

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Runcorn MCP Limited

Runcorn Halochemicals Manufacturing
PO Box 9
Runcorn
Cheshire
WA7 4JE

Variation application number

EPR/RP3736WB/V002

Permit number

EPR/RP3736WB

Runcorn Halochemicals Manufacturing

Permit number EPR/RP3736WB

Introductory note

This introductory note does not form a part of the notice.

Under the Environmental Permitting (England & Wales) Regulations 2010 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

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

Purpose of Variation EPR/RP3736WB/V002

The requirements of the Industrial Emissions Directive (IED) 2010/75/EU are given force in England through the Environmental Permitting (England and Wales) Regulations 2010 (the EPR) (as amended).

This Permit, for the operation of chlor-alkali production plant, as defined by article 10 of the Industrial Emissions Directive (IED), is varied by the Environment Agency to implement the provisions for Activities Listed in Annex I under Chapter II in the IED, by 9 December 2017 (Article 21(3)).

As well as implementing Chapter II of IED, the consolidated variation notice takes into account and brings together in a single document all previous variations that relate to the original permit issued. It also modernises the conditions to reflect those contained in our current generic permit template.

The schedules specify the changes made to the permit.

Purpose of original permit

The Permit is to operate the Membrane Chlorine Plant (MCP) part of the Runcorn Halochemicals Manufacturing Installation carrying out activities covered by the descriptions in a number of Sections in Part 2 to Schedule 1 of the Environmental Permitting Regulations (England and Wales) Regulations 2010 (and amendments), to the extent authorised by the Permit:

- Section 4.2 A(1)(a)(i) - *“Producing inorganic chemicals such as ... gases, such as ... hydrogen chloride ...”*
- Section 4.2 A(1)(a)(iii) - *“Producing inorganic chemicals such as ... bases, such as ... sodium hydroxide ...”*
- Section 4.2 A(1)(a)(iv) - *“Producing inorganic chemicals such as ... salts, such as ... sodium hypochlorite ...”*
- Section 4.2 A(1)(a)(vi) - *“Producing inorganic chemicals such as ... halogens ...”*;
- Section 4.2 A(1)(b) – *“.....any manufacturing activity which is likely to result in the release into the air of any hydrogen halide... or which is likely to result in the release into the air or water of any halogen...”*

In some sections of the Permit conditions require the Operator to use Best Available Techniques (BAT), in each of the aspects of the management of the installation, to prevent and where that is not practicable to reduce emissions. The conditions do not explain what is BAT. In determining BAT, the Operator should pay particular attention to relevant sections of the Environment Agency industry sector guidance, appropriate Horizontal guidance and other relevant guidance.

The main features of the Runcorn Halochemicals installation are as follows.

Runcorn Halochemicals

The Installation is located at Runcorn, Cheshire, the centre of the site being at National Grid Reference SJ 5020 8050. The area of the Runcorn Site is approximately 125 hectares. The site is within 2 km of the Mersey Estuary Special Protected Area/RAMSAR site/Site of Special Scientific Interest.

The primary purpose of the Installation is to manufacture chlorine based chemicals using salt as the basic feedstock. The salt is electrolytically decomposed to form chlorine and sodium hydroxide (caustic soda). These are then sold or used elsewhere in the installation in the manufacture of mainly chlorine based chemicals.

The main features of the Membrane Chlorine Plant part of the installation are as follows.

The Membrane Chlorine Plant part of the Runcorn Halochemicals Installation

Brine is imported by pipeline from Northwich in mid-Cheshire and is converted by electrolysis in membrane cells into chlorine, hydrogen and sodium hydroxide (caustic soda). This is a bipolar membrane plant and is considered BAT. The bulk of the chlorine produced is used as feedstock for on-site downstream processes (by other operators) for the manufacture of chlorinated methanes, ethanes and paraffins. Chlorine is also shipped to external customers in road tankers and packaged by a third part into cylinders and drums for external sale.

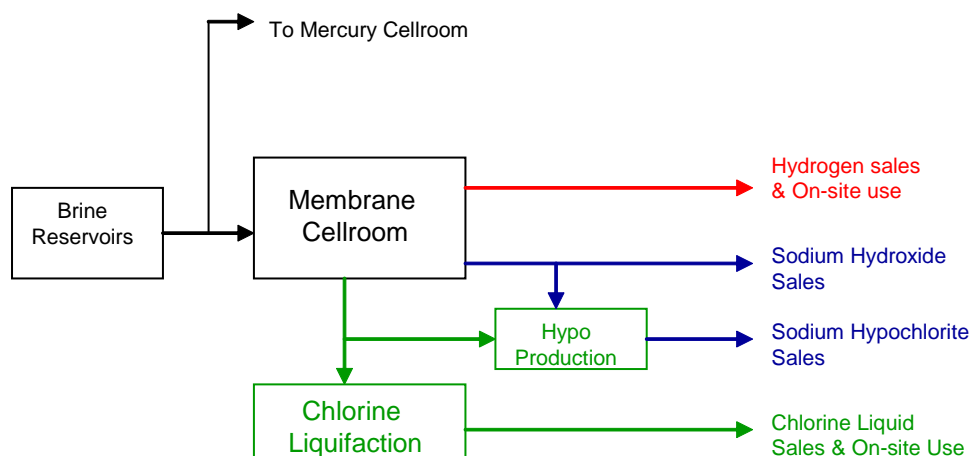
Sodium hydroxide is supplied as an aqueous solution to other operators in the installation and for off-site sales.

The hydrogen from the process is either sold, or used in the on-site power station. Some hydrogen is reacted with chlorine to produce hydrogen chloride. This (mixed with hydrogen chloride co-product streams from other parts of the site) is used in the Membrane Chlorine Plant part of the installation, supplied to other companies located on the site, or dissolved in water to produce hydrochloric acid for sale.

Process description

Chlorine Production

The process for the production of chlorine is complex and is summarised in the following diagram

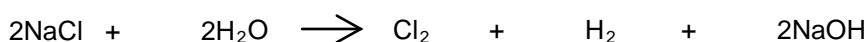


Brine Storage

The main raw material, brine (concentrated salt solution), is imported from Lostock by pipeline and stored in the Weston Brine Reservoirs.

Membrane Cell Unit

The membrane cellroom represents technology to produce chlorine without the use of mercury and has been designed for a chlorine production of 500,000 tonnes per annum (tpa). High purity brine feed is achieved by filtration, to remove solid impurities, and ion exchange, to remove carbonates and soluble salts of, for example, calcium and magnesium. In the membrane electrolyzers direct current electricity is used to convert sodium chloride solution into chlorine, caustic soda and hydrogen. There are two sets of membrane cells, each consisting of 10 electrolyzers. The chemical/electrolytic process can be represented by the chemical equation:



A chlorine treatment plant dedicated to the product from the membrane process ensures that this chlorine also remains mercury-free. The chlorine removed from the cells is purified by filtration, dried by scrubbing with sulphuric acid, compressed and liquefied by the use of condensers.

Caustic soda is produced at about 30% strength from the membrane electrolyzers. An evaporation plant, using steam as the energy source, increases the strength to about 50%.

Sodium hypochlorite solution (known as hypo) is produced by absorption of chlorine from gas streams into caustic soda solution. Treatment of process vents in this way minimises chlorine emissions to atmosphere whilst producing a useful product. In addition, external demand for sodium hypochlorite requires further deliberate absorption of product chlorine.

Depleted brine from the electrolyzers is saturated with chlorine gas. The depleted brine treatment part of the plant recovers the majority of chlorine as product. The effluent treatment part of this area ensures that where possible acid and alkali streams cross-neutralise, minimising the use of hydrochloric acid and caustic soda for effluent treatment.

The tail gas from the chlorine compression/liquefaction stage is reacted with hydrogen produced from the cells to produce hydrogen chloride gas which is then absorbed in water to produce hydrochloric acid for use elsewhere on the site.

Emissions

Process emissions to air include those from the hypo plant, emergency absorption plant and HCl synthesis. The main components of the emissions are hydrogen and trace quantities of chlorine and hydrogen chloride.

The principal emissions to water are surface water arisings and spent brine discharged to the Weston Canal. Emissions from the membrane cellroom are mercury free.

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

Status log of the permit		
Description	Date	Comments
Application BS5428IP	14/12/2004	Received
Permit issued BS5428IP (EPR/BS5428IP/A001)	21/07/2005	-
Variation TP3237UW issued (EPR/BS5428IP/V002)	01/09/2008	Consolidated permit correcting typographical errors.
Variation FP3837GB issued (EPR/BS5428IP/V003)	20/07/2011	
Partial Transfer Application EPR/RP3736WB/T001	Duly made 22/12/2014	Part transfer of permit EPR/BS5428IP
Partial Transfer determined EPR/RP3736WB/T001	15/05/2015	Transfer of membrane chlorine operations. (PAS Ref RP3736WB)
Regulation 60 Notice sent to the Operator	22/05/2015	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary the permit under IED to implement the provisions for activities listed in Annex I under Chapter II.
Regulation 60 Notice response	21/08/2015	Response received from the Operator.
Additional information received	02/03/2016	Response to request for further information dated 19/01/16 and 21/01/16.
Variation EPR/RP3736WB/V002 (PAS Billing ref: RP3236RH)	16/03/2016	Varied permit issued for review of conditions resulting from the response to the Regulation 60(1) Notice of EPR.

Other Part A installation permits relating to this installation		
Operator	Permit number	Date of issue
INOVYN ChlorVinyls Limited (formerly INEOS Chlor Limited)	BS5428IP	July 2005
INEOS Enterprises Ltd	HP3534PP	July 2005
Mexichem UK Limited (formerly INEOS Fluor Limited)	QP3535TE	July 2010
Industrial Chemicals Limited (formerly INEOS Chlor Limited (Iron Salts))	EP3635TU	May 2010
INEOS ChlorVinyls Limited	AP3931FT	Oct 2011

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies and consolidates

Permit number

EPR/RP3736WB

Issued to

Runcorn MCP Limited (“the operator”)

whose registered office is

Runcorn Site HQ

South Parade

PO Box 9

Runcorn

Cheshire

WA7 4JE

company registration number **09117961**

to operate part of a regulated facility at

Runcorn Halochemicals Manufacturing

PO Box 9

Runcorn

Cheshire

WA7 4JE

to the extent set out in the schedules.

The notice shall take effect from 16/03/2016

Name	Date
Mike Jenkins	16/03/2016

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number

EPR/RP3736WB

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/RP3736WB/V002 authorising,

Runcorn MCP Limited (“the operator”),

whose registered office is

Runcorn Site HQ

South Parade

PO Box 9

Runcorn

Cheshire

WA7 4JE

company registration number **09117961**

to operate part of a regulated facility at

Runcorn Halochemicals Manufacturing

PO Box 9

Runcorn

Cheshire

WA7 4JE

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

Name	Date
Mike Jenkins	16/03/2016

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

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

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

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

1.2 Energy efficiency

1.2.1 The operator shall:

- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
- (b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
- (c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
- (b) maintain records of raw materials and water used in the activities;
- (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
- (d) take any further appropriate measures identified by a review.

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

1.4.1 The operator shall take appropriate measures to ensure that:

- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
- (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
- (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

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

1.5 Multiple operator installations

- 1.5.1 Where the operator notifies the Environment Agency under condition 4.3.1 (a) or 4.3.1 (c), the operator shall also notify without delay the other operators of the installation of the same information.

2 Operations

2.1 Permitted activities

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

2.2 The site

- 2.2.1 The activities authorised under condition 2.1.1 shall not extend beyond the hatched areas numbered '3' on the Site Plan at Schedule 7 to this Permit. The multi-operator installation, being the land shown edged in green on the Site Plan, represents the extent of the installation covered by this Permit and those of the other Operators of the installation. The Site, being the land shown edged in red on the Site Plan, comprises this and other land occupied by the Operators that is not part of the installation.

2.3 Operating techniques

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
 - (b) the composition of the waste;
 - (c) the handling requirements of the waste;
 - (d) the hazardous property associated with the waste, if applicable; and
 - (e) the waste code of the waste.
- 2.3.5 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

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

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

2.5 Pre-operational conditions

There are no pre-operational conditions

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 At all times, the Operator shall use his best endeavours to not exceed the Indicative Targets for emissions to water, specified in Table S3.2 and:
- (a) on no occasion shall the measured value remain in the zone between the Indicative Target and the Limit for a period longer than the Time Constraint specified in Table S3.2
 - (b) the Cumulative Time that the measured value remains between the Indicative Target and the Limit, within any one month, shall not exceed the cumulative time specified in Table S3.2.
- 3.1.4 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits; and
 - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

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

- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour; and
- (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

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

3.4.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration; and
- (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

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

- (a) point source emissions specified in tables S3.1 and S3.2.
- (b) performance monitoring specified in table S3.3.

3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

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

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

4 Information

4.1 Records

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

- (a) be legible;
- (b) be made as soon as reasonably practicable;
- (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

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

- (i) off-site environmental effects; and
- (ii) matters which affect the condition of the land and groundwater.

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

4.2 Reporting

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

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

- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
- (b) the annual production /treatment data set out in schedule 4 table S4.2; and
- (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

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

- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
- (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
- (c) giving the information from such results and assessments as may be required by the forms specified in those tables.

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

4.3 Notifications

4.3.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (i) inform the Environment Agency;
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident; and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
 - (i) inform the Environment Agency; and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
- 4.3.2 Any information provided under condition 4.3.1(a)(i), or 4.3.1(b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
- Where the operator is a registered company:
- (a) any change in the operator's trading name, registered name or registered office address; and
 - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.
- Where the operator is a corporate body other than a registered company:
- (a) any change in the operator's name or address; and
 - (b) any steps taken with a view to the dissolution of the operator.
- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) the Environment Agency shall be notified at least 14 days before making the change; and
 - (b) the notification shall contain a description of the proposed change in operation.
- 4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.
- 4.3.7 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:
- (a) a decision by the Secretary of State not to re-certify the agreement;
 - (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
 - (c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.4 Interpretation

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made without delay, in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
Section 4.2 A(1)(a)(i)	Production of hydrogen chloride	Receipt of raw materials to despatch of finished product.
Section 4.2 A(1)(a)(iii)	Production of sodium hydroxide	Receipt of raw materials to despatch of finished product.
Section 4.2 A(1)(a)(iv)	Production of sodium hypochlorite	Receipt of raw materials to despatch of finished product.
Section 4.2 A(1)(a)(vi)	Production of chlorine	Receipt of raw materials to despatch of finished product.
Section 4.2 A(1)(b)	Activities using hydrogen chloride and chlorine	Receipt of raw materials to despatch of finished product.
Directly Associated Activity		
Storage and handling of product	Sodium Hydroxide solution (Caustic soda) storage	Receipt of caustic soda to despatch of final product
Handling and Storage of waste material	Storage and handling of all waste material	Production of waste to the disposal from the Permitted Installation as described in the application

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	The response to questions 2.1 and 2.2 given in each of the sections 2.1 and 2.2 of the Chlorine Production parts of the application describing: a) the membrane chlorine plant b) chlorine handling c) caustic soda handling d) hydrogen handling e) sodium hypochlorite synthesis f) hydrogen chloride synthesis	14/12/04
Application	The response to questions 2.10 in respect of monitoring methods and monitoring frequency described in sections 2.10.1 of each of the Chlorine Production parts of the application	14/12/04
Additional information	Additional information supplied by the operator in several letters	27/01/05, 01/02/05, 07/02/05, 08/03/05
Supporting information to the application for variation FP3837GB of permit BS5428IP	'Update of Process Description Part 1 – Core Report' Sections 2.3, 2.5, 2.7, 2.8, 2.9 & 2.10 Where relevant to Membrane Chlorine process	Nov 2009

Table S1.2 Operating techniques		
Description	Parts	Date Received
Supporting information to the application for partial transfer EPR/RP3736WB/T001 EPR/BS5428IP/V004	The information describing modified operating techniques supplied in the application.	09/12/14
Regulation 60(1) Notice – request for further information dated 22/05/15	Technical standards in relation to Best available techniques as described in BAT conclusions under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for chlor-alkali production BAT Conclusions Numbers: BAT 1 (cell technology); BAT 4 (waste water generation); BAT 5 and BAT 6 (energy efficiency); BAT 7 (emissions monitoring); BAT 8 and BAT 10 (emissions to air); BAT 11, BAT 12, BAT 13, BAT 14 and BAT 15 (emissions to water); BAT 16 (waste generation); BAT 17 (site remediation). (BAT 2, BAT 3 and BAT 9 are not relevant for this activity)	21/08/15

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
1 (now IC1)	No longer relevant	
IC2	The operator shall submit, for approval by the Environment Agency, a report setting out progress to achieving the BAT conclusion Associated Emission Levels (BAT-AEL) where BAT is currently not achieved, but will be achieved before 9 December 2017 The report shall include, but not be limited to, the following: 1) Current performance against the BATc AEL. 2) Methodology for reaching the AELs. 3) Associated targets / timelines for reaching compliance by 9 December 2017 The report shall address the following BAT Conclusions: • BAT 8, BAT 13 and BAT 16	Progress reports by 09/06/16 09/12/16 09/06/17
IC3	The operator shall submit, for approval by the Environment Agency, a report setting out progress to achieving the 'Narrative' BAT where BAT is currently not achieved, but will be achieved before 9 December 2017. The report shall include, but not be limited to, the following: 1) Methodology for achieving BAT. 2) Associated targets / timelines for reaching compliance by 9 December 2017 The report shall address the following BAT Conclusion: • BAT 7	Progress reports by 09/06/16 09/12/16 09/06/17

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
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Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements				
Emission point ref. & Source	Parameter	Limit	Monitoring frequency	Monitoring standard or method
GA 01, GB 01 Waste gas dechlorination unit vents for membrane cellrooms A and B	Chlorine	No limit set	Continuous	Dräger Polytron 7000
		1 mg/m ³ [1], [2]	Yearly	Sampling and analysis based on US EPA 26 to ISO 17025, by ion chromatography
GA 02, GB 02 HCl burner vents for membrane cellrooms A and B	Chlorine	No limit set	Continuous	Procal P5000 OHU/ACU
		1 mg/m ³ [1], [2]	Yearly	Sampling and analysis based on US EPA 26 to ISO 17025, by ion chromatography
	Hydrogen chloride	10 mg/m ³	Continuous	Siemens LDS6 tuned laser diode
Yearly			Sampling (non-isokinetic) and analysis based on BS EN 1911 to ISO 17025.	
CI-13, CI-14 Hydrogen compressor vents QREA 202 and QREA 710	No parameters set	--	--	--

Note [1]: This limit shall apply from 9 December 2017. Until then the limit shall be 10 mg/m³.

Note [2]: With effect from 9 December 2017, this limit is for the average value of at least three consecutive hourly measurements of chlorine and chlorine dioxide, measured together and expressed as Cl₂, performed at least once every year at the emission point by absorption in a solution with subsequent analysis.

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements					
Emission point ref. & source	Parameter	Limit	Indicative Target	Monitoring frequency	Monitoring standard or method
W46 Membrane cellroom Process effluent discharge to Weston Canal	Temperature	50 °C	35 °C [1]	Weekly spot sample	Sampling and analysis to ISO17025 by thermometry
	pH range	5 – 10	5 – 9	Weekly spot sample	Sampling and analysis to ISO17025 by titrimetry
	Total suspended solids [2]	75 mg/l	50 mg/l	Weekly spot sample	Sampling and analysis to ISO17025 by gravimetry
	Visible oil or grease	None visible	---	Weekly spot sample	Visual check
	TOC	50 mg/l	30 mg/l	Weekly spot sample	Sampling and analysis to ISO17025 by infra red techniques
	Bisulphite [5]	25 mg/l	15 mg/l	Weekly spot sample	Sampling and analysis to ISO17025 by titrimetry (reported as sulphide)
	Free Chlorine expressed	0.2 mg/l [3], [4]	---	Weekly spot sample	Sampling and analysis to ISO17025 by iodometric titrimetry

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements

Emission point ref. & source	Parameter	Limit	Indicative Target	Monitoring frequency	Monitoring standard or method
	as Cl ₂	No limit set	---	Continuous	Reduction potential method (no standard available)
	Indicative target time constraint	4 hours	---	---	---
	Indicative target cumulative time	8 hours	---	---	---

Note [1]: Outfall W46 shall have a higher temperature indicative target of 50 °C during periods of Membrane Chlorine Plant start-up.

Note [2]: Emission limits and indicative targets for suspended solids do not apply during or immediately after heavy rainfall or after the testing of a fire water main.

Note [3]: This limit (with no indicative target) shall apply from 9 December 2017. Until then the limit shall be 20 mg/l, with an indicative target of 5 mg/l.

Note [4]: With effect from 9 December 2017, this limit is for the value of spot samples expressed as Cl₂, taken at least once every month at the emission point.

Note [5]: Outfall W46 shall have a higher bisulphite indicative target of 30 mg/l and limit of 50 mg/l during periods of Membrane Chlorine Plant start-up.

Table S3.3 Performance monitoring requirements

Description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Spent sulphuric acid from chlorine drying process for disposal	H ₂ SO ₄ (96 wt-%)	Annual assessment	Gravimetric	≤ 0.1 kg H ₂ SO ₄ /tonne chlorine produced [1]

Note [1]: This limit shall apply from 9 December 2017.

Schedule 4 – Reporting

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

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air: Chlorine	GA 01, GA 02, GB 01, GB 02.	Quarterly	1 January, 1 April, 1 July, 1 October
Emissions to air: Hydrogen chloride	GA 02, GB 02		
Emissions to water: Total Organic Carbon (kg), Temperature, pH, Suspended solids, Free chlorine, Visible oil and grease, Bisulphite.	W46		
Emissions to Water	W46	Annual	1 January

Table S4.2: Annual production/treatment	
Parameter	Units
None required	

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Performance indicator
Time constraints for exceedances of indicative targets (in respect of condition 3.1.3)	Quarterly	No breaches of condition.
Spent sulphuric acid from chlorine drying process for disposal	Annual	No breaches of condition.
Water usage	Annual	m ³ consumed
Energy consumption	Annual	MWh consumed

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Emissions to Air	Form MCP/A1 and Form MCP/Annual1 or other form as agreed in writing by the Environment Agency	26/01/16
Emissions to Water	Form MCP/Water1 and Form MCP/Annual1 or other form as agreed in writing by the Environment Agency	26/01/16
Performance indicators	Form MCP/Performance1 or other form as agreed in writing by the Environment Agency	26/01/16
Energy consumption	Form MCP Annual2 or other form as agreed in writing by the Environment Agency	Undated
Water usage	Form MCP Annual2 or other form as agreed in writing by the Environment Agency	Undated

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

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

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

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

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

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

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

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

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

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

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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

“free chlorine” means the sum of dissolved elementary chlorine, hypochlorite, hypochlorous acid, dissolved elementary bromine, hypobromite, and hypobromic acid, measured together and expressed as Cl₂.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Indicative Target” in respect of emissions to water or air is the highest level of emission of a substance that would normally be experienced at an emission point. Occasionally, and not normally greater than 5% of the time, emissions higher than this can be expected as a natural feature of the activity concerned. A brief exceedance of an Indicative Target is not considered a Regulatory breach. There are specific conditions in the Permit to assess whether prolonged breaches of an Indicative Target are regulatory breaches. All exceedances of Indicative Targets are investigated by the Operator. Indicative Targets may not have associated emission limits.

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

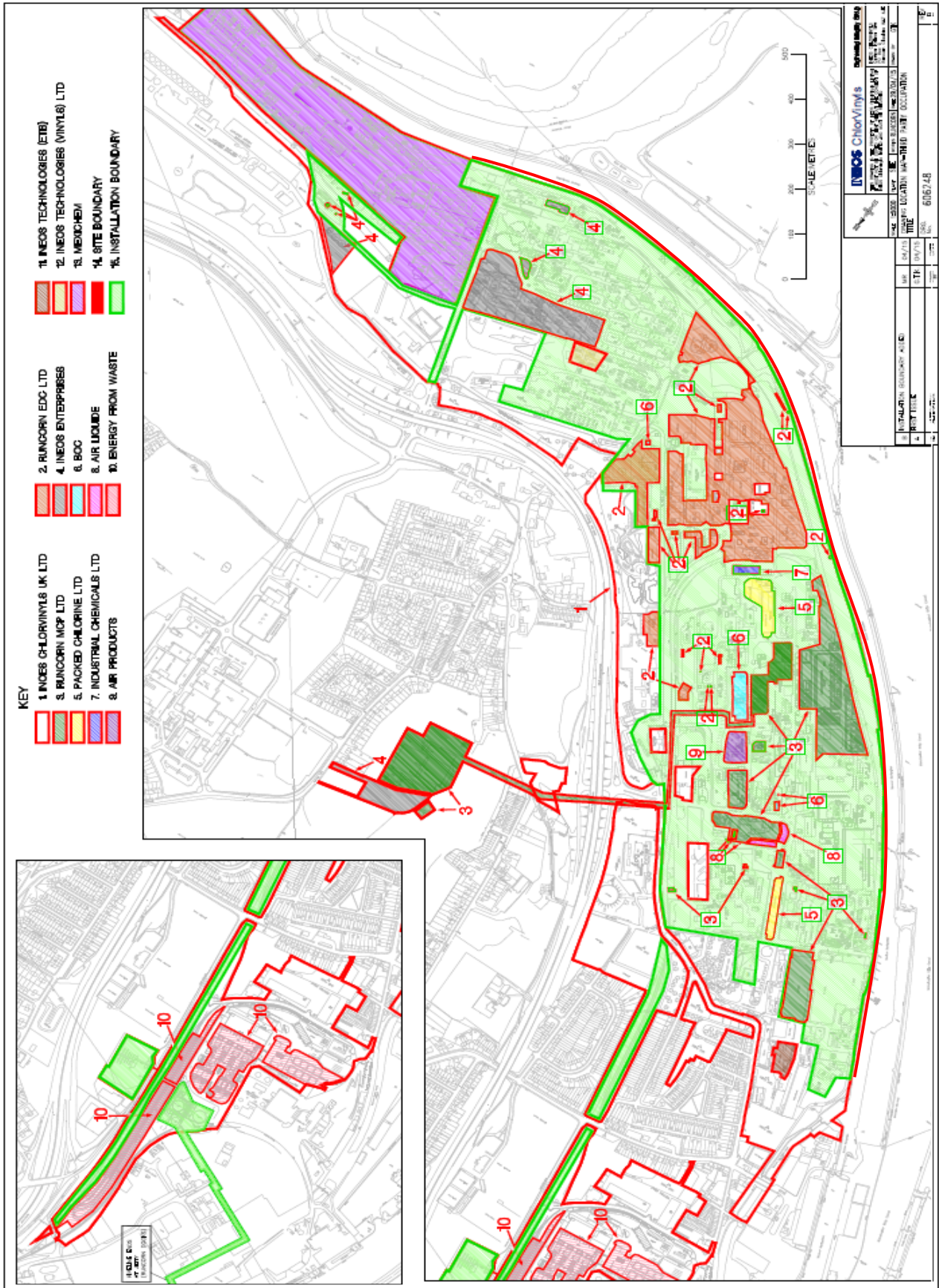
“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“year” means calendar year ending 31 December.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means (in relation to emissions from non-combustion sources) the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

Schedule 7 – Site plan



END OF PERMIT

Permit number
EPR/RP3736WB