for the duration of any reporting period specified in Table 2.1, the Operator shall provide written notification to SEPA. This shall confirm that no reports have been made

in terms of Condition 2.3.1 because the Permitted Installation has not operated during the said period. Notifications shall be submitted within one month of the end of the reporting period concerned.

2.3.3 All notifications required by any Condition of this Permit shall be made to SEPA in the manner specified in that Condition to the address specified in the explanatory notes attached to this Permit by the date(s) or within the period or at the frequency specified in Table 2.1 and, where appropriate, the first notification shall be due on the date specified in that Table. All such notifications shall include the Permit number and the name of the Operator.

2.3.4 Any report or notification shall be deemed to have been made in writing if received electronically via an e-mail address specified by SEPA.

Table 2.1 – Reporting Requirements

Summary of Information to be Reported/Notified	Condition	Date/Within period/ Frequency to be Reported	Date Next Report Due
Notification of appointment of appropriate person or deputy	2.1.2	Without delay in the event of a different person being appointed	As required
Off-site record keeping	2.2.2	Within 14 days of relocation of records to an off-site location	As required
Written notification of non-operation during any reporting period in Table 2.1	2.3.2	Within 1 month of the end of the reporting period concerned	As required
Incident notification	2.4.2 & 2.4.3	Without delay by telephone, confirmation in writing by the next working day	As required
Incident investigation report	2.4.4	Within 14 days of the date of the Incident unless otherwise agreed in writing with SEPA	As required
Resource utilisation	2.5.1	At least once every 4 years	31 March 2018
Raw material utilisation data	2.5.2	Annually	31 January 2014
Notification installation has ceased to be part of a Climate Change Agreement (CCA)	2.5.4	Within 1 month of cessation of the CCA	As required
Waste management review	2.6.1	At least once every 4 years	31 March 2018
Intention to cease permitted activities, or part thereof	2.9.2	No later than 2 months prior to the date of cessation	As required
Waste data returns	2.11.1	Within 28 days of the last days of: March, June, September and December	28 January 2014

Summary of Information to be Reported/Notified	Condition	Date/Within period/ Frequency to be Reported	Date Next Report Due
		each year	
Odour Management Plan	3.5.3	Within 1 month of revision	As required
Odour Emissions Assessment Report	3.5.3	Within 1 month of each 4 yearly assessment	31 May 2016
Groundwater programme and results of sampling and analysis	3.6.5	Annually	Within 3 months of collection of groundwater samples
Noise and Vibration survey	3.9.1	At least once every 4 years	31 August 2014
Campaign report	3.10.2	Within 3 months after completion of the first campaign	As required
Additional Listed Substances present in effluent	3.11.1	Within 4 months of confirmation by quantitative analysis that the listed substance is liable to be present in effluent	As required
Quantification of Listed Substances in effluent and options to eliminate PHS and reduce PS/SP	3.11.2	Single occurrence	31 December 2015
Interpretation of the results of Microtox testing of effluent prior to and after treatment with reference to effluent stream data	3.11.3	Single occurrence	29 February 2016
Air sampling plan	4.2.2	Annual	28 February 2014
Reporting of monitoring results for Emissions to Air	4.2.5	Six Monthly, reporting for January to June required by 31 July each year and July to December by 31 January each year	31 January 2014
Reporting of mass emissions to air	4.2.7	Annually by 31 January each year	31 January 2014
Reporting of monitoring results for Emissions to sewer	4.3.5	Six Monthly, reporting for January to June required by 31 July each year and July to December by 31 January each year	31 January 2014
Reporting of mass emissions to sewer	4.3.6	Annually	31 January 2014
FC6053 air monitoring report	4C.3.2	Single occurrence	Within two months of completion of FC6053 campaign 3
FC6053 BAT study – toluene emissions to air	4C.3.3	Single occurrence	Within two months of completion of FC6053 campaign 3

Summary of Information to be Reported/Notified	Condition	Date/Within period/ Frequency to be Reported	Date Next Report Due
Mass emission of dimethyl sulphide to the combustion plant – PPC/A/1008715	4E.2.1	Annually	31 January 2015
FC6035 campaign 2 acetyl chloride and ether stage 1 – air monitoring report	4I.3.1	Single occurrence	Within three months of completion of campaign
Reporting of monitoring results for Emissions to Water	5.3.5	Six Monthly, reporting for January to June required by 31 July each year and July to December by 31 January each year	31 January 2014
Report on catastrophic failure of Biological Treatment Plant	5.4.4.2	Within 14 days of the date of the failure unless otherwise agreed in writing with SEPA	As required
Notification of catastrophic failure of biological treatment plant	5.4.4.4	Without delay	As required
Reporting of discharges of untreated "Bypass Stream Effluent"	5.4.5.2	Six Monthly, reporting for January to June required by 31 July each year and July to December by 31 January each year	31 January 2014
Notification of rejected load	5.5.5	Details of refusal to be passed to SEPA forthwith	As required
2009-2013 improvements	5.7.7.1	Single occurrence	31 January 2014
2014-2019 planned improvements	5.7.7.2	Single occurrence	31 March 2014
Biological treatment tank inspection report	5.7.7.3	Single occurrence	30 September 2014
Tank 21/501 improvement report	5.7.7.4	Single occurrence	31 December 2015
Evaluation of additional techniques	5.7.7.5	Single occurrence	28 February 2017

2.4 Incidents

2.4.1 In the event of an incident, the Operator shall take all necessary measures to prevent, or where that is not practicable to reduce, emissions from the Permitted Installation. All necessary measures to limit the consequences for the environment of any emissions from the Permitted Installation shall be taken, so far as reasonably practicable.

2.4.2 In the event of an incident, the Operator shall notify SEPA by telephone without delay. This notification shall include as far as practicable the information specified in Condition 2.4.3.

2.4.3 The Operator shall confirm any incident to SEPA in writing by first class post or fax by the next working day after identification of the incident. This confirmation shall include: the time and duration of the incident; the receiving environmental medium or media where there has been any emission as a result of the incident; an initial estimate of the quantity and composition of any emission; the measures taken to prevent or minimise any emission or further emission; and a preliminary assessment of the cause of the incident.

2.4.4 Any incident notified to SEPA shall be investigated by the Operator, and a report of the investigation sent to SEPA. The report shall detail, as a minimum, the circumstances of the incident, an assessment of any harm to the environment and the steps taken by the Operator to bring the incident to an end. The report shall also set out proposals for remediation, where necessary, and for preventing a repetition of the incident.

2.4.5 The Operator shall prepare, implement and maintain an "Incident Prevention and Mitigation Plan".

2.4.6 At least every 3 years, the Operator shall review the Incident Prevention and Mitigation Plan required under Condition 2.4.5. Each review of the said Incident Prevention and Mitigation Plan shall be recorded and where the Operator makes any revisions to the said plan, said revisions shall be recorded.

2.5 Resource Utilisation

2.5.1 At least every 4 years, the Operator shall carry out a systematic assessment of the raw material, energy and fuel consumption, emissions and waste production associated with the Permitted Activities. The purpose of the assessment shall be to identify methods of reducing raw material, energy and fuel consumption, emissions and waste production. Each assessment shall be recorded. A summary of any energy use or waste minimisation projects identified as a result of said assessment and the estimated costs and payback period relating to each project shall be reported.

2.5.2 In respect of raw materials, energy and fuel consumed, emissions and waste produced within the Permitted Installation, the Operator shall record the data specified in Table 2.2 at the frequency specified in that Table and shall report that data.

Table 2.2 - Resource Utilisation Data Recording

Data required to be recorded by Condition 2.5.2	Recording Frequency
Total energy consumption for the Permitted Installation and per production unit, i.e. Fine Organics (L2 and L3 Plant East and L3 Plant West), M1 Plant and 1.3 Plant from electricity and steam use in MWh and carbon dioxide (CO_2) equivalent in tonnes (**KWh** & **Tonne (Te) CO_2**)	Annual
Total water consumption for the Permitted Installation and per production unit (**m^3**)	Annual

For each production unit, specific water consumption per tonne of product[(a)] (**m^3/Te product**).	Annual
Total, energy, water and raw material consumption for the Effluent Treatment Plant	Annual

a) All product quantities to be expressed as 100% dry product and/ or Active Ingredient for liquids.

2.5.3 For the purposes of Conditions 2.5.1 and 2.5.2, "raw materials, energy and fuel" shall mean the materials listed in Table 2.3.

Table 2.3 - Raw materials, Energy and Fuel

Water
Electricity
Steam
Effluent treatment chemicals

2.5.4 In the event that the Permitted Installation ceases to be covered by a Climate Change Agreement, the Operator shall provide written notification to SEPA within one month of such cessation.

2.6 Waste Management

2.6.1 At least every 4 years, the Operator shall carry out a systematic assessment and review of the management of all wastes generated by the Permitted Activities. The purpose of the assessment shall be to identify methods of avoiding or reducing the impact on the environment of the disposal of waste. Each assessment shall be recorded and reported.

2.7 Protection of Soil and Groundwater

2.7.1 Unless specified elsewhere in this Permit, there shall be no emission of any pollutants to groundwater or soil from the Permitted Installation.

2.7.2 The Operator shall maintain a record of any incident that has, or might have, impacted on the condition of any soil or groundwater under the Permitted Installation, either as a result of that incident or as a result of an accumulation of incidents, together with a record of any further investigation or remediation work carried out.

2.7.3 Notwithstanding the requirements of Condition 2.2.2, the record required by Condition 2.7.2 shall be preserved until this Permit is surrendered.

2.8 Start Up

2.8.1 The Operator shall prepare implement and maintain a plan ("the Start Up Plan") setting out the necessary steps to be taken by the Operator prior to start-up of operations of the Permitted Installation to ensure that all appropriate preventative measures are taken against pollution and that no significant pollution is caused.

2.8.2 At least every 4 years, the Operator shall review the Start Up Plan required under Condition 2.8.1. Each review of the said Plan shall be recorded and where the Operator makes any revisions to the said Plan, said revisions shall be recorded.

2.9 Decommissioning

2.9.1 The Operator shall prepare, and maintain a plan ("the Decommissioning Plan") for the decommissioning of the Permitted Installation. The Decommissioning Plan shall set out the steps to be taken by the Operator after final cessation of the Permitted Activities.

2.9.2 The Operator shall notify SEPA in writing of its intention to cease the Permitted Activities, or any part thereof, for any period exceeding 12 months, no later than 2 months prior to the proposed date of cessation.

2.9.3 The Operator shall implement the Decommissioning Plan on final cessation of the Permitted Activities or any part thereof.

2.9.4 The Operator shall review, record and, where necessary, update the Decommissioning Plan as follows:-

2.9.4.1 At least every 4 years; and

2.9.4.2 Where the Operator plans to make a substantial change in the extent of nature of the Permitted Installation.

2.10 Sampling and Monitoring Facilities

2.10.1 Sampling measurement and monitoring facilities at the Permitted Installation shall conform to the requirements of the relevant test methods specified in any Condition of the Permit or as otherwise agreed in writing by SEPA.

2.10.2 Unrestricted access to all sampling points required by any Condition of this Permit shall be provided at all times.

2.11 Waste Data Reporting

2.11.1 The Operator shall compile data on Effluent Treatment Plant waste inputs, on-site treatment and waste sent off-site using a form supplied by SEPA and send the form electronically to an e-mail address specified by SEPA within 28 days of the last day of March, June, September and December each year. For the avoidance of doubt, the requirements of Condition 2.4.1 do not apply to the requirements of this condition.

3 CONDITIONS APPLYING TO THE PERMITTED INSTALLATION

3.1 Registers

3.1.1 Each record made in any register required by a Condition in this Schedule shall be annotated with the date of its entry and the name and job title of the person making the entry.

3.1.2 Whenever any record in any register required by a Condition in this Schedule is amended or extended as a result of any Change In Operation of the Permitted Installation, the Operator shall record the date of, and include a summary of, any notification made under Regulation 12 of the Regulations or any application made under Regulation 13 of the Regulations in respect of the said Change In Operation, or a justification of why the Operator believes that neither was required in respect of the said Change In Operation.

3.1.3 If any Change In Operation of the Permitted Installation results in the need to amend or extend two or more records in any register required by a Condition of this Schedule, a single record may be made under Condition 3.1.2 in respect of the said Change In Operation if it addresses all the amendments and/or extensions necessitated by the said Change In Operation.

3.2 Chemical Production Processes

3.2.1 By 31 December 2008, the Operator shall prepare and thereafter maintain a register of Chemical Production Processes operated at the Permitted Installation. The said register shall contain the following records in respect of each Chemical Production Process:

3.2.2 The number and the title of the Schedule to this Permit that applies to the Chemical Production Process;

3.2.3 A description of the chemical reactions and/or transformations involved;

3.2.4 A mass and energy balance showing the input of raw materials, the generation of emissions and the production of products and/or intermediates;

3.2.5 A process flow diagram showing the main unit operations;

3.2.6 A piping and instrumentation drawing(s) for the plant(s) within which the Chemical Production Process is to be operated;

3.2.7 Any Condition(s) in this Permit regarding the operation of the Chemical Production Process including a description of how the Operator intends to comply with such Condition(s);

3.2.8 Any plant operating instructions and batch sheets that are necessary to operate the Chemical Production Process in compliance with any Condition(s) of this Permit; and

3.2.9 A statement as to whether the Chemical Production Process is a SED Process.

3.2.10 If any Chemical Production Process is operated at two or more locations at the Permitted Installation, a separate record shall be made in the register under Condition 3.2.1 in respect of each location.

3.2.11 No Chemical Production Process shall be operated at the Permitted Installation unless it is:-

3.2.12 Listed in the register required by Condition 3.2.1; and

3.2.13 The subject of a Schedule of Conditions in this Permit.

3.3 Raw Materials

3.3.1 Without prejudice to Condition 2.5.1, by 31 December 2008 the Operator shall prepare and thereafter maintain a register of all raw materials (other than water) that are, or may be, used in the Permitted Activities. The said register shall contain the following in respect of each raw material:

3.3.1.1 Any common or trade names given to the raw material;

3.3.1.2 Where known, the IUPAC name or CAS number for the chemicals forming, or present as a component of, or contaminant in, the raw material;

3.3.1.3 The name and address of the supplier(s), along with details of any audits carried out thereof;

3.3.1.4 A list of the Permitted Activities that make use of the raw material, and the functionality of the raw material in said Permitted Activities;

3.3.1.5 The composition and/or property specification that must be met for the raw material to be accepted for use by the Operator, and if this is dependent upon any factor (such as the Permitted Activity that will make use of the raw material), the circumstances in which said specification would apply;

3.3.1.6 A justification of the chosen specification, taking into account the known or potential presence of substances that may cause pollution, with particular regard to "Listed Substances";

3.3.1.7 Details of any sampling and analysis or surrogate assessment process required to confirm a delivery of the raw material conforms to the required specification, along with a statement regarding the frequency and duration that such assessment is required;

3.3.1.8 The arrangements deemed necessary for the receipt and storage of the raw material and, if these are dependent upon any factor (such as the mode of delivery), the circumstances in which particular arrangements would be employed; and

3.3.1.9 Any Condition(s) in this Permit regarding the raw material, and a description of how the Operator intends to comply with such Condition(s).

3.3.2 The Operator shall record the following in respect of each delivery of a raw material onto the Permitted Installation:

3.3.2.1 Information held by the Operator relating to the delivery, including the results of any analysis and surrogate assessment referred to in Condition 3.3.1.7; and

3.3.2.2 The arrangements adopted for the receipt and storage of the delivery including the date of delivery; and

3.3.2.3 A statement as to whether, at the time the delivery was received, any record made under Condition 3.3.2 was at variance with any record in the register required by Condition 3.3.1.

3.3.3 No raw material shall be brought onto the Permitted Installation unless, at the time of receipt, it is the subject of a record in the register required by Condition 3.3.1.

3.3.4 If any raw material has remained unused for a period of 12 months since its delivery onto the Permitted Installation, the Operator shall either remove the raw material from the Permitted Installation within 2 months, or record in the register required by Condition 3.3.1 its reasons for retaining the raw material on the Permitted Installation.

3.3.5 The Operator shall carry out a systematic assessment and review of any record required by Condition 3.3.4 at least once a year. The details of such a review shall be recorded.

3.4 Wastes

3.4.1 By 31 December 2008, the Operator shall prepare and thereafter maintain a register of all waste streams (other than those emitted directly to air) that are, or may be, generated by the Permitted Activities. The said register shall contain the following records in respect of each waste stream:

3.4.1.1 A unique reference name or number to be used for identification purposes;

3.4.1.2 A description of the Permitted Activities that give rise to the waste stream;

3.4.1.3 Details of the chemical and physical nature of the waste stream, and if this is variable, the circumstances in which a particular waste description would apply;

3.4.1.4 A description of the mode in which, and rate at which, the waste stream is generated, and if this is variable, the circumstances in which a particular mode and rate of generation would arise;

3.4.1.5 The arrangements for on-site handling and/or storage of the waste stream, and if these are dependent upon any factor (such as composition or quantity), the circumstances in which particular arrangements would be employed;

3.4.1.6 The arrangements for the treatment and/or disposal of the waste stream, and if these are dependent upon any factor (such as composition or quantity), the circumstances in which particular arrangements would be adopted;

3.4.1.7 A description of any sampling and analysis or surrogate assessment necessary to inform the choice of the arrangements referred to in Conditions 3.4.1.5 and 3.4.1.6, along with a statement regarding the frequency and duration of such monitoring or assessment; and

3.4.1.8 Any Condition(s) of this Permit relating to the waste stream, and a description of how the Operator intends to comply with such Condition(s).

3.4.2 The Operator shall also record in the register the following in respect of each waste generated:

3.4.2.1 All information held by the Operator relating to the nature and quantity of the particular waste generated, including the results of any analysis and surrogate assessment referred to in Condition 3.4.1.7

3.4.2.2 The arrangements employed for the on-site handling and/or storage of the particular waste generated;

3.4.2.3 The arrangements adopted for the treatment and/or disposal of the particular waste generated; and

3.4.2.4 A statement as to whether, at the time the waste was generated, any record made under this Condition was at variance with any record in the register required by Condition 3.4.1.

3.4.3 If any waste generated at the Permitted Installation has been held at the Permitted Installation for a period of 12 months since its generation (or its classification as a waste stream), the Operator shall either remove the waste from the Permitted Installation within 2 months, or record in the register required by Condition 3.4.1 its reasons for retaining the arising of waste on the Permitted Installation.

3.4.4 The Operator shall carry out a systematic assessment and review of any record required by Condition 3.4.3 at least once a year. The details of such a review shall be recorded.

3.5 Odour Conditions

3.5.1 All emissions to air from the Permitted Installation shall be free from offensive odour, as perceived by an Authorised Person, outside the Site Boundary.

3.5.2 The Operator shall implement and maintain an odour management plan setting out the necessary steps to be taken by the Operator for managing potential odour issues at the Permitted Installation.

3.5.3 Every 4 years, the Operator shall carry out an assessment of the measures in place to reduce odour Emissions associated with the Permitted Activities and update the odour management plan to

implement any findings of said assessment. Each assessment shall be recorded and reported to SEPA, along with any updated version of the odour management plan, in accordance with the reporting and notification requirements in Table 2.1.

3.6 Protection of Soil and Groundwater

3.6.1 The Operator shall maintain plan(s) that identify the configuration and specification of all drains and subsurface pipe-work and the position and purpose of all sub-surface sumps and storage vessels that are used or have been used within the Permitted Installation from the date of this Permit until the Permit is surrendered.

3.6.2 The Operator shall carry out tests on or conduct a survey of all sub surface pipes and drains within the Permitted Installation at least once every three years, or at other frequency to be agreed in writing with SEPA, to determine if there are any leaks from the said pipes and drains, and record the results.

3.6.3 The results of the survey or tests required by Condition 3.6.2 and any remedial work shall be recorded.

3.6.4 The Operator shall maintain the groundwater monitoring wells detailed in the plan dated October 2013, reference G/A1/6051589, unless agreed otherwise in writing with SEPA.

3.6.5 In order to identify any changes in groundwater quality, the Operator shall annually measure and record the depth to groundwater as metres above Ordnance Datum, obtain representative samples from the groundwater monitoring wells referred to in Condition 3.6.4 and analyse the samples to establish the groundwater hydrochemistry and concentrations of contaminants of potential concern. The results of this groundwater monitoring shall be interpreted with reference to previous monitoring undertaken and operations at the Permitted Installation, and reported to SEPA within three months of collection of the groundwater samples. The report shall include a figure detailing groundwater contours for the Permitted Installation and the adjacent permitted installations PPC/A/108733 and PPC/A/1005108.

3.7 Emissions to Air

3.7.1 By 30 April 2008, the Operator shall prepare and thereafter maintain a register of all vents from which there are, or may be, emissions of Substances to air. The said register shall contain the following records in respect of each vent:

3.7.1.1 A unique reference name or number for each vent;

3.7.1.2 The height and exit diameter of each vent;

3.7.1.3 A plan (or plans) showing the precise location of each vent using the unique references required by Condition 3.7.1.1 as identifiers;

3.7.1.4 The identity and purpose of each major item of process plant that is connected (either directly or indirectly) to each vent;

3.7.1.5 A description of the emissions that are likely from the vent; and

3.7.1.6 If any vent is the subject of a Condition(s) of this Permit, a statement to this effect.

3.7.2 If any vent is employed in two or more Chemical Production or Formulation Processes specified in any Schedules of this Permit or other Permitted Activities, a separate entry shall be made under Conditions 3.7.1.4, 3.7.1.5 and 3.7.1.6 in respect of each Chemical Production Process or other Permitted Activity.

3.7.3 Each vent included in the vent register required by Condition 3.7.1 shall be clearly identified with the unique reference given to it in compliance with Condition 3.7.1.1.

3.8 Environmentally Critical Items

3.8.1 By 31 July 2008, the Operator shall identify and designate as environmentally critical any item of process plant or instrumentation that it relies on for the prevention, or limitation, of pollution from the Permitted Installation (an "Environmentally Critical Item").

3.8.2 Without prejudice to Condition 3.8.1, the Operator shall designate as an Environmentally Critical Item those items specified in Table 3.1.

3.8.3 By 31 October 2008, the Operator shall prepare and thereafter maintain a register of all Environmentally Critical Items designated by it in accordance with Conditions 3.8.1 and 3.8.2 at the Permitted Installation. The said register shall contain the following records in respect of each Environmentally Critical Item:

3.8.3.1 A description of the said Environmentally Critical Item and its mode of operation;

3.8.3.2 The performance standards expected of the said Environmentally Critical Item;

3.8.3.3 The acceptable range, with justification, for each direct or indirect operating parameter that might materially affect the achievement of the performance standard referred to in Condition 3.8.3.2;

3.8.3.4 Details of all monitoring necessary to assess compliance with the performance standard and operating parameters referred to in Conditions 3.8.3.2 and 3.8.3.3 respectively, including details regarding the handling and storage of such data;

3.8.3.5 A description of the actions that should be taken in the event of any performance standard or acceptable operating parameter not being met or monitor failing or malfunctioning, and if this is dependent upon any factor (such as the nature of Chemical Production Process), the circumstances in which a particular action would be investigated;

3.8.3.6 A description of all maintenance and/or calibration work that is necessary to secure the performance standard referred to in Condition 3.8.3.2; and

3.8.3.7 A description of critical spare parts that will be held at the Permitted Installation for the said Environmentally Critical Item, and the current stock level for each such spare part.

3.8.4 The Operator shall record the following in respect of each Environmentally Critical Item:

3.8.4.1 Compliance assessment referred to in Condition 3.8.3.4;

3.8.4.2 The time and date of each occasion on which the performance standard and/or an acceptable operating parameter was not met, and the actions taken in response;

3.8.4.3 For each record made as requirement of Condition 3.8.3.4, the reasons why the performance standard and/or an acceptable operating parameter were not met;

3.8.4.4 All maintenance and/or calibration work carried out on the said Environmentally Critical Item; and

3.8.4.5 Each occasion on which the stock level for any critical spare part drops below the level referred to in Condition 3.8.3.7.

3.8.5 If an Environmentally Critical Item performs a range of different duties, the record required by Condition 3.8.3 shall contain a separate entry in respect of each duty.

3.9 Noise and Vibration

3.9.1 At least every 4 years, the Operator shall carry out a systematic assessment of noise and vibration emissions associated with the Permitted Activities, the purpose of which shall be to identify methods of reducing noise and vibration emissions. Each assessment shall be recorded and reported to SEPA.

3.10 Commissioning

3.10.1 Unless SEPA agrees in writing otherwise, prior to making any Change In Operation, the Operator shall prepare and thereafter maintain a commissioning plan which sets out how it intends to commission in a manner so as to comply with any Condition of this Permit.

3.10.2 The Operator shall provide SEPA with a report within 3 months of completion of the first campaign of a new Chemical Production Process or new product in the Early Manufacturing Unit. The report shall as a minimum detail:

a) a summary of any issues with environmental consequences, in particular loss of containment or failed batches, encountered during reconfiguration of the plant and the first campaign;
b) actual versus expected yield for each stage of manufacture;
c) actual versus predicted emissions and their significance, with reference to the results of monitoring emissions to air and effluent;
d) confirmation of the effluent streams sent to the ETP for treatment, the characteristics of these streams and justification as to why the

ETP is considered to provide suitable treatment of each effluent stream;

e) actual versus predicted raw material use, waste production and waste recovery/disposal;

f) monitoring proposals for future campaigns; and

g) any changes planned before or during further manufacture to minimise raw material use, maximise waste recovery of solvent, optimise yield and minimise emissions to air and water.

3.11 Protection of the Water Environment

3.11.1 The Operator shall maintain a record of its assessment of the extent to which effluent emitted to the Effluent Treatment Plant is liable to contain "Listed Substances" and notify SEPA of any listed substance present in the effluent which has not been identified in the report submitted to SEPA on 15 September 2014 or any other subsequent notice or application to SEPA. In identifying whether effluent is liable to contain "Listed Substances", consideration shall be given to all sources of said substances including those associated with raw materials, impurities, intermediates, by-products, products, catalysts and process vessels used in the Chemical Production Processes and "Third Party Waste".

3.11.2 Where it is identified in Condition 3.11.1 that effluent emitted by CalaChem to or Third Party Waste accepted at the Effluent Treatment Plant is liable to contain "Listed Substances" a report shall be submitted in writing to SEPA by 31 December 2015 detailing: the quantity of each substance with reference to information supplied by third parties, theoretical calculation or quantitative analysis, including in the case of quantitative analysis, details of the analytical and sampling methods used and the limit of detection for each sample matrix tested; options for the elimination of emissions of priority hazardous substances to the Water Environment by 31 December 2027; and options for the reduction of emissions of priority substances and specific pollutants.

3.11.3 The Operator shall test "Strong Stream Effluent" before and after biological treatment using the Microtox® toxicity test system and estimate the eco-toxicity "Strong Stream Effluent" forwarded for treatment on a weekly basis for an 8 month consecutive period in 2015 with reference to data available for the effluent streams. The data information shall be recorded, interpreted and reported to SEPA in accordance with Table 2.1.

3.11.4 Other than as specifically permitted or limited by any condition of this permit, the Permitted Activities shall not have a significant adverse impact on, or cause pollution of, the water environment.

3.12 Management and Training

3.12.1 All staff engaged in carrying on the Effluent Treatment Plant shall be provided with adequate professional and technical development and training and written operating instructions to enable them to carry on their duties.

3.12.2 The Operator shall ensure that all staff engaged in carrying on the Effluent Treatment Plant are fully conversant with those aspects of the Permit Conditions which are relevant to their duties.

3.12.3 The Operator shall maintain a record of the skills and training requirements for each job and shall keep records of all relevant training.

3.12.4 The Effluent Treatment Plant shall be managed and supervised by a designated technically competent person to ensure that the Conditions of the Permit are being complied with.

3.12.5 The Operator shall inform SEPA in writing of all persons, and their qualifications, engaged in the operation or management of the Effluent Treatment Plant who are designated as technically competent.

3.12.6 Where the Operator or Another Relevant Person is convicted of an offence prescribed under section 74(6) of the Environmental Protection Act 1990 for the purposes of section 74(3)(a) of the Environmental Protection Act 1990 the Operator shall notify SEPA in writing within 7 days of the conviction, whether or not the conviction is subsequently appealed.

Table 3.1 – Environmentally Critical Items

Item
Scrubbers
Condensers and associated cooling plant
Activated carbon adsorbers
Particulate abatement equipment
Strong stream effluent pipelines
Bunds, sumps and interceptors

4 CONDITIONS APPLYING TO ALL CHEMICAL PRODUCTION PROCESSES

4.1 Scope

4.1.1 This Schedule applies to the operation of the Chemical Production Processes specified in Column 1 of Table 4.1 via the route described in the Figure specified in Column 2 of Table 4.1.

4.1.2 The Chemical Production Process shall only be operated in the location at the Permitted Installation specified in Column 3 of Table 4.1 and shall produce no more than the amount specified in Column 4 of Table 4.1.

4.2 Air Emission Conditions

4.2.1 Emissions to air shall only be permitted from the emission locations described in the Table specified in Column 5 of Table 4.1, and the Condition 3.7 vent register and shall not exceed the limits for the parameters specified in said Table, unless the limit is identified as a Trigger Level.

4.2.1.1 The Emission Limit Values (ELVs) set out in Table 4C.1 shall be regarded as Trigger Levels for the duration of campaign 3 and then as ELVs for subsequent Campaigns unless agreed otherwise in writing with SEPA.

4.2.1.2 The Emission Limit Values (ELVs) for Volatile Organic Compounds set out in Table 4F.1 for Emission point number 28/389 shall be regarded as Trigger Levels for the duration of the first campaign and then as ELVs for subsequent campaigns unless agreed otherwise in writing with SEPA.

4.2.1.3 The Emission Limit Values (ELVs) set out in Table 4I.1 for emission points 14/960 and 18/809 shall be regarded as Trigger Levels for the duration of the second FC6035 campaign using the Stage 1 acetyl chloride and ether route and then as ELVs for subsequent campaigns unless agreed otherwise in writing with SEPA.

4.2.2 A written sampling plan for spot sampling (SS) monitoring emissions to air from the Permitted Installation shall be produced on an annual basis and submitted to SEPA at the end of February each year. Said plan shall detail the standard to which monitoring will be undertaken, the operational mode when the monitoring is to be undertaken and the monitoring frequency.

4.2.3 The Operator shall carry out monitoring of emissions of the parameters specified in the Table detailed in Column 5 of Table 4.1 at the sampling location described in said Table and subject to the requirements for monitoring specified in the sampling plan required by Condition 4.2.2.

4.2.4 For any parameter specified in the Table detailed in Column 5 of Table 4.1, all results of monitoring carried out under Condition 4.2.3 shall be corrected to the reference Conditions specified in Table 4.2. The results of all tests and data used to correct the monitoring results to the reference condition specified in Table 4.2 shall be recorded.

4.2.5 The Operator shall record the date, time, duration and results of all monitoring carried out under Condition 4.2.3 and report said results in accordance with Table 2.1. For each result, the report shall include the operational mode of the Permitted Installation at the time of monitoring, the name of the person carrying out the monitoring, any deviations from the methods specified in the sampling plan and the associated confidence interval.

4.2.6 If, as a result of sampling carried out in accordance with Condition 4.2.3, the Operator identifies any exceedance of a Trigger level, the Operator shall investigate the cause(s) of any such exceedance, take all necessary measures to reduce the emission below the Trigger Level and report to SEPA in accordance with Condition 2.4.4. Sampling of emissions shall be undertaken as soon as possible after said remedial action is implemented to demonstrate compliance with the Trigger level and the results shall be reported to SEPA in accordance with Condition 4.2.5.

4.2.7 The Operator shall record and report the mass emission results for the parameters of the combined emissions specified in Table 4.3 using the method agreed in writing with SEPA (as summarised in Table 4.3). This information shall be reported in a format agreed in writing with SEPA.

4.2.8 Information used to estimate mass emissions in compliance with Condition 4.2.7 shall be recorded for each estimate.

4.3 Earls Road Sewer Discharge Conditions

4.3.1 Emissions from the sources specified in the tables specified in Column 6 of Table 4.1 shall only be permitted from the emission points specified in that Table to the destinations specified in said Table and only after having passed through the sample points specified in that Table and shall not exceed any specified limits for the parameters in said table.

4.3.2 Subject to Condition 4.3.3, no emission specified in the Table specified in Column 6 of Table 4.1, shall exceed the limit, or be outwith the range, as appropriate, for the parameters specified in said Table.

4.3.3 Where the limit for any parameter in the Table specified in Column 6 of Table 4.1 is prefixed with A, the following Condition shall apply in respect of that parameter:

4.3.3.1 No sample of any emission shall exceed the absolute limit (A).

4.3.4 Measurement and/or sampling of the emissions in the Table specified in Column 6 of Table 4.1 shall be carried out at the sampling locations specified in that Table subject to the requirements for monitoring specified in that Table.

4.3.5 The date, time and results of all samples and measurements carried out in compliance with Condition 4.3.4 shall be recorded and the results for effluent discharged to the ETP reported to SEPA in accordance with Table 2.1.

4.3.6 The Operator shall record and report to SEPA the mass emission results for the parameters of the combined emissions specified in Table 4.4 using the method agreed in writing with SEPA (as summarised in that Table). This information shall be reported in a format agreed in writing with SEPA.

4.3.7 Information used to estimate mass emissions to Earls Road Sewer in compliance with Condition 4.3.6, shall be recorded for each estimate.

Table 4.1 Chemical Production Processes

Column 1 Chemical Production Process and Schedule 1 Activity	**Column 2** Process route	**Column 3** Plant and Unit	**Column 4** Production quantity[(a)]	**Column 5** Emissions to Air	**Column 6** Emissions to Sewer
Tralkoxydim (FC0604) Section 4.4	Figure 4A.1	1-3 plant Units 07, 15, 32, 33, 34 and 35	1250 tonnes per annum	Table 4A.1	Table 4A.2
Hexamethylene Bis-Dicyandiamide (HMBDA) Section 4.4	Figure 4B.1	1-3 plant Units 23, 24 & 25	2000 (76 %) tonnes per annum	Table 4B.1	Table 4B.2
Poly Hexamethylene Biguanidine Hydrochloride (PHMB) Section 4.4	Figure 4B.1	1-3 plant Unit 2	3500 tonnes per annum	Table 4B.1	Table 4B.2
Chlorpropham (FC6053) Section 4.4	Figure 4C.1	1-3 plant Units 07 &18	350 tonnes per annum	Table 4C.1	Table 4C.2
Solsperse 5000 and 12000 Section 4.1	Figure 4D.1	M1 plant Unit 61	250 tonnes per annum – total of both	Table 4D.1	Table 4D.2
Flutriafol (PP450) stage 1 Section 4.4	Figure 4E.1	L2 plant Unit 18	400 tonnes per annum	Table 4E.1	Table 4E.4
Flutriafol (PP450) stage 2 Section 4.4	Figure 4E.1	1-3 plant Unit 19	400 tonnes per annum	Table 4E.2	Table 4E.4
Flutriafol (PP450) stage 3 Section 4.4	Figure 4E.1	L3 plant Unit 30 & 31	750 tonnes per annum	Table 4E.3	Table 4E.4
Ax (FC6057) Section 4.4	Figure 4F.1	L2 plant	50 tonnes per annum	Table 4F.1 Send link to preparing for flooding guide to EA, ETSU, Ian C, Fiona, George,	Table 4F.2

Column 1 Chemical Production Process and Schedule 1 Activity	**Column 2** Process route	**Column 3** Plant and Unit	**Column 4** Production quantity[(a)]	**Column 5** Emissions to Air	**Column 6** Emissions to Sewer
				Leighanne	
Methoxy Imino Stillbene (FC6029) Section 4.1	Figure 4G.1	L2 plant Unit 02, 20, 21 & 28	117 tonnes per annum	Table 4G.1	Table 4G.2
1,6-bis methoxy benzoyloxyhexane (FC6033) Section 4.1	Figure 4H.1	L2 plant Unit 02	250 tonnes per annum	Table 4H.1	Table 4H.2
MP (FC6035) Section 4.4	Figure 4I.1	L 2 plant Unit 02, 18, 21 & 28	150 tonnes per annum	Table 4I.1	Table 4I.2
Infra-red absorbers Section 4.1	Figure 4J.1	L3 plant Unit FC1	8.5 tonnes per annum	Table 4J.1	Table 4J.2
Early Manufacturing Unit Processes Section 4.1 & 4.4	N/A	L3 plant Unit FC2	Two campaigns – each of no more than 500 kg in no more than 10 batches	Table 4K.1	Table 4K.2
Boscalid (FC6051) Section 4.4	Figure 4L.1	L3 plant	100 tonnes total	Table 4L.1	Table 4L.2
FC6056 Section 4.1	Not applicable	1-3 plant Units 07, 15, 32, 33, 34 and 35	300 tonnes per annum	Table 4M.1	Table 4M.2

(a) All product quantities to be expressed as 100% dry product and/ or Active Ingredient for liquids unless indicated otherwise.

Table 4.2 – Emissions to Air Reference Conditions

Emission Point Number	Reference Condition
All emission points	273K and 101.3 kPa, no correction for water vapour or oxygen.

Table 4.3 - Annual Mass Emissions to Air

COLUMN 1 Substance	COLUMN 2 Combined Emissions (number)	COLUMN 3 Method Summary	COLUMN 4 Reporting (tonnes/annum)	COLUMN 5 Relevant Permit Schedules
Particulate matter	All vents which are recorded in the vent register as discharging the substance identified in column 1, from the Chemical Production Processes identified in Column 5	Combination of calculated and monitored emission data for each batch multiplied by number of batches per annum or based on mass balance.	For each relevant Chemical Production Process: Kg/annum and for the Permitted Installation: Total Kg/annum	4D
Oxides of Sulphur	As above	As above	kg/annum	4D
Oxides of Nitrogen	As above	As above	kg/annum	4D
Carbon monoxide	As above	As above	kg/annum	4I
Hydrogen chloride	As above	As above	kg/annum	4A, 4E, 4F, 4I, 4M
Hydrogen cyanide	As above	As above	Kg/annum and Kg/annum per tonne product	4B
Chlorine	83/830	As above	kg/annum	4B
Cyanogen chloride	83/830	As above	kg/annum	4B
Total VOCs	As above	As above	Kg/Annum Total for each production process, Kg/annum and Kg/Kg Final product per annum	All Schedule 4 Chemical Production Processes
Total amines as dimethyl amine (DMA)	As above	As above	Kg/annum	4E
1,2-dimethoxy-ethane	As above	As above	Kg/annum	4F
Ethoxyamine	As above	As above	Kg/annum	4A
Isopropyl chloroformate	As above	As above	Kg/annum	4C
Xylene	As above	As above	Kg/annum	4A, 4H
Dimethyl formamide	As above	As above	Kg/annum	4I, 4J
Methanol	As above	As above	Kg/annum	4I, 4F, 4M
Toluene	As above	As above	Kg/annum	4F, 4M
Hexane	As above	As above	Kg/annum	4I
Isopropanol	As above	As above	Kg/annum	4A

COLUMN 1 Substance	COLUMN 2 Combined Emissions (number)	COLUMN 3 Method Summary	COLUMN 4 Reporting (tonnes/annum)	COLUMN 5 Relevant Permit Schedules
Fluorobenzene	As above	As above	Kg/annum	4E
Tetrahydrofuran	As above	As above	Kg/annum	4L

Table 4.4 - Mass Emissions to Earls Road Sewer

Parameter	Combined Emissions (number)	Method (summary)	Mass Emission Result recorded as
Cyanide	E1 All emissions discharging cyanide as recorded in HMBDA Register	Combination of monitored data and volume discharged multiplied by number of times tank dropped per annum	Kg/annum
Dimethyl Sulphide	E5 PP450 Stage 3 production	Combination of monitored data and volume discharged multiplied by number of times tank dropped during PP450 manufacture per annum	Kg/annum
Copper	E6 Solsperse production	Combination of monitored data and volume discharged	Kg/annum and Kg/Tonne of product
Acid	E6 Solsperse production	By mass balance	Tonnes/annum, tonnes per tonne product and tonnes/annum as sulphuric acid
COD	E6 Solsperse production	Combination of monitored data and volume discharged	Tonnes/annum and tonnes per tonne of product
Xylene	E1 FC0604 production	To be agreed with SEPA and based on sum of estimated or measured discharge quantity times emission volume or flowrate.	Kg/annum
HMBDA	All emissions discharging HMBDA as recorded in HMBDA Register	Estimate based on mass balance of material discharged to the ETP	Tonnes/annum
Cyanamide and cyanamide impurities	All emissions discharging Cyanamide as recorded in PHMB Register	Estimate based on mass balance of material discharged to the ETP	Tonnes/annum

4A CONDITIONS APPLYING TO THE PRODUCTION OF FC0604

4A.1 Scope

4A.1.1 This Schedule applies to the production of the herbicide Tralkoxydim (FC0604) via the route described in Figure 4A.1 and for the purposes of this Schedule is known as the Chemical Production Process.

FIGURE 4A.1 - PROCESS ROUTE FOR FC0604 MANUFACTURE

Manufacture of FC0604 is a 5 stage process as follows (stage 1 is bought in): The majority of the xylene used in stage 2, is distilled out during stages 2, 3 and 4, and is recovered and recycled back through the process.

Stage 2. The formation of a butenone from the condensation of acetone and mesitaldehyde, using sodium hydroxide and xylene.

Stage 3. Formation of a trione ester from butanone via three sub reactions involving dimethyl malonate [DMM] and sodium methoxide, then propionyl chloride, and finally dimethylaminopyridine [DMAP]. The initial reaction generates methanol, which is removed by distillation.

Stage 4. Formation of a trione carboxylate using sodium hydroxide.

Stage 5. Formation of FC0604 using hydrochloric acid to convert to the trione then amination via use of ethoxyamine and IPA. The FC0604 precipitate is recovered by filtration in centrifuges and dried before packing into discharge bags.

Table 4A.1: Emissions to Air ELVs

Source of Emission	**Emission Number Point**	43/206	33/116
	Source of Emission	HCl Bulk Storage Tank Scrubber	HCl Scrubber
	Stack height/ diameter (m)	5/0.075	17/0.075
	NGR	NS 9163 8169	NS 9166 8167
Monitoring Details	**Type of Monitoring**	SS	SS
	Standard	As detailed in sampling plan	BS EN 1911 or equivalent detailed in sampling plan
	Operational Mode	During tanker offloading	During propionyl chloride charging to 33/090 reactor
	Sampling Location	Vent terminal	Vent terminal
Limits for Parameters from Emission Source	**Hydrogen chloride (mg/m^3)**	10 mg/m^3 as trigger level	10

Table 4A.2: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	Emission Point number	E1	E7
	Source of Emission	1-3 Plant East effluent tank 81/809 – Stage 2 1st & 2nd, Stage 3, Stage 4 water, Stage 5 1st & 2nd separations, Stage 2, 3, 4 & 5 vacuum pump liquors, Stage 5 scrubber liquors, floor washings	Waste water from washing, scrubber 33/116,scrubber 43/206, heating, and cooling
	Destination	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Weak Stream Effluent drain
	Emission location	NS 91735 81692	Various
	Sampling location	None required	None required
Limits for Parameters from Emission Source		None set	None set

4B CONDITIONS APPLYING TO THE PRODUCTION OF HMBDA AND PHMB

4B.1 Scope

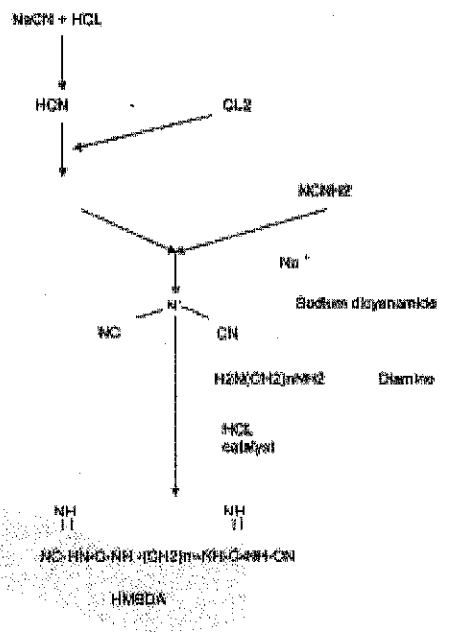
4B.1.1 This Schedule applies to the production of biocide Poly Hexamethylene Biguanidine Hydrochloride [PHMB] via the Hexamethylene Bis-Dicyandiamide [HMBDA] route described in Figure 4B.1 and for the purposes of this Schedule is known as the Chemical Production Process.

4B.2 Operation of Process

4B.2.1 The Cyanogen Chloride Caustic Scrubber 83/830 shall be operational whenever the Cyanogen Chloride plant or the Sodium Dicyanamide plant is operational.

FIGURE 4B.1 – PROCESS ROUTE FOR HMBDA AND PHMB MANUFACTURE

Process route for HMBDA manufacture:



Process route for PHMB manufacture:

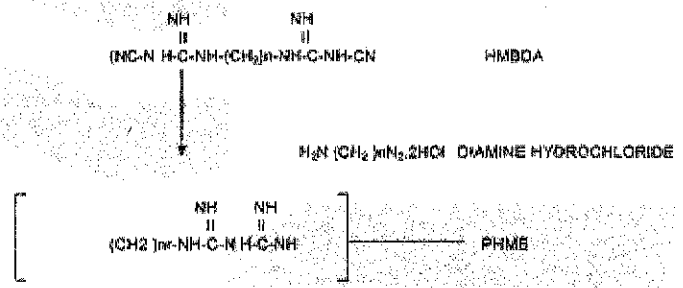


Table 4B.1 - Emissions to Air ELVs

Source of Emission	**Emission Point Number**	83/830	43/206
	Source of Emission	Cyanogen Chloride Caustic Scrubber, Units 23 and 24	HCl Bulk Storage Tank Scrubber
	Stack height/ diameter (m)	20/0.01	5/0.075
	NGR	NS 9164 8169	NS 9163 8169
Monitoring Details	**Type of Monitoring**	SS	SS
	Standard	As detailed in sampling plan	As detailed in sampling plan
	Operational Mode	Normal	During tanker offloading
	Sampling Location	Monitoring Port	Vent terminal
Limits for Parameters from Emission Source	**Chlorine (mg/m^3)**	10	Not Applicable
	Cyanogen chloride as Total Chloride (mg/m^3)	10	N/A
	Hydrogen cyanide (mg/m^3)	2	N/A
	Hydrogen chloride (mg/m^3)	N/A	$10mg/m^3$ as trigger level

Table 4B.2: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	Emission Point number	E1	E2	E7
	Source of Emission	1-3 Plant East effluent tank 81/809 – treated cyanogen chloride effluent liquors, HMBDA vacuum pump liquors, detoxified PHMB distillates, floor washings	1.3 Plant HMBDA filtrates tank 24/153 – treated HMBDA mother liquors and water washings	Waste water from washing, scrubber 43/206, heating and cooling
	Destination	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Strong Stream Effluent pipe – tank 20/281	Earls Road Sewer Weak Stream Effluent drain
	Emission location	NS 91735 81692	NS 91651 81701	Various
	Sampling location	Effluent tanks 81/812 or 81/813	1.3 Plant HMBDA Filtrates tank	None required
Limits and Monitoring Requirements for Parameters from Emission Source	Cyanide	1mg/l Grab sample prior to emptying tank	None set No monitoring required	Not applicable

4C CONDITIONS APPLYING TO THE PRODUCTION OF FC6053

4C.1 Scope

4C.1.1 This schedule applies to the production of the herbicide and plant growth regulator Chlorpropham (Chloro Isopropyl Phenyl Carbamate - CIPC) (FC6053) via the route described in Figure 4C.1, and for the purposes of this schedule is known as the Chemical Production Process.

4C.2 Operation of Process

4C.2.1 Whenever the Chemical Production Process is in operation, a caustic scrubber Ref. 07/963 shall be operational.

4C.3 Upgrade Requirements

4C.3.1 During campaign 3 or as agreed in writing with SEPA, the Operator shall undertake a programme of monitoring to characterise emissions to air. The air monitoring shall include as a minimum the substances listed in Table 4C.1. The air monitoring shall include a profile of the VOC emissions across a 24 hour period to determine suitable monitoring and averaging periods for future monitoring.

4C.3.2 The Operator shall provide SEPA with a report within 2 months of the completion of the campaign referred to in Condition 4C.3.1. Said report shall include the following:

4C.3.2.1 Production summary;

4C.3.2.2 Results of air emissions monitoring as specified in Condition 4C.3.1;

4C.3.2.3 Revised H1 assessment for air if measured emissions show significant deviation from calculated values;

4C.3.2.4 Proposals for further process optimisation to minimise emissions to air.

4C.3.3 The Operator shall undertake a BAT study on the options for reducing toluene emissions to air from the Chemical Production Process. The study shall include a cost-benefit analysis for any technically feasible reduction options. The findings of this study shall be reported to SEPA within two months of completion of the campaign referred to in Condition 4C.3.1.

FIGURE 4C.1 – PROCESS ROUTE FOR FC6053 MANUFACTURE

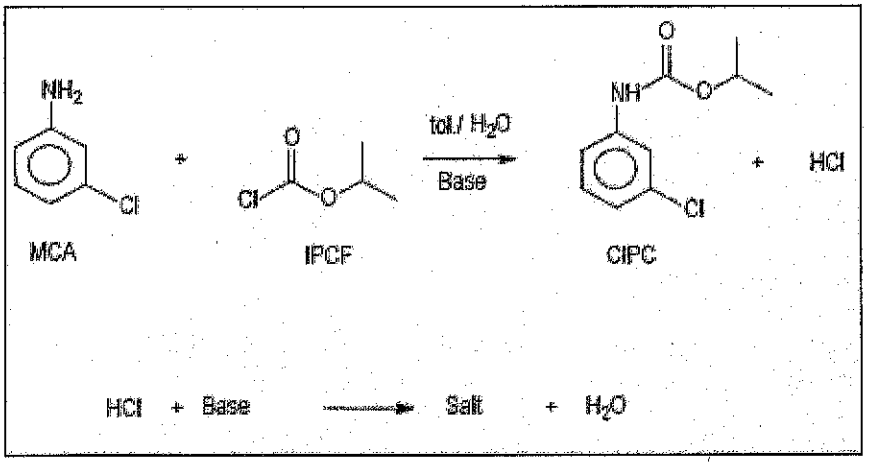


Table 4C.1: Emissions to Air ELVs

Source of Emission	**Emission point number**	07/963	07/529	07/533	43/206
	Emission source	Unit 07 Scrubber	Condenser vent	Vacuum pump vent	HCl Bulk Storage Tank Scrubber
	Stack height/ diameter (m)	20/0.1	22/0.05	21/0.05	5/0.075
	NGR	NS 9168 8167	NS 9166 8165	NS 9166 8164	NS 9163 8169
Monitoring Details	**Type of Monitoring**	SS	None	SS	SS
	Operational mode	During IPCF charging	N/A	Process operating	During tanker offloading
	Standard	As detailed in sampling plan	N/A	As detailed in sampling plan	As detailed in sampling plan
	Sampling Location	In vent	N/A	In vent	Vent terminal
Limits for Parameters from Emission Source	**Volatile Organic Compounds (Total VOCs as carbon) g/Hr and mg/m^3**	2kg/hr (24hr avg) or 5t/a, whichever is the lower	N/A	2kg/hr (24hr avg) or 5t/a, whichever is the lower	Not Applicable
	Isopropyl chloroformate (mg/m^3)	None set	N/A	N/A	Not Applicable
	Phosgene (mg/m^3)	None set	N/A	N/A	Not Applicable
	Hydrogen Chloride (mg/m^3)	10	N/A	N/A	10mg/m^3 as trigger level

Table 4C.2: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	Emission Point number	E1	E7
	Source of Emission	1-3 Plant East effluent tank 81/809 – combined washes, scrubber liquors, vacuum pump liquors, floor washings	Waste water from washing, scrubber 43/206, heating and cooling
	Destination	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Weak Stream Effluent drain
	Emission location	NS 91735 81692	Various
	Sampling location	None required	None required
Limits for Parameters from Emission Source		None set	None set

4D CONDITIONS APPLYING TO THE PRODUCTION OF SOLSPERSE 5000 AND 12000

4D.1 Scope

4D.1.1 This Schedule applies to the production of Solsperse 5000 and 12000 via the routes described in Figure 4D.1 and for the purposes of this Schedule are known as the Chemical Production Process.

FIGURE 4D.1 – PROCESS ROUTES FOR THE PRODUCTION OF SOLSPERSE 5000 AND 12000

Solsperse 5000 is manufactured via the following process route:

Sulphonation: CPC + $(SO_3)_n \rightarrow CPC(SO_3H)_n$

Condensation: $CPC(SO_3H)_n$ + ditallowdimethyl ammonium salt → Solsperse 5000 + nHCl

Solsperse 12000 is manufactured via the following process route:

Sulphonation: CPC + $(SO_3H)_n \rightarrow CPC(SO_3)_n$

Where CPC is copper phthalocyanine

Table 4D.1 - Emissions to Air ELVs

Source of Emission	**Emission Point Number**	43/305	34/427	35/521	61/176	RS12367
	Source of Emission	61 Unit Scrubber vent	Spray dryer bag filter vent	Packing hall bag filters	CPC charging bag filters	Oleum storage vent
	Stack height/ diameter (m)	30/ 0.1	30/ 0.46	6/ 0.30	30/ 0.3	30/ 0.076
	NGR	NS 9182 8177	NS 9186 8179	NS 9180 8174	NS 9185 8176	NS 9182 8177
Monitoring Details	**Type of Monitoring**	SS	SS	SS	None	None
	Operational mode	During Solsperse production	During spray drying	During packing operation	Not applicable	Not applicable
	Standard	As detailed in sampling plan	As detailed in sampling plan	As detailed in sampling plan	Not applicable	Not applicable
	Sampling Location	In vent stack	In vent stack	In vent stack	Not applicable	Not applicable
Limits and Monitoring Requirements for Parameters from Emission Source	**Particulate (mg/m^3)**	Not applicable	5 To be monitored	No limit To be monitored	Not applicable	Not applicable
	Sulphur Oxides (as SO_2) (mg/m^3)	No limit To be monitored	No limit To be monitored	Not applicable	Not applicable	Not applicable
	Nitrogen Oxides (as NO_2) (mg/m^3)	No limit To be monitored	No limit To be monitored	Not applicable	Not applicable	Not applicable

Table 4D.2: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	Emission Point number	E6	E7
	Source of Emission	M1 Plant North effluent tank 81/107: floor washings; caustic liquor from scrubber 43/305; Solsperse 5000 decant, mother liquors & water wash; and Solsperse 12000 mother liquors, 1% and 0.1% HCl washes	Waste water from washing, heating, cooling & vacuum pumps
	Destination	Earls Road Sewer Strong or Bypass Stream Effluent pipe	Earls Road Sewer Weak Stream Effluent drain
	Emission location	NS 91805 81795	Various
	Sampling location	M1 strong effluent tank	None required
Limits and Monitoring Requirements for Parameters from Emission Source	Chemical Oxygen Demand (mg/l and Kg/day)	None set Time based weekly composite sample	Not applicable
	Copper (mg/l and Kg/day)	None set Time based weekly composite sample	Not applicable
	Flow m3/day	None set Weekly average based on daily readings	Not applicable

4E CONDITIONS APPLYING TO THE PRODUCTION OF PP450

4E.1 Scope

4E.1.1 This Schedule applies to the production of the fungicide Flutriafol (Alpha-(2-fluorophenyl)-alpha-(4-fluorophenyl)-1H-1,2,4-triazole-1-ethanol) (PP450) via the route described in Figure 4E.1 and for the purposes of this Schedule is known as the Chemical Production Process.

4E.2 Operation of Process

4E.2.1 Whenever Stage 3 of the Chemical Production Process is in operation, waste gases from Unit 30 vents shall be directed to the combustion plant authorised under permit PPC/A/1008715. The amount of dimethyl sulphide directed to the combustion plant shall not exceed 1400 kg each week in total and shall be recorded weekly and reported annually in accordance with Table 2.1.

4E.3 Upgrade Requirements

4E.3.1 The Operator shall provide SEPA with a report by 31 December 2014 confirming proposals to minimise emissions to air of dimethyl sulphide generated during Stage 3 of PP450 crude manufacture without use of boilers BB1, BB02 and BB03 of the combustion plant described in 4E.2.1. The report shall as a minimum detail the techniques evaluated, oxidation products associated with the techniques and justify why the selected technique represents the best available technique.

4E.3.2 The Operator shall record details of any action taken to reduce point source and fugitive emissions to air from PP450 Stage 3 and the estimated emission reduction associated with said action.

4E.3.3 The Operator shall record for each batch of PP450 Stage 3 produced in 2013 the weight of product and mass emission of total VOCs and total amines calculated using vent monitoring data representative of the batch. This information shall be reported to SEPA by 31 January 2014.

FIGURE 4E.1 – PROCESS ROUTE FOR PP450 MANUFACTURE

PP450 Crude (L2 plant):
Fluorobenzene, anhydrous catalyst and an acid chloride are reacted. Hydrochloric acid is charged to the drown out vessel, followed by the batch and a fluorobenzene wash. The mixture is agitated then settled. The lower aqueous layer is transferred to the effluent vessel. The upper organic layer is transferred to a vessel containing scrubber liquors. The organic layer is now the bottom layer and this is transferred to a vessel with warm water, then to a vessel containing an alkaline solution and finally transferred to the still. All aqueous layers are transferred to the effluent tank. The organic layer containing the product is vacuum distilled. The product is run off to an IBC and the distillate (mainly fluorobenzene), is recovered and run off to a separate IBC.

PP450 Distillation (1,3 plant):
The crude phenone is purified by vacuum distillation in 1.3 plant then run off to tanker barrel and transported to L3 plant for further processing. After 3 or 4 batches have been processed, the still residues are mobilised with toluene and run off to drums for disposal. The unit is boiled out with methanol between campaigns to prevent cross-contamination and build-up of residues.

PP450 Intermediate (L3 plant):
t-Butanol/water azeotrope (recycled distillates), t-Butanol, water and Dimethylsulphide (DMS) are charged to the vessel. Dimethylsulphate is added, followed by a hydroxide. The batch is separated and the lower aqueous layer is discharged to the dirty effluent vessel. The distillates are washed using cold water containing Edicol Blue dye and the aqueous layer allowed to settle. The lower blue aqueous phase is separated to the dirty effluent vessel. Sodium hypochlorite solution is added to the batch, followed by sodium sulphite solution. The lower intermediate layer is separated to the triazolisation unit, the upper layer is held in the intermediate treatment vessel; and the aqueous layer is transferred to the dirty effluent vessel.

Dirty effluent treatment
Sodium hypochlorite solution is added to the dirty effluent vessel to destroy any remaining DMS. Excess sodium hypochlorite is then destroyed by addition of sodium sulphite solution. The effluent is then transferred to the clean effluent vessel where it is checked for DMS content and the absence of sodium hypochlorite, before discharge to the strong effluent stream.

PP 450 triazole (L3 plant)
Dimethylformamide, the PP450 intermediate, a triazole and a carbonate are reacted, then the batch is screened and blown to the still/crystalliser for vacuum distillation. Methanol and water are added. The batch is transferred to a pressure filter, and the cake washed with methanol/water and then with water. The washed cake is finally discharged to FIBC's.

Table 4E.1 L2 Plant Unit 18 Emissions to Air ELVs

Source of Emission	Emission point number	18/809	18/212	93/669	18/037	45/632
	Emission source	HCl Scrubber L2 Plant Unit 18 Ref. 18/809	Vacuum pump water seal pot vent	Laminar flow booth vent	Vessel vent	HCl Storage tank scrubber
	Stack height/ diameter (m)	15.6/ 0.15	12.6/ 0.05	10/ 0.6	13.6/ 0.05	15.6/ 0.15
	NGR	NS 91922 81437	NS 91969 81425	NS 91957 81461	NS 91956 81445	NS 91935 81445
Monitoring Details	Type of Monitoring	SS	None required	None required	None required	SS
	Sampling Location	Vent Outlet	In vent	In vent	N/A	Outlet vent from scrubber
Limits for Parameters from Emission Source	Volatile Organic Compounds (Total VOCs expressed as Carbon (g/Hr and mg/m^3)	N/A	None set	None set	None set	N/A
	Hydrogen chloride (mg/m^3)	10	N/A	N/A	N/A	None set
	Temperature (°C)	None set	None set	None set	None set	None set
	Flow (m^3/Hr)	None set	None set	None set	None set	None set

Table 4E.2 1-3 Plant Unit 19 Emissions to Air ELVs

Source of Emission	Emission point number	19/492	18/271
	Emission source	Vacuum receiver vent	Vent fan from draughted lance
	Stack height/ diameter (m)	21/ 0.03	9.2/ 0.075
	NGR	NS 9166 8165	NS 9167 8164
Monitoring Details	Type of Monitoring	None required	None required
	Sampling Location	N/A	N/A
Limits for Parameters from Emission Source	Volatile Organic Compounds (Total VOCs expressed as Carbon g/Hr and mg/m^3)	N/A	N/A

Table 4E.3 L3 Plant Unit 3031 and 3030 Emissions to Air ELVs

Source of Emission	Emission point number	41/903	31/796	31/890	83/954
	Emission source	Vent for weigh vessel & storage vessel	Vent from waste storage tank	Scrubber	Combined vessel vents catch pot vent
	Stack height/ diameter (m)	19.6/ 0.1	8/ 0.15	13.6/ 0.15	15.6/ 0.6
	NGR	NS 91855 81463	NS 91905 81458	NS 91842 81473	NS 91854 81467
Monitoring Details	Type of Monitoring	SS	SS	SS	SS
	Sampling Location	In Vent	In Vent	In Vent	In Vent
Limits for Parameters from Emission Source	Total VOCs expressed as Carbon	Not applicable	None set Monitored as per sampling plan (g/Hr and mg/m3)	Not applicable	None set Monitored as per sampling plan (mg/m3)
	Total Amine expressed as Dimethyl Amine (mg/m^3)	Not applicable	Not applicable	10 Monitored as per sampling plan	Not applicable
	Vent flow m^3/Hr	Not applicable	No limit To be monitored when undertaking total VOC sampling	Not applicable	Not applicable

Table 4E.4: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	Emission Point number	E1	E4	E5	E7
	Source of Emission	1-3 Plant East effluent tank 81/809 - Stage 2 vacuum pump liquors and aqueous wash down liquors	L2 Plant East effluent tank 81/672 - Stage 1 scrubber liquors	L3 Plant clean effluent tank 69/931 - Stage 3 waste water from dirty effluent tank, filter 952 & 881 washes and plant sumps	Waste water from washing, scrubbing, heating, cooling & vacuum pumps
	Destination	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Weak Stream Effluent drain
	Emission loca	NS 91735 81692	NS 91972 81439	NS 91852 81445	Various
	Sampling location	East effluent tank before joins combined effluent	L2 Plant East effluent tank	L3 Plant clean effluent tank	None required
Limits and Monitoring Requirements for Parameters from Emission Source	Dimethyl sulphide	Not applicable	Not applicable	1mg/l Each batch of effluent	Not applicable
	Sodium hypochlorite	Not applicable	Not applicable	0.01% Each batch of effluent	Not applicable

4F CONDITIONS APPLYING TO THE PRODUCTION OF FC6057

4F.1 Scope

4F.1.1 This Schedule applies to the production of the herbicide Ax (FC6057) via the route described in Figure 4F.1 and for the purposes of this Schedule is known as the Chemical Production Process.

FIGURE 4F.1 PROCESS ROUTE FOR FC6057 MANUFACTURE

Stages 4-5

Reactant A, alcohol and acid are heated to reflux and held until fit. Once fit, material undergoes a solvent swap between the alcohol and an organic solvent and is then reacted with acid anhydride followed by an organic solvent line wash. The batch is then heated and held until the reaction is complete. The batch is then pH adjusted, filtered, separated and distilled. Some ester is then added, and the stage 5 product is then crystallised and isolated on a filter and dried to a final specification

Stages 6-7

Organic Nitrile, Stage 5 materials, Reactant B, an organic solvent, a ketone and water are sparged with nitrogen followed by a Base Solution and catalysts before being heated and reacted until in specification.

The material is then filtered, pH adjusted, separated and then vacuum distilled to a moisture content (requires further ketone additions), before charging alcohol and an acid gas. The batch is then reacted to a specification, pH adjusted and separated. The material is then given further solvent treatment by vacuum distillation (may need more ketone added), before an addition of water and an alkane to allow isolation of the final product on a filter.

Table 4F.1 - Emissions to Air ELVs and Monitoring Requirements

Source of Emission	Emission point number	28/389	02/850	14/960
	Emission source	Scrubber vent – scrubber 21/127 and Stage 6 & 7 vent system	Scrubber vent - Stage 4 & 5 vent system	Scrubber vent - Stage 5 vessel, 02/422 Stage 7 vessel 28/425
	Stack height/ diameter (m)	15/ 0.2	15/ 0.2	13/ 0.2
	NGR	NS 91983 81379	NS 91962 81440	NS 91923 81434
Monitoring Details	Type of Monitoring	SS	SS	SS
	Operational mode	Stage 6 & 7 during worst case conditions	Stage 4 & 5 during worst case conditions	Stage 7 worst case conditions
	Standard	As detailed in sampling plan	As detailed in sampling plan	As detailed in sampling plan
	Sampling Location	Vent outlet	Vent outlet	Vent Monitoring port
Limits and monitoring requirements for Parameters from Emission Source	Total Volatile Organic Compounds (VOCs) expressed as Carbon	2kg/hr (24 hr average) or 5 tonnes / year, whichever is the lowest Monitored as per sampling plan	2kg/hr (24 hr average) or 5 tonnes / year, whichever is the lowest Monitored as per sampling plan	2kg/hr (24 hr average) or 5 tonnes / year, whichever is the lowest Monitored as per sampling plan
	Individual Volatile Organic Compounds (VOCs), mg/m^3	No limit Organic nitrile monitored as per sampling plan	No limit Alcohol monitored as per sampling plan	No limit Alcohol monitored as per sampling plan
	Vent flow (m^3/Hr)	No limit To be monitored when undertaking total VOC sampling	No limit To be monitored when undertaking total VOC sampling	No limit To be monitored when undertaking total VOC sampling
	Acid Gas (mg/m^3)	Not applicable	Not applicable	$10mg/m^3$ Monitored as per sampling plan

Table 4F.2: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	**Emission Point number**	E3	E4	E7
	Source of Emission	West Effluent Tank 81/681 - aqueous layers from Stage 5 (screened), Stage 6 (1st) & Stage 7 (water wash), Stage 7 base solution liquors, spent liquor from scrubber units 14/960 & 28/389 and clean down effluent	East Effluent Tank 81/672 - spent liquor from scrubber unit 02/850 and clean down effluent	Waste water from cooling and floor washing
	Destination	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Weak Stream Effluent drain
	Emission location	NS 91847 81442	NS 91972 81439	Various drains
	Sampling	Instantaneous sample from outlet L2 Plant west effluent tank	None required	None required
Limits for and Monitoring of Parameters from Emission Source	**Toluene (mg/l and kg/batch)**	No limit set To be monitored twice in initial campaign during Stage 5	Not applicable	Not applicable
	EC50 median effect concentration as determined using *skeletonema costatum* and *tisbe battagliai*	No limit set To be monitored twice in initial campaign during the Stage(s) likely to have the greatest toxicity	Not applicable	Not applicable
	Boron (mg/l and kg/batch)	No limit set To be monitored twice in initial campaign during Stage 6	Not applicable	Not applicable
	Stage 5 & 6 intermediates and Stage 7 product (mg/l and kg/batch)	No limit set To be monitored twice in initial campaign during relevant stage	Not applicable	Not applicable

4G CONDITIONS APPLYING TO THE PRODUCTION OF FC6029 (METHOXY IS)

4G.1 Scope

4G.1.1 This Schedule applies to the production of FC6029 (Methoxy iminostilbene) via the route described in Figure 4G.1 and for the purposes of this Schedule is known as the Chemical Production Process.

FIGURE 4G.1 – PROCESS ROUTE TO MANUFACTURE OF FC6029

A Carbamic Acid is added to an oxyacid + heated for a period. Water is added to quench the acid and solvent is then added.

The batch is cooled to crystallise the product. The intermediate is collected by filtration and washed with at least 4000 kg of solvent.

The solvent wet intermediate is reslurried in solvent (65°C max.) and is combined with a polyether and an alkaline solution. Solvent is distilled off and the reaction mixture is further stirred at distillation temperature for a minimum of 1 hour. Water is added whilst maintaining the internal temperature at its optimum temperature, held then cooled to crystallise the product.

The product is isolated by filtration and washed with water to a suitable pH level. The batch is then washed with alcohol and the product dried on the filter. The aqueous waste is treated with acid before it pumped to the strong stream effluent tank and subsequently the ETP.

Table 4G.1: Emissions to Air ELVs

Source of Emission	Emission point number	21/127	28/389	14/157
	Emission source	Unit FC9&10 Scrubber vent	Unit 28 Scrubber vent	Solvent effluent tank vent
	Stack height/ diameter (m)	15/ 0.2	15/ 0.2	15/ 0.075
	NGR	NS 91973 81383	NS 91983 81379	NS 91905 81447
Monitoring Details	Type of Monitoring	SS	SS	SS
	Sampling Location	Vent outlet	Vent outlet	N/A
	Volatile Organic Compounds (Total VOCs expressed as carbon mg/m^3 and g/hr)	None set	None set	None set

Table 4G.2: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	Emission Point number	E3	E4	E7
	Source of Emission	L2 Plant West effluent tank 879	L2 Plant East effluent tank 81/672	Waste water associated with washing, heating and cooling
	Destination	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Weak Stream Effluent drain
	Emission location	NS 91847 81442	NS 91972 81439	Various
	Sampling location	L2 Plant West effluent tank	L2 Plant East effluent tank	None required
Limits and Monitoring Requirements for Parameters from Emission Source		No limits set No monitoring required	No limits set No monitoring required	Not applicable

4H CONDITIONS APPLYING TO THE PRODUCTION OF FC6033

4H.1 Scope

4H.1.1 This Schedule applies to the production of FC6033 via the routes described in Figure 4H.1 and for the purposes of this Schedule is known as the Chemical Production Process.

FIGURE 4H.1 – PROCESS ROUTES FOR FC6033

The FC6033 chemical production process is a monoester to diester reaction. A diol is charged to a reactor vessel and melted. Anisic acid is added gradually, followed by a tin catalyst and xylene. The reactor is then heated to distill out the xylene/water azeotrope. The condensed azeotrope separates as two layers. The lower water layer is removed from the distillate tank and the upper layer containing mostly xylene is recycled back into the reactor.

Table 4H.1 - Emissions to Air ELVs

Source of Emission	**Emission Point Number**	02/850	02/863
	Source of Emission	Water Scrubber vent	Laminar flow booth vent
	Stack height/ diameter (m)	15 / 0.2	13 / 0.45
	NGR	NS 91923 81434	NS 91146 81436
Monitoring Details	**Type of Monitoring**	SS	None
	Operational mode	During worst case conditions, e.g. during distillation	Not applicable
	Standard	As detailed in sampling plan	Not applicable
	Sampling Location	In vent stack	
Limits for Parameters from Emission Source	**Total VOC as carbon (mg/m^3 and g/hr)**	None set	N/A

Table 4H.2: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	Emission Point number	E4	E7
	Source of Emission	L2 Plant East effluent tank 81/672 – 02/850 scrubber liquors	Waste water associated with floor washing, heating and cooling
	Destination	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Weak Stream Effluent drain
	Emission location	NS 91972 81439	Various
	Sampling location	L2 Plant east effluent tank	None required
Limits and Monitoring Requirements for Parameters from Emission Source		No limits set No monitoring required	Not applicable

4I CONDITIONS APPLYING TO THE PRODUCTION OF FC6035

4I.1 Scope

4I1.1 This Schedule applies to the production of the herbicide MP (FC6035) via the route described in Figure 4I.1 and for the purposes of this Schedule is known as the Chemical Production Process.

4I.2 Operation of Process

4I.2.1 Whenever the Chemical Production Process is in operation, the following abatement equipment shall be operational:

4I.2.1.1 Sulphuric acid scrubber Ref: 02/850 to provide abatement of ammonia and amine VOCs.

4I.2.1.2 Caustic scrubber Ref: 28/389 and water scrubber 21/127 to provide abatement of acid gases and amine VOCs from Stage 3 reaction.

4I.2.1.3 Caustic scrubber ref. 14/960 and water scrubber ref. 18/809 during operation of the chloride/ ether stage 1 process;

4I.3 Upgrade Requirements

4I.3.1 The Operator shall provide SEPA with a report within 3 months of completion of the second FC6035 campaign using the Stage 1 chloride/ ether route. The report shall as a minimum detail:

a) actual versus predicted emissions and their significance, with reference to the results of monitoring emissions to air and effluent;
b) actual versus predicted raw material use, waste production and waste recovery/disposal;
c) monitoring proposals for future campaigns and
d) any changes planned before or during further manufacture to minimise raw material use, maximise waste recovery of solvent, optimise yield and minimise emissions to air and water.

FIGURE 4I.1 – PROCESS ROUTE FOR FC6035 MANUFACTURE

The first step of this process has two different routes; ETFBO/ amine route or chloride/ ether route. Both routes give an intermediate which undergoes a Wittig reaction resulting in a product mixture.

The mixture undergoes a cyclisation reaction, producing a precipitate which is isolated as a wet cake then vacuum dried in step two.

The third step involves chlorination, with the mixture being azetroped with water from the quenched reaction mixture, then isolated as the lower phase from the water-product mixture.

The final step converts step three products by reaction with a strong base. The resulting product is separated, then back extracted with hexane, before the combined organic layers are stripped. The final product is thus the bottoms stream from this distillation process.

Table 4I.1: Emissions to Air ELVs

Source of Emission	**Emission Point Number**	02/850	21/127	14/960	18/809
	Source of Emission	Acid scrubber vent	Unit 28 Scrubber, in series with 28/389 scrubber	Caustic scrubber vent	Water scrubber vent
	Stack height/ diameter (m)	15/ 0.2	15/ 0.2	13/ 0.2	15.6/ 0.15
	NGR	NS 91962 81440	NS 91983 81379	NS 91923 81434	NS 91922 81437
Monitoring Details	**Type of Monitoring**	SS	SS	SS	SS
	Operational mode	During worst case conditions for stages indicated below	During worst case conditions for stages indicated below	During worst case conditions for stages indicated below	During worst case conditions for stages indicated below
	Standard	As detailed in sampling plan	As detailed in sampling plan	As detailed in sampling plan	As detailed in sampling plan
	Sampling Location	Vent outlet	Vent outlet	Vent outlet	Vent outlet
Limits for Parameters from Emission Source	**Total Volatile Organic Compounds (VOCs) as Carbon (mg/m^3 and g/hr)**	2kg/hr (24 hr average) or 5 tonnes / year, whichever is the lowest Monitored as per sampling plan	2kg/hr (24 hr average) or 5 tonnes / year, whichever is the lowest Monitored as per sampling plan	2kg/hr (24hr average) or 5 tonnes / year, whichever is the lowest To be monitored Stage 1/2 chloride/ ether	2kg/hr (24hr avg) or 5 tonnes / year, whichever is the lowest To be monitored Stage 1/2 chloride/ether
	Dimethyl formamide (mg/m^3 and g/Hr)	Not applicable	100 g/hr Monitored as per sampling plan	Not applicable	Not applicable
	Methanol (mg/m^3 and g/hr)	No Limit set Monitored as per sampling plan	Not applicable	Not applicable	No Limit To be monitored Stage 1/2 chloride/ether
	Hexanes (mg/m^3 and g/hr)	Not applicable	No Limit Monitored as per sampling plan	No Limit To be monitored Stage 1 (chloride/ ether)	No Limit To be monitored Stage 1 (chloride/ ether)

	Carbon monoxide (mg/m^3)	No limit set Monitored as per sampling plan	Not applicable	Not applicable	Not applicable
	Ammonia (mg/m^3)	$10mg/m^3$ Monitored as per sampling plan	Not applicable	Not applicable	Not applicable
	Hydrogen chloride (mg/m^3)	Not applicable	$10mg/m^3$ Monitored as per sampling plan	$10mg/m^3$ To be monitored Stage 1 (chloride/ ether)	$10mg/m^3$ To be monitored Stage 1 (chloride/ ether)
	Sulphur dioxide (mg/m^3)	Not applicable	$50mg/m^3$ Monitored as per sampling plan	Not applicable	Not applicable
	Vent flow (m^3/Hr)	No limit To be monitored when undertaking total VOC sampling	No limit To be monitored when undertaking total VOC sampling	No limit To be monitored when undertaking total VOC sampling	No limit To be monitored when undertaking total VOC sampling

Table 4I.2: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	**Emission Point number**	E3	E4	E7
	Source of Emission	L2 Plant West effluent tank 879 - 28/389 scrubber liquor, Stage 1 aqueous layer, Stage 2 distillates, mother liquors & aqueous cake washes, Stage 3 aqueous DMF & wash liquors, Stage 4 aqueous methanol liquors	L2 Plant East effluent tank 81/672 – 02/850 & 21/127 scrubber liquors	Waste water associated with floor washing, heating and cooling
	Destination	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Weak Stream Effluent drain
	Emission location	NS 91847 81442	NS 91972 81439	Various
	Sampling location	L2 Plant West effluent tank	L2 Plant East effluent tank	None required
Limits and Monitoring Requirements for Parameters from Emission Source		No limits set No monitoring required	No limits set No monitoring required	Not applicable

4J CONDITIONS APPLYING TO THE PRODUCTION OF INFRA-RED ABSORBERS

4J.1 Scope

4J.1.1 This Schedule applies to the production of Infra-red Absorbers via the routes described in Figure 4J.1 and for the purposes of this Schedule is known as the Chemical Production Process.

FIGURE 4J.1 – PROCESS ROUTES FOR THE PRODUCTION OF INFRA-RED ABSORBERS

The detailed process route varies slightly for the different infra-red absorber products manufactured. All involve the gradual addition of a hydroxide to a thiol solution, e.g. 2-aminothiophenol, in Dimethylformamide (DMF) to form a thiolate intermediate, which is then heated to reaction temperature. This is followed by a controlled addition of a pigment to the thiolate salt in DMF, maintaining the reaction temperature range, followed by a suitable hold period for each of the products. Waste material is then screened out, followed by drown-out into the preferred solvent of reaction liquor; (methanol, ethanol, IMS or iso-propanol). The batch is then transferred to a filter press then washed with solvent/deionised water washing (methanol, ethanol, IMS or iso-propanol) which may be repeated a number of times before oven drying.

Table 4J.1 - Emissions to Air ELVs

Source of Emission	**Emission Point Number**	00/708	00/700	00/134
	Source of Emission	Laminar flow booth 680, 695 and 699 vent via 708 fan	Reactor scrubber vent	Dryer vent
	Stack height/ diameter (m)	12/0.6	15/0.1	3/0.1
	NGR	NS 91874 81468	NS 91875 81461	NS 91887 81472
Monitoring Details	**Type of Monitoring**	None	SS	SS
	Operational mode	Not applicable	During addition/ reaction with Monastral Green	During drying
	Standard	Not applicable	As detailed in sampling plan	As detailed in sampling plan
	Sampling Location		In vent stack	In vent stack
Limits for Parameters from Emission Source	**Total VOC as carbon (mg/m^3 and g/hr)**	Not applicable	No limit Monitored as per sampling plan	Not applicable
	Dimethyl formamide (mg/m^3 and g/Hr)	Not applicable	No limit Monitored as per sampling plan	Not applicable

Table 4J.2: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	Emission Point number	E4	E7
	Source of Emission	L2 Plant West effluent tank 879 - spent liquors from water wash transported from FC1	Waste water associated with heating and cooling
	Destination	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Weak Stream Effluent drain
	Emission location	NS 91847 81442	Various
	Sampling location	L2 Plant West effluent tank	None required
Limits and Monitoring Requirements for Parameters from Emission Source		No limits set No monitoring required	Not applicable

4K CONDITIONS APPLYING TO PRODUCTION IN THE EARLY MANUFACTURING UNIT (EMU)

4K.1 Scope

4K.1.1 This Schedule applies to the manufacture of small-scale commercial products with a maximum of two campaigns per intermediate or final Stage product. No Active Pharmaceutical Ingredients shall be manufactured.

4K.2 Operation of Process

4K.2.1 Whenever the manufacture of any product is in operation, the scrubber Ref. 00/686 or 00/685 shall be operational.

4K.2.2 Any waste gases from process vessels which contain Volatile Organic Compounds (VOCs) shall pass through a condenser prior to entering scrubber 00/686 or 00/685 unless agreed in writing with SEPA in advance of the start of manufacture.

4K.2.3 The EMU effluent drain shall be locked shut at all times.

4K.2.4 No effluent containing dimethyl sulphide (DMS) or dimethyl sulphoxide (DMSO) shall be discharged to the Effluent Treatment Plant (ETP).

Table 4K.1: Emissions to Air ELVs

Source of Emission	Emission point number	00/684	00/697	00/691
	Emission source	Fan for Scrubber 00/686 and Scrubber 00/685	Laminar Flow Booth	Dump tank vent
	Stack height/ diameter (m)	19.6/ 0.45	15.6/ 0.6	12/ 0.075
	NGR	NS 9188 8148	NS 91883 81471	NS 9188 8148
Monitoring Details	Type of Monitoring	SS	None required	None required
	Sampling Location	Vent Outlet	N/A	N/A
Limits for Parameters from Emission Source	Total VOCs (expressed as Carbon g/Hr and mg/m^3)	2kg/hr on a 24hour average basis	N/A	N/A
	Speciated VOC for all Class A VOCs and Toluene (g/Hr and mg/m^3)	100g/hr on a 24hour average basis	N/A	N/A
	Speciated acid gases (mg/m^3)	None set	NA	NA

* Exact parameters to be monitored and manufacturing stage(s) during which monitoring is required to be agreed with SEPA in advance of the monitoring

Table 4K.2: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	Emission Point number	E3	E4	E7
	Source of Emission	Acidic effluent transported from FC2	Alkaline effluent transported from FC2	Waste water associated with vacuum pumps, heating and cooling
	Destination	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Weak Stream Effluent drain
	Emission location	NS 91847 81442	NS 91972 81439	Various
	Sampling location	L2 Plant West effluent tank 879	L2 Plant East effluent tank 81/672	None required
Limits and Monitoring Requirements for Parameters from Emission Source	Parameters relevant to product being manufactured	No limits set Monitoring as agreed in writing with SEPA	No limits set Monitoring as agreed in writing with SEPA	Not applicable

4L CONDITIONS APPLYING TO THE PRODUCTION OF FC6051

4L.1 Scope

4L.1.1 This Schedule applies to the production of the fungicide Boscalid (2-chloro-N-(4'-chloro(1,1'-biphenyl)-2-yl)-3-pyridinecarboxamide) (FC6051) via the route described in Figure 4L.1 and for the purposes of this Schedule is known as the Chemical Production Process.

4L.2 Operation of Process

4L.2.1 Whenever the Chemical Production Process is in operation, water scrubber Ref. 31/890 shall be operational.

FIGURE 4L.1 – PROCESS ROUTE FOR PRODUCTION OF FC6051

Boscalid (dry solid) is charged to a 35% wt solution of THF in water at 25 C. It is stirred at this temperature for several hours to complete hydration to Boscalid mono-hydrate (product). The slurry is then isolated and water washed on a pressure filter to removed THF. Water wet product is discharged to big bags, tested & sent to customer. Mother liquors are recycled. Wash liquors are disposed via the ETP.

Table 4L.1: Emissions to Air ELVs

Source of Emission	Emission point number	31/890	69/931
	Emission source	L3 West scrubber vent	Filtrate tank vent
	Stack height/ diameter (m)	18/0.15	10/0.20
	NGR	NS 91842 81473	NS 91842 81450
Monitoring Details	Type of Monitoring	SS	
	Sampling Location	In vent	
Limits for Parameters from Emission Source	Volatile Organic Compounds (Total VOCs as carbon mg/m^3 and g/Hr)	None set	None set

Table 4L.2: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	Emission Point number	E5	E7
	Source of Emission	L3 clean effluent tank 69/931 - combined process effluent and sump contents	Waste water associated with vacuum pumps, heating and cooling
	Destination	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Weak Stream Effluent drain
	Emission location	NS 91852 81445	Various
	Sampling location	L3 Plant clean effluent tank	None required
Limits and Monitoring Requirements for Parameters from Emission Source		No limits set No monitoring required	Not applicable

4M CONDITIONS APPLYING TO THE PRODUCTION OF FC6056

4M.1 Scope

4M.1.1 This Schedule applies to the production of a herbicide intermediate FC6056 via a 7 stage process and for the purposes of this Schedule is known as the Chemical Production Process.

4M.2 Upgrade requirements

4M.2.1 The report required under Condition 3.10.2 shall include the following information as well as that detailed in said condition: arrangements for handling and storage of Reactant A, including measures to mitigate any loss of containment; the extent to which the components contributing to the toxicity in the marine environment of effluent sent to the ETP are likely to be removed in the ETP; and the outcome of work undertaken to minimise toluene emissions during distillation and venting down of Reactor 33/067.

Table 4M.1: Emissions to Air ELVs and Monitoring Requirements

Source of Emission	**Emission Number Point**	35/580	07/963	33/116
	Source of Emission	Unit 35 scrubber, stage 7 isolation	Unit 07 scrubber, Catalyst recycling	Unit 33 HCl Scrubber, stage 5 acylation
	Stack height/ diameter (m)	17/0.075	20/0.1	17/0.075
	NGR	NS 9167 8167	NS 9168 8167	NS 9166 8167
Monitoring Details	**Type of Monitoring**	None	None	SS
	Standard	Not applicable	Not applicable	As detailed in air sampling plan
	Operational Mode	Not applicable	Not applicable	During Reactant A charging
	Sampling Location	Not applicable	Not applicable	Scrubber Vent
Limits for Parameters and Monitoring from Emission Source	**Hydrogen chloride (mg/m^3)**	Not applicable	Not applicable	10 To be monitored at least once in the initial campaign and then as per air sampling plan

Table 4M.2: Emissions to Earls Road Sewer ELVs and Monitoring Requirements

Source of Emission	Emission Point number	E1	E7
	Source of Emission	1-3 Plant East effluent tank 81/809: Vacuum pump liquors from stages 3, 4 & 6; Aqueous layers from stage 2, 3, 5, 6 & 7 separations; Stage 6 scrubber liquors; floor washings	Waste water from scrubber 33/116, heating and cooling
	Destination	Earls Road Sewer Strong Stream Effluent pipe	Earls Road Sewer Weak Stream Effluent drain
	Emission location	NS 91735 81692	Various
	Sampling location	Representative of vessels 32/331, 35/050 & 35/272	None required
Limits for and monitoring of Parameters from Emission Source	Toluene & Reactant A (mg/l and kg/batch)	No limit set Effluent to be monitored twice in second campaign during Stage 2	Not applicable
	Methanol (mg/l and kg/batch)	No limit set Effluent to be monitored twice in second campaign during Stage 4	Not applicable
	Stage 7 product (mg/l and kg/batch)	No limit set Effluent to be monitored twice in second campaign during Stage 7	Not applicable

5 CONDITIONS APPLYING TO THE EFFLUENT TREATMENT PLANT (ETP)

5.1 Scope

5.1.1 This Schedule applies to the operation of the Effluent Treatment Plant for the treatment of ""Weak Stream Effluent" and "Strong Stream Effluent".

5.2 Air Emissions Conditions

5.2.1 The Emissions to air specified in Table 5.1, shall only be permitted from the Emissions locations specified in that Table.

5.2.2 The Operator shall record the annual mass emissions to air for the release points specified in Table 5.1, including information used to estimate the emissions.

5.3 Water Environment Discharge Conditions

5.3.1 Emissions from the emission sources specified in Table 5.2 shall only be permitted from the emission points specified in that Table to the destinations specified in said Table and only after having passed through the sample points specified in said Table.

5.3.2 Subject to Condition 5.3.3, no emission specified in Table 5.2 shall exceed the limit, or be out with the range, as appropriate, for the parameters specified in said tables.

5.3.3 Where the limit for any parameter in Table 5.2 is prefixed with CL, CU, or A, the following Conditions shall apply in respect of that parameter:

5.3.3.1 Subject to Condition 5.3.3.2 and 5.3.3.3, no sample of any Emission shall exceed the composite lower limit (CL);

5.3.3.2 The limit in Condition 5.3.3.1 may be exceeded where, in any series of samples of any Emission taken by SEPA at regular but randomised intervals over a year (as listed in column 1 (and 3) of Table 5.4), no more than the number of samples (as listed in column 2 (and 4) of Table 5.4) exceed the CL;

5.3.3.3 The limit in Condition 5.3.3.1 may be exceeded where, in any series of samples of any Emission taken in accordance with Condition 5.3.4 over any year (as listed in column 1 (and 3) of Table 5.4), no more than the number of samples (as listed in column 2 (and 4) of Table 5.4) exceed the CL;

5.3.3.4 Notwithstanding Condition 5.3.3.2 and 5.3.3.3, no sample of any Emission shall exceed the composite upper limit (CU);

5.3.3.5 Notwithstanding Conditions 5.3.3.2, 5.3.3.3 and 5.3.3.4, where any limit for any parameter in Table 5.2 is prefixed with the absolute limit (A), no sample, including by continuous monitoring in accordance with Table 5.2, of any Emission shall exceed A.

5.3.4 Measurement and/or sampling of the Emissions in Table 5.2 shall be carried out by the Operator at the sampling locations specified in those Tables subject to the requirements for monitoring specified in Table 5.3.

5.3.5 The date, time and results of all samples and measurements carried out in compliance with Condition 5.3.4 shall be recorded by the Operator and reported.

5.3.6 The Operator shall record the annual mass emissions to water for the parameters specified in Table 5.2, including information used to estimate the emissions.

5.3.7 The outfall shall be maintained such that the diffusers achieve at least the dispersion defined in Report BR0140 submitted to SEPA on 9 March 2010.

5.4 Operation of Process

5.4.1 Monitoring equipment

5.4.1.1 All monitors used to ensure compliance with the Conditions specified in Schedule 5 of this Permit, shall be maintained and calibrated to the manufacturer's specifications and recommended frequency, as a minimum, or at a greater frequency if in house risk assessments of the systems so dictate. All maintenance and calibrations shall be recorded including all calibration testing and testing of any alarm or trip system.

5.4.1.2 In the event of failure of the in line dissolved oxygen probes in either biotreatment tank, measurement of dissolved oxygen shall be carried out manually using a portable dissolved oxygen meter. The measurement shall be repeated twice each shift and the results shall be recorded.

5.4.1.3 A continuous flow recorder with on-site visual display from which readings can be readily obtained and an associated data storage facility shall be provided and maintained to record the instantaneous flow rates and daily volumes of the discharge of effluent from Emission number point W1. Records of the readings obtained from the flow recorded shall be maintained.

5.4.1.4 The Operator shall provide an automatic device for sampling of treated "Strong Stream Effluent" after the outlet from the secondary settlement tanks and the Emergency Biological Treatment Bypass, but before mixing with weak and bypass stream effluent and maintain said device to enable the taking of time-based composite samples. Each time-based composite sample shall be made up of 24 equal aliquots taken as a minimum at hourly intervals, beginning at 20.00 hours each day and concluding at 19:00 hours on the following day.

5.4.1.5 The Operator shall provide automatic devices for sampling of the final effluent at Dalgrain Pumping Station and maintain said device to enable the taking of flow-based composite samples, over a 24 hour period beginning at 20:00 hours each day.

5.4.1.6 Upon removal from the sampling device each flow-based composite sample shall be suitably labelled and retained on site for a further 24 hours, maintained at a temperature above freezing but below 4°C, and shall be kept available for collection by SEPA.

5.4.2 "Strong Stream Effluent" treatment

5.4.2.1 "Strong Stream Effluent" shall be subject to secondary treatment as described in Paragraph 1.1.4.2.3.

5.4.2.2 The flow of "Strong Stream Effluent" from Mixing Tank 20/281 to the biological treatment tanks shall not exceed 5,000 cubic metres a day.

5.4.2.3 The Operator shall operate and maintain a centrifuge for removing surplus settled sludge following secondary settlement of the "Strong Stream Effluent". The centrifuge cake shall be removed for off-site disposal and the centrate returned to the Mixing Tank 20/281 for subsequent biological treatment.

5.4.2.4 Subject to Conditions 5.5 and 5.6 "Third Party Waste" comprising of waste activated sludge shall be permitted to be off-loaded to the biological treatment tanks only when required to maintain a healthy biomass for biological treatment within tanks 21/501 and 21/502. The requirements of Condition 5.6.1 and Condition 5.6.2 do not apply to the requirements of this condition.

5.4.2.5 The Operator shall maintain records of when and the reasons why the following tanks were not available:

a) Tanks 04/125, 04/121 and 04/122 for the storage and blending of hazardous "Third Party Waste".
b) Tanks 04/123 and 04/124 for the storage and blending of Strong Stream Effluent other than "Third Party Waste".
c) Tank 20/253 for the receipt and settlement of non-hazardous "Third Party Waste".

5.4.2.6 Subject to Conditions 5.5 and 5.6 "Third Party Waste" comprising of waste alkali shall be permitted to be off-loaded to "Strong Stream Effluent" pH control only where required to control the pH of effluent in the biological treatment tanks. The requirements of Condition 5.6.1 and Condition 5.6.2 do not apply to the requirements of this condition.

5.4.3 "Weak Stream Effluent" treatment

5.4.3.1 "Weak Stream Effluent" shall be subject to primary treatment, with solid matter removed through a combination of screening and settlement in 04/170.

5.4.3.2 The continuous monitoring equipment identified in Table 5.3 shall be connected to an alarm and trip system designed, maintained and operated to automatically divert "Weak Stream Effluent" to the firewater lagoons in the event of the following:

5.4.3.2.1 Total Carbon exceeding 900mg/l for 1 minute;

5.4.3.2.2 pH of less than 3 or greater than 11 for 10 minutes.

5.4.3.3 "Weak Stream Effluent" which has been diverted to the firewater lagoons either automatically in accordance with Condition 5.4.3.2 or manually following a non-routine discharge shall be routed to the;

5.4.3.3.1 "Strong Stream Effluent" system if assessed by the Operator as containing substances that can be removed by secondary treatment without impacting on the biological treatment process and without causing pollution of the Water Environment after treatment; or

5.4.3.3.2 "Weak Stream Effluent" system if assessed by the Operator as not containing substances that can be removed by secondary treatment and not having the potential to cause pollution of the Water Environment without further treatment.

5.4.3.4 The diversion of "Weak Stream Effluent" to the firewater lagoons either automatically following activation of the alarm and trip system required by Condition 5.4.3.2 or manual diversion following a non-routine discharge shall be recorded and shall include the reasons for the diversion, the duration of the diversion, the nature of the diverted effluent, action taken following the diversion and the outcome of the assessment under taken in accordance with Condition 5.4.3.3.

5.4.4 Biological Treatment Plant Failure

5.4.4.1 Bypass of the Biological Treatment Plant by means of the Emergency Biological Treatment Bypass, shall only occur in the event of catastrophic failure of the Biological Treatment Plant, where the biological organisms within the biological treatment processes are either killed or suffer tremendous shock.

5.4.4.2 In the event of the failure of the Biological Treatment Plant, the said failure shall be investigated by the Operator, and a report of the investigation sent to SEPA. The report shall detail, as a minimum, the circumstances of the failure, an assessment of any harm to the environment and the steps taken by the Operator to return the Biological Treatment Plant to the standards required by Condition 5.3.3. The report shall also set out proposals for remediation, where necessary, and for preventing a repetition of the failure.

5.4.4.3 At any time when the Emergency Biotreatment Bypass is in operation, Permitted Activities shall be restricted as follows until such time as the cause of the failure of the Biological Treatment Plant has been removed and all actions identified from the report required by Condition 5.4.4.2 to prevent recurrence are completed:

a) No "Third Party Waste" shall be accepted or treated; and
b) No other "Strong Stream Effluent" shall be accepted or treated where the said process(es) have caused, or are suspected of having caused or contributed to the failure of the said Biological Treatment Plant.

5.4.4.4 In the event that the Biological Treatment Plant suffers catastrophic failure as described in Condition 5.4.4.1 the Operator shall notify SEPA without delay.

5.4.5 "Bypass Stream Effluent" management

5.4.5.1 "Bypass Stream Effluent" shall only be discharged to the Forth Estuary via the outfall without being subject to treatment as described in Paragraph 1.1.4.2.3 where necessary to control the pH of effluent in the biological treatment tanks.

5.4.5.2 The Operator shall record the date, time and duration of discharges of "Bypass Stream Effluent" and the total mass of Copper and Chemical Oxygen Demand in said discharges. A summary of said records and the reason why on each occasion it was not possible to treat the "Bypass Stream Effluent" in accordance with Condition as described in Paragraph 1.1.4.2.3 shall be submitted to SEPA in accordance with the reporting and notification requirements in Table 2.1.

5.5 Acceptance of Waste for Treatment

5.5.1 Subject to any exclusions identified in Column 2 of Table 5.5, no waste shall be accepted for treatment in the ETP other than the wastes specified in Column 1 of Table 5.5.

5.5.2 Prior to the acceptance at the ETP of any new waste stream for treatment and disposal, an assessment shall be carried out and recorded to confirm the waste is suitable for biological treatment and can be treated in compliance with the conditions of this Permit. The assessment of the new waste stream shall include but not be limited to the following:

a) Review of information on the waste provided by the waste producer or agent.
b) Analysis of a representative sample of the waste stream to verify its characteristics and suitability for biological treatment.
c) The presence of "Listed Substances" and the extent to which said substances are removed during treatment.
d) Evaluation of the likely impact of the treated effluent on the Water Environment.
e) An assessment of whether or not the waste stream is expected to be compatible with other waste streams when mixed prior to treatment.
f) An assessment of the potential to give rise to an offensive odour out-with the site boundary.

5.5.2.1 Notwithstanding Condition 5.5.2, the first load of any new "Third Party Waste" or other "Strong Stream Effluent" of any new campaign shall be sampled and analysed to verify its characteristics and suitability for biological treatment.

5.5.2.2 The first load of any new "Third Party Waste" accepted at the ETP shall not exceed 30m^3.

5.5.2.3 No further loads of a "Third Party Waste" or other "Strong Stream Effluent" campaign sampled in accordance with Condition 5.5.2.1 shall be accepted at the ETP until an assessment of the results of said analysis has been carried out.

5.5.3 The Operator shall periodically sample and analyse wastes accepted at the ETP to verify their characteristics and suitability for biological treatment. All test results and the review of said results shall be recorded.

5.5.4 A register shall be established and maintained for all waste streams assessed for treatment in the Effluent Treatment Plant. This shall include the records of assessments carried out under Condition 5.5.2 and periodic testing of the waste carried out under Condition 5.5.3.

5.5.5 A written record of all waste received at the ETP shall be kept and contain as a minimum the following information: time period of arrival at the ETP; waste producer and/ or their agent; waste description; waste quantity; the EWC Code for the waste; and results of any checking procedures with the name and signature of the responsible person. Records of "Third Party Wastes" shall also contain the date and time of arrival at the ETP, carrier and vehicle registration number and Special or Hazardous waste consignment note number or transfer note number.

5.6 "Third Party Waste"

5.6.1 All "Third Party Waste" accepted at the ETP shall be subject to treatment as described in Paragraph 1.1.4.2.3.

5.6.2 "Third Party Waste" shall only be off-loaded at the designated off-loading bays. Once the off-loading facility detailed in the Operators application for variation to SEPA dated 11 April 2014 has been commissioned, non-hazardous "Third Party Waste" shall be off-loaded directly to primary settlement tank 20/253.

5.6.3 Where "Third Party Waste" is accepted at the ETP:

a) a sample shall be taken and stored in a manner to prevent the loss or degradation of the constituents;
b) the said sample shall be retained for a minimum of 7 days and be made available to an authorised officer of SEPA on request; and
c) the container containing the said sample shall be labelled showing the name of the waste producer or their agent, waste type, date and time of delivery.

5.6.4 The Operator shall monitor all wastes entering the ETP to ensure that they are within the types permitted under the Conditions of this Permit. "Third Party Waste" shall not be off loaded unless it has been inspected by a suitably trained member of staff. Any waste found not to conform to the conditions of this permit detected during this inspection shall be rejected and SEPA notified of the following details: name and address of person, registration number of vehicle, quantity and type of waste, date and time of refusal.

5.6.5 For any wastes where analysis undertaken subsequent to discharge into the storage and blending tanks shows the composition to be out-with the requirements of the waste description, investigation and appropriate remedial action shall be taken before further loads of the waste stream are accepted.

5.7 Upgrade Conditions

5.7.1 The Operator shall evaluate the techniques used to prevent and minimise emissions to water and to air from the ETP and report on the outcome of the evaluation, including the improvements which have been made, are planned to be made and could be made to optimise biological treatment, primary and secondary settlement and further reduce emissions to air of off-gases from the odour abatement plant, as follows:

5.7.7.1 By 31 January 2014 the Operator shall submit in writing to SEPA details of improvements made to the existing techniques over the period 2009-2013.

5.7.7.2 By 31 March 2014 the Operator shall submit in writing to SEPA its 2014-2019 five year rolling plan for improving operation of the ETP, accounting for any planned growth.

5.7.7.3 By 30 September 2014 the Operator shall have carried out an internal inspection of biological treatment tank 21/502 and submitted in writing to SEPA details of the inspection findings, improvements implemented whilst the tank was out of service and plans for the internal inspection of biological treatment tank 21/501.

5.7.7.4 By 31 December 2015 the Operator shall have carried out an internal inspection of biological treatment tank 21/501, undertaken improvement work, evaluated the outcome of the improvements make with reference to off-gas, stack gas, effluent and performance monitoring, established an inspection schedule and reported to SEPA in accordance with Table 2.1. The improvement work shall include installation of a new diffuser aeration system and optimisation of effluent introduction.

5.7.7.5 By 28 February 2017 the Operator shall have carried out an evaluation of techniques which could be used, and are not currently used, and submitted in writing to SEPA details of the techniques evaluated, the criteria used in the evaluation and the outcome of the evaluation, in particular reasons the reasons why the techniques evaluated have either been discounted or identified for further consideration.

Table 5.1 – Emissions to Air

Sources of Emissions	Major Release Points	Emission point Number	Stack A
		Emissions Source	Off Gas Treatment
		Stack Height (m)	27m
		Location on site	Adjacent to 21/502 biotreatment tank
		NGR	NS 9159 8192
	Minor Release Points	Pressure/ vacuum valves	
		Unsealed chambers and open top tanks	
		Atmospheric vents	

Table 5.2 Emissions to Water

Source of Emission	**Emission number point**	W1	W1-SS	W1-WS
	Source of Emission	Combined Final Effluent	Treated "Strong Stream Effluent"	Treated "Weak Stream Effluent"
	Destination	Forth Estuary	Forth Estuary	Forth Estuary
	Emission location	NS 94430 84250	NS 94430 84250	NS 94430 84250
	Sampling location	Dalgrain Pumping Station NS 91526 82253	NS 91534 81958	NS 91660 81930
Limits For Parameters From Emission Source (Kg/day unless specified)	**Biochemical Oxygen Demand**	As for W1-SS	20,000 CU 10,000 CL	Not set
	Chemical Oxygen Demand	As for W1-SS	66,000 CU 33,000 CL	Not set
	Ammoniacal Nitrogen (expressed as N)	As for W1-SS	2,000 CU 1,000 CL	Not set
	Dissolved Cadmium	As for W1-SS	1 CU 0.5 CL	Not set
	Total Chromium	As for W1-SS	4 CU 2 CL	Not set
	Total Copper	As for W1-SS	40 CU 20 CL	Not set
	Dissolved Lead	As for W1-SS	4 CU 2 CL	Not set
	Total nickel	As for W1-SS	4 CU 2 CL	Not set
	Total zinc	As for W1-SS	100 CU 50 CL	Not set
	Phenol	As for W1-SS	120 CU 60 CL	Not set
	Cyanide	As for W1-SS	14 CU 7 CL	Not set
	Chloroform	As for W1-SS	25 CU 12.5 CL	Not set
	Dichloro-methane	As for W1-SS	40 CU 20 CL	Not set
	Xylene	As for W1-SS	100 CU 50 CL	Not set
	Toluene	As for W1-SS	100 CU 50 CL	Not set
	Total Carbon	Not set	Not set	1,000 mg/l (A)
	Total Organic Carbon	Not set	Not set	1,000 mg/l (A)
	pH	Not set	6-9 units	Not set

Table 5.3 Emissions to Water Monitoring Requirements

Parameter	Emission (Number(s))	Test Method	Reporting Format	Sampling/ Measurement Facility	Instantaneous	Composite	
					Frequency	Frequency	Sample Basis
Total Copper	W1	Inductively Coupled Plasma emission spectrophotometry	Kg/ day	Laboratory		At least once during every discharge of "Bypass Stream Effluent" routed directly to the mixing sump for more than 24 hours	Flow-based 24 hour composite
Toxicity	W1	Skeletonema costatum algal growth and Tisbe battagliai mortality tests	Toxicity threshold %v/v effluent	Laboratory		Quarterly	Flow-based 24 hour composite
Volume	W1	In line flow meter	Total m3/ day	Plant metering system	Continuous		
pH	W1-SS	ISBN 0117514284	Unit	Laboratory		Weekly	Time-based 24 hour composite
Biochemical Oxygen Demand	W1-SS	Standard Blue Book – 5 day incubation method with allylthiourea to suppress nitrification during test	Kg/ day	Laboratory		Weekly	Time-based 24 hour composite
Chemical Oxygen Demand	W1-SS	Hach Lange method	Kg/ day	Laboratory		Weekly	Time-based 24 hour composite
Ammoniacal Nitrogen (expressed as N)	W1-SS	Standard Blue Book	Kg/ day	Laboratory		Weekly	Time-based 24 hour composite
Suspended solids	W1-SS	EN 872: 2005	Kg/day	Laboratory		Monthly	Time-based 24 hour composite
Total Chromium Total Zinc Total Nickel Total Copper Total Mercury Dissolved Cadmium Dissolved Lead	W1-SS	Inductively Coupled Plasma emission spectrophotometry	Kg/ day	Laboratory		Monthly	Time-based 24 hour composite
Chloroform Dichloro-methane Trichloro-ethylene Xylene Toluene	W1-SS	Gas chromatography/mass spectrometry	Kg/ day	Laboratory		Monthly	Time-based 24 hour composite

Parameter	Emission (Number(s))	Test Method	Reporting Format	Sampling/ Measurement Facility	Instantaneous	Composite	
					Frequency	Frequency	Sample Basis
Phenol Cyanide	W1-SS	Standard Blue Book	Kg/ day	Laboratory		Monthly	Time-based 24 hour composite
pH	W1-WS	In line meter	Unit as measured	Plant metering system	Continuous		
Total Carbon	W1-WS	In line meter	mg/l as measured	Plant metering system	Continuous		

Table 5.4 - Two Tier Consent Table

Series of samples taken in any period of 12 consecutive months	Maximum permitted number of samples which fail to conform	Series of samples taken in any period of 12 consecutive months	Maximum permitted number of samples which fail to conform
1 - 7	1	172 - 187	14
8 - 16	2	188 - 203	15
17 - 28	3	204 - 219	16
29 - 40	4	220 - 235	17
41 - 53	5	236 - 251	18
54 - 67	6	252 - 268	19
68 - 81	7	269 - 284	20
82 - 95	8	285 - 300	21
96 - 110	9	301 - 317	22
111- 125	10	318 -334	23
126 - 140	11	335 - 350	24
141 - 155	12	351 - 365	25
156 - 171	13		

Table 5.5 – Accepted Wastes

European Waste Catalogue Chapter	Excluded wastes from European Waste Catalogue Chapter
01 Wastes resulting from exploration, mining, quarrying, physical and chemical treatment of minerals	Sub chapters: 01 01, 01 03 and 01 04
02 Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing	Codes: 02 01 02 and 02 02 02
03 Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard	Sub chapter: 03 02
04 Wastes from the leather, fur and textile industries	Codes: 04 01 04 and 04 01 06
05 Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal	Sub chapters: 05 01 and 05 06 Codes: 05 07 01* and 05 07 02
06 Wastes from inorganic chemical processes	Sub-chapters: 06 03, 06 04, 06 06 and 06 07 Code: 06 13 01*
07 Wastes from organic chemical processes	
08 Wastes from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks	
09 Wastes from the photographic industry	Code: 09 01 05*
10 Wastes from thermal processes	
11 Wastes from chemical surface treatment and coating of metals and other materials; non-ferrous hydro-metallurgy	Codes: 11 01 05* and 11 01 07*
12 Wastes from shaping and physical and mechanical surface treatment of metals and plastics	
14 Waste organic solvents, refrigerants and propellants (except 07 and 08)	Codes: 14 06 01*, 14 06 04* and 14 06 05*
16 Wastes not otherwise specified in the list	Sub-chapters:16 01, 16 02, 16 04, 16 06, and 16 11 Codes: 16 05 04*, 16 05 05, 16 05 06*, 16 07 08*, 16 09 01*, 16 09 02* and 16 09 03*
19 Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use	Sub chapters: 19 01, 19 03, 19 04, 19 05, 19 10 and 19 12 Codes: 19 06 99 and 19 07 02*
20 Municipal Wastes (Household Waste and similar Commercial, Industrial and Institutional Wastes) Including Separately Collected Fractions	Sub chapters: 20 01 and 20 02 Codes: 20 03 01, 20 03 02, 20 03 04, 20 03 06, 20 03 07 and 20 03 99 (except "Weak Stream Effluent")

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EXPLANATORY NOTES

(These Explanatory Notes do not form part of the Permit)

1. BAT

It should be noted that Regulation 9(11) & (12) of the Regulations specify that there is an implied Condition in every Permit that, in operating the installation or mobile plant, the Operator shall use the best available techniques (BAT) for preventing or, where that is not practicable, reducing Emissions from the installation or mobile plant.

This implied Condition does not apply in relation to any aspect of the operation of the installation or mobile plant, which is regulated by a specific Condition of the Permit. Examples of aspects of the operation that have not been regulated by specific Conditions are management and supervision systems, training and qualification and maintenance in general.

BAT is defined in Regulation 3 of the Regulations as follows:

"Best available techniques" means the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing in principle the basis for Emission limit values designed to prevent and, where that is not practicable, generally to reduce Emissions and the impact on the environment as a whole.

"available techniques" means those techniques which have been developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable Conditions, taking into consideration the cost and advantages, whether or not the techniques are used or produced inside the UK, as long as they are reasonably accessible to the operator.

"best" means in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole.

"techniques" includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.

Schedule 2 of the Regulations specifies the matters to be taken into account in determining BAT.

In considering BAT, SEPA would expect the Operator to have regard to all relevant PPC sectoral or other technical guidance, including BAT Reference Documents published by the European Commission and UK technical guidance published by the Environment Agency.

2. GENERAL STATUTORY REQUIREMENTS

The Permit does not detract from any other statutory requirements applicable to you in respect of the Permitted Installation, such as any need to obtain planning permission or building regulations approval or any responsibilities under legislation for health, safety and welfare in the workplace.

3. APPEALS

If you are aggrieved by any of the Conditions of the Permit, you should initially contact the local SEPA Office at the address or telephone number below. Further information on your right of appeal and the appeals procedure is contained Regulation 22 and Schedule 8 of the Regulations.

4. SUBSISTENCE CHARGES

An annual subsistence charge will be payable in respect of the Permit in terms of the Pollution Prevention and Control (Scotland) Charging Scheme 2002 or any relevant charging scheme made under Section 41 of the Environment Act 1995, copies of which are available from SEPA.

5. ADDRESS AND TELEPHONE NUMBERS

The contact address and telephone number for all information to be reported in terms of the Permit, is as follows: -

Angus Smith Building
6 Parklands Avenue
Eurocentral
Holytown
ML1 4WQ

Tel No: 0800 80 70 60 and/or local office number 01738 627989
Fax No: 01738 630997

6. REVIEW OF CONDITIONS

The Conditions of the Permit will be periodically reviewed by SEPA.

7. PROPOSED CHANGE IN OPERATION OF INSTALLATION

It is a requirement of Regulation 12 of the Regulations that if you propose to make a change in the operation of the installation, you must notify SEPA at least 14 days before making the change. The requirement under Regulation 12 does not apply if you have already made an application to SEPA for the variation of the Conditions of the Permit containing a description of the proposed change.

N.B. the requirements of Regulation 12 are in addition to any obligations you may have under the Permit itself to only operate the Permitted Installation in the manner set out in the Permit and to notify SEPA of proposed changes to the Permitted Installation.

Regulation 13 and Schedule 7 of the Regulations provide details on applications for variation of the Permit in respect of proposed changes and substantial changes in operation.

"Change in operation" and "substantial change in operation" are defined in Regulation 2 of the Regulations.

8. ENFORCEMENT & OFFENCES

If SEPA is of the opinion that you have contravened, or are contravening or are likely to contravene a Condition of the Permit it may serve an Enforcement Notice. Further details on Enforcement Notices are provided in Regulation 19 of the Regulations.

If SEPA is of the opinion that the operation of an installation or mobile plant involves a risk of serious pollution it must, in certain circumstances, serve a Suspension Notice on you. Further details on Suspension Notices are provided in Regulation 20 of the Regulations.

It is an offence to operate an installation or mobile plant covered by the Regulations without a Permit or in breach of the Conditions of the Permit. It is an offence to fail to comply with the requirements of an Enforcement or Suspension Notice. It is an offence to intentionally make a false entry in any record required to be kept under a Condition of a Permit. Further details on offences and on penalties liable to be imposed upon conviction of an offence are provided in Regulation 30 of the Regulations.

Directors, managers and other individuals within a company may be held personally liable for offences under the Regulations.

All personnel who are responsible for fulfilling any Condition of the Permit should be made aware of these facts.

9. RECORDED SYSTEMS, PROCEDURES OR INFORMATION RECORDING/RETURN REQUIREMENTS

Where a Condition requires any system, register, procedure or information record/return, the Operator may demonstrate compliance by making use of any relevant existing written system used for any other purpose and which meets the requirements of the relevant Condition.

10. SYSTEMATIC ASSESSMENT (AND REVIEW)

Where a Condition of the permit requires a "systematic assessment (and review)" the assessment should be undertaken in a methodical and arranged manner. If you require guidance on the scope or extent of any assessment (and review) required to be undertaken, you should contact your local SEPA office at the address or telephone number given above.

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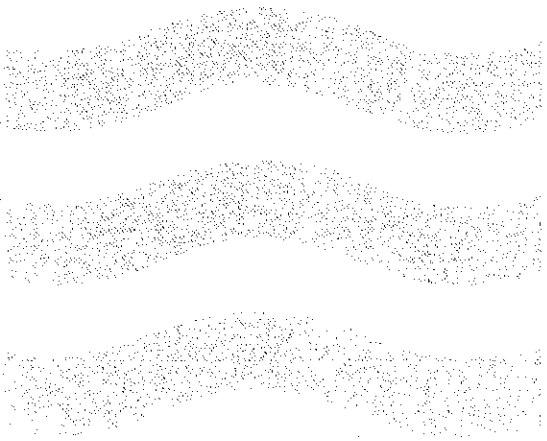

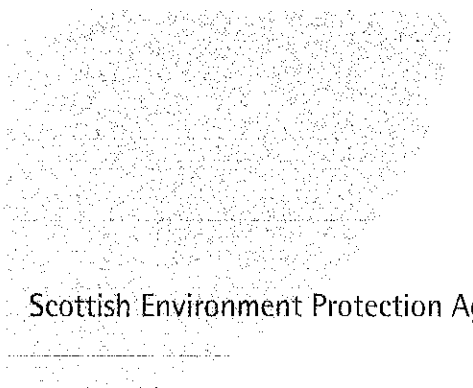

Scottish Environment Protection Agency