



Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Feralco (UK) Limited
Ferral Plant
Ditton Road
Widnes
Cheshire
WA8 0PH

Variation application number

EPR/WP3630WV/C004

Consolidated permit number

EPR/WP3630WV

Ferral Plant

Permit number EPR/WP3630WV

Introductory note

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

The following notice gives notice of the variation of environmental permits EPR/WP3630WV, EPR/BP3833LA, EPR/BP3533LC and EPR/PP3733LX referred to in the status logs below and the replacement of those permits with a consolidated environmental permit.

This variation authorises:

- Addition of two new ferric sulphate production lines comprising activities AR3, AR4, AR5 and AR6.
- Consolidation of permits EPR/WP3630WV (ferric sulphate production permit), EPR/BP3833LA (Plus Pac production permit), EPR/BP3533LC (production of polyaluminium silicate) and EPR/PP3733LX (production of aluminium sulphate).
- Surrender of polyaluminium silicate sulphate activity.
- Change of permit boundary to encompass all the activities undertaken onsite.
- Replacement of reactor vessel, RTK01, with a rubber lined carbon steel vessel
- Cease of use of slurry feed tank MTK01, which will remain in place.
- Addition of emission point W1 to Stewards Brook of uncontaminated surface water run-off.
- Completion of improvement condition IC1.

The installation:

Approximately 45,000tpa of ferric sulphate is manufactured in three separate production lines, AR1 – AR6. This is a two stage reaction process, with ferrous-ferric oxide initially being reacted with sulphuric acid in one reactor, then being passed into a further reactor to react with hydrogen peroxide to produce a ferric sulphate. Production processes AR1 and AR2 form one complete production line, AR3 and AR4 form another complete production line and AR5 and AR6 form the final ferric sulphate production line.

AR1, AR3 and AR5 – Magnetite (Fe_3O_4 , ferrous-ferric oxide) is mixed with mains water to produce a slurry, which is then pumped into a reaction tank. Sulphuric acid is added to the reaction tank, where an exothermic reaction takes place causing a temperature rise. The temperature is controlled at approximately 90°C by adjusting the rate of addition of the sulphuric acid. The theoretical maximum temperature that the reaction tank can experience is 97°C no matter how fast the acid is added. Gaseous emissions from the reactor are passed through a water scrubbing abatement system before discharge to atmosphere. The scrubber liquor is partially drained and filled after every 2-3 batches.

AR2, AR4 and AR6 – The ferrous/ferric sulphate produced in the reaction in AR1 is transferred into an oxidation tank where hydrogen peroxide (and possibly some further

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sulphuric acid and water) is added to oxidise any remaining ferrous sulphate in the mixture to ferric sulphate. The hydrogen peroxide inlet is at the bottom of the oxidation vessel to allow the peroxide to percolate upwards through the reaction mixture ensuring sufficient contact time to allow conversion of ferrous to ferric sulphate. The gaseous emissions from oxidation are also directed to the water scrubber abatement system. The output from the oxidation tank is directed to a filter press where any remaining solid impurities such as insoluble mica and silica in the magnetite are removed generating a hazardous waste stream which also includes filter aid. This waste will be stored in enclosed containers awaiting disposal off-site to a licenced facility. The ferric sulphate solution is then pumped to seven storage vessels equipped with interlocked level controls to prevent overfilling.

AR7 – approximately 5,000tpa of varying grades (1000, 2000 and 3000) of Plus Pac is manufactured on this production line, with Plus Pac 1000 being the predominant polyaluminium hydroxy chloride produced. This is a batch process that reacts 50:50 calcium and magnesium carbonates (dolomite powder) with a 10% aluminium chloride solution, or 30% polyaluminium chloride if aluminium chloride is in short supply. Plus Pac 4000 is produced with an additional step of blending aluminium chlorohydrate into the solution.

AR8 – approximately 65,000tpa of 8% liquid aluminium sulphate, 2,000tpa of 15% aluminium sulphate slab and 2,000tpa of 17% aluminium sulphate are manufactured on this production line. This is a batch process that reacts sulphuric acid and aluminium hydrate, then follows the processes below for each product type:

- 8% liquid aluminium sulphate – the reacted solution is circulated through a mass flow/specific gravity meter until the specific gravity required is achieved and then passed through a cloth filter into the storage tanks.
- 15% aluminium sulphate slab – the reacted solution is discharged into moulds, where it cools and forms slabs.
- 17% aluminium sulphate – the reacted solution is discharged into moulds, where it cools and forms slabs. The slabs are passed over a grid hopper and into the crushing/grinding process to form powder, which is bagged in 25kg sacks.

There are no process discharges to controlled waters or sewer and the process does not result in any effluent waste. The entire installation is bunded and served by a closed loop drainage system. There are no releases to land or groundwater.

The site has a documented environmental management system that is accredited to the international standard, ISO14001:2015.

The site is located at National Grid reference SJ 50000 84763 in an area of industrial development with the nearest residential property approximately 640m from the facility. The Mersey Estuary Special Protection Area (SPA), Site of Special Scientific Interest (SSSI) and Ramsar Site is approximately 800 – 900m south of the facility at their closest points.

The schedules specify the changes made to the permit.

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

Status log of permit A: EPR/WP3630WV		
Description	Date	Comments
Application EPR/WP3630WV/A001 received	Duly made 20/08/2014	Application for production of inorganic chemicals.
Permit determined EPR/WP3630WV	13/11/2014	Permit issued to Feralco (UK) Limited.
Application EPR/WP3630WV/V002 (variation and consolidation)	Duly made 04/07/2019	Application to vary low impact installation permit and update the permit to modern conditions.
Additional information received	26/07/2019	Response to Schedule 5 Notice dated 09/07/2019.
Application EPR/WP3630WV/V002	20/08/2019	Application withdrawn.
Application EPR/WP3630WV/C004 (variation and consolidation)	Duly made 18/12/2019	Application to vary low impact installation permit into bespoke installations permit and update the permit to modern conditions.
Additional information received	13/03/2020	Response to Schedule 5 Notice dated 10/02/2020.
Additional information received	25/03/2020	Response to request for clarification on a number of items in the Schedule 5 Notice dated 10/02/2020.
Variation determined EPR/WP3630WV	07/04/2020	Varied permit issued.
Application EPR/WP3630WV/C004 (variation and consolidation with EPR/BP3833LA, EPR/BP3533LC and EPR/PP3733LX)	Duly made 01/09/2024	Application to consolidate multiple permits, install two new ferric sulphate production lines and expand the permitted area.
Additional information received	29/10/2024	Aluminium sulphate and Plus Pac operating techniques
Additional information received	22/11/2024	Ferric sulphate operating technique and updated risk assessments
Additional information received	20/01/2025	Updated site layout plan.
Variation determined and consolidation issued. EPR/WP36030WV	21/01/2025	Varied and consolidated permit issued in modern format.

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Status log of permit B: EPR/BP3833LA		
Description	Date	Comments
Application BP3833LA	28/09/2005	
Additional information received	10/05/2006	
Request to extend determination	02/06/2006	Accepted 06/06/2006
Permit determined EPR/BP3533LC	20/06/2006	
Application EPR/WP3630WV/C004 (variation and consolidation with EPR/WP3630WV)	Duly made 01/09/2024	Application to consolidate the permit and update the permit to modern conditions.
Additional information received	29/10/2024	Aluminium sulphate and Plus Pac operating techniques
Additional information received	22/11/2024	Ferric sulphate operating technique and updated risk assessments
Additional information received	20/01/2025	Updated site layout plan.
Variation determined and consolidation issued. EPR/WP3630WV	21/01/2025	Varied and consolidated permit issued in modern format.

Status log of permit C: EPR/BP3533LC		
Description	Date	Comments
Application BP3533LC	08/09/2005	
Additional information received	12/05/2006	
Request to extend determination	02/06/2006	Accepted 06/06/2006
Permit determined EPR/BP3533LC	20/06/2006	
Application EPR/WP3630WV/C004 (variation and consolidation with EPR/WP3630WV)	Duly made 01/09/2024	Application to consolidate the permit and surrender the activity.
Additional information received	29/10/2024	Aluminium sulphate and Plus Pac operating techniques
Additional information received	22/11/2024	Ferric sulphate operating technique and updated risk assessments

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Status log of permit C: EPR/BP3533LC		
Description	Date	Comments
Additional information received	20/01/2025	Updated site layout plan.
Variation determined and consolidation issued. EPR/WP3630WV	21/01/2025	Varied and consolidated permit issued in modern format.

Status log of permit D: EPR/PP3733LX		
Description	Date	Comments
Application PP3733LX	28/09/2005	
Additional information received	10/05/2006	
Request to extend determination	02/06/2006	Accepted 06/06/2006
Permit determined EPR/PP3733LX	20/06/2006	
Application EPR/WP3630WV/C004 (variation and consolidation with EPR/WP3630WV)	Duly made 01/09/2024	Application to consolidate the permit and update the permit to modern conditions.
Additional information received	29/10/2024	Aluminium sulphate and Plus Pac operating techniques
Additional information received	22/11/2024	Ferric sulphate operating technique and updated risk assessments
Additional information received	20/01/2025	Updated site layout plan.
Variation determined and consolidation issued. EPR/WP3630WV	21/01/2025	Varied and consolidated permit issued in modern format.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulations 18 and 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies and consolidates environmental permits

Permit numbers

EPR/WP3630WV
EPR/BP3833LA
EPR/BP3533LC
EPR/PP3733LX

Issued to

Feralco (UK) Limited (“the operator”)

whose registered office is

Ditton Road
Widnes
Cheshire
WA8 0PH

company registration number 04052278

to operate a regulated facility at

Ferral Plant
Ditton Road
Widnes
Cheshire
WA8 0PH

to the extent set out in the schedules.

The notice shall take effect from 21/01/2025.

The number of the consolidated permit is EPR/WP3630WV.

Name	Date
Sandra Cavill	21/01/2025

Authorised on behalf of the Environment Agency

Variation and consolidation
 application number
 EPR/WP3630WV/C004

Schedule 1 – changes in the permit

Note: The condition numbers used in this schedule refer to those in the consolidated permit.

The following conditions were varied as a result of the application made by the operator:

Table S1.1, as referenced in condition 2.1.1, has been amended to add two new ferric sulphate production lines, comprising a two-step production process (production of ferrous sulphate, followed by production of ferric sulphate). The production of Plus Pac and aluminium sulphate have also been added as separate activities.

Table S1.2, as referenced in conditions 2.3.1 and 2.3.2, has been amended to include the operating techniques for the new ferric sulphate production line, Plus Pac production line and the aluminium sulphate production line.

Table S1.3, as referenced in condition 2.4.1, has been amended to mark IC1 as complete and add new ICs relating to provision of an updated Site Condition Report.

Table S3.1, as referenced in conditions 3.1.1, 3.5.1 and 3.5.4, has been amended to include the emission point from the scrubber serving the new ferric sulphate production lines and the emission points from the reactors on the Plus Pac and aluminium sulphate production lines. Pressure relief valves and vents have also been included in this table.

Table S4.1, as referenced in condition 4.2.3, has been amended to include the reporting requirements for emission point A2.

Table S4.2 as referenced by condition 4.2.2 has been amended to include aluminium sulphate and PlusPac.

Table S4.4, as referenced in conditions 4.2.2 and 4.2.3, has been amended to reference the new reporting form for emissions to air, included at the end of this permit.

The notification requirements for the breach of permit conditions in Schedule 5 (c) have been updated to reflect changes in the permit template.

The site plan in Schedule 7 as referenced by condition 2.2.1 has been replaced with a new site plan covering the entire facility.

The following conditions were added as a result of the application made by the operator:

Conditions 2.4.1 and 2.4.2 have been added, which are the requirements for improvement conditions and relate to table S1.3.

Table S3.2, as referenced in conditions 3.1.1, 3.5.1 and 3.5.4, has been added in order to include the uncontaminated surface water run-off from the site into Stewards Brook.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/WP3630WV

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/WP3630WV/C004 authorising,

Feralco (UK) Limited (“the operator”),

whose registered office is

Ditton Road

Widnes

Cheshire

WA8 0PH

company registration number 04052278

to operate an installation at

Ferral Plant

Ditton Road

Widnes

Cheshire

WA8 0PH

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

Name	Date
Sandra Cavill	21/01/2025

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.

2 Operations

2.1 Permitted activities

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

2.2 The site

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

2.3 Operating techniques

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

2.4 Improvement programme

- 2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.
- 2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 table S3.1 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

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

3.3 Odour

- 3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.
- 3.3.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
 - (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.
- 3.4.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

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

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:
 - (a) point source emissions specified in tables S3.1 and S3.2
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1 and S3.2 unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

- 4.1.1 All records required to be made by this permit shall:
 - (a) be legible;
 - (b) be made as soon as reasonably practicable;
 - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
 - (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.
- 4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.
- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:
 - (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
 - (b) the annual production /treatment data set out in schedule 4 table S4.2; and

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

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

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

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

4.3 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 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:

1. 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.

2. 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.

4.4 Interpretation

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

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

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR1	Section 4.2 A(1)(a)(iv) Producing inorganic chemicals such as salts.	Production of ferrous sulphate.	From receipt of magnetite (iron ore) to its reaction with sulphuric acid in reactor RTK01 and discharge of ferrous sulphate to oxidation tank RTK02.
AR2	Section 4.2 A(1)(a)(iv) Producing inorganic chemicals such as salts.	Production of ferric sulphate.	From receipt of ferrous sulphate from reaction tank RTK01 to its oxidation with hydrogen peroxide in reactor RTK02., filtration, storage and dispatch of final product. Combined limit of production from activities AR2, AR4 and AR6 is 50,000 tonnes per annum.
AR3	Section 4.2 A(1)(a)(iv) Producing inorganic chemicals such as salts.	Production of ferrous sulphate.	From receipt and storage of magnetite (iron ore) to its reaction with sulphuric acid in reactor T-250A and discharge of ferrous sulphate to oxidation tank T-251A.
AR4	Section 4.2 A(1)(a)(iv) Producing inorganic chemicals such as salts.	Production of ferric sulphate.	From receipt of ferrous sulphate from reaction tank T-250A to its oxidation with hydrogen peroxide in reactor T-251A., filtration, storage and

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
			dispatch of final product. Combined limit of production from activities AR2, AR4 and AR6 is 50,000 tonnes per annum.
AR5	Section 4.2 A(1)(a)(iv) Producing inorganic chemicals such as salts.	Production of ferrous sulphate.	From receipt and storage of magnetite (iron ore) to its reaction with sulphuric acid in reactor T-250B and discharge of ferrous sulphate to oxidation tank on production line T-251B.
AR6	Section 4.2 A(1)(a)(iv) Producing inorganic chemicals such as salts.	Production of ferric sulphate.	From receipt of ferrous sulphate from reaction tank T-250B to its oxidation with hydrogen peroxide in reactor T-251B., filtration, storage and dispatch of final product. Combined limit of production from activities AR2, AR4 and AR6 is 50,000 tonnes per annum.
AR7	Section 4.2 A(1)(a)(iv) Producing inorganic chemicals such as salts.	Production of polyaluminium hydroxy chloride (Plus Pac).	From receipt and storage of raw materials to dispatch of finished product.
AR8	Section 4.2 A(1)(a)(iv) Producing inorganic chemicals such as salts.	Production of aluminium sulphate.	From receipt and storage of raw materials to dispatch of finished product.
Directly Associated Activity			
AR9	Air abatement.	The use of wet scrubbing air abatement systems.	From the generation of air emissions resulting from salts manufacture

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
			to discharge to atmosphere.
AR10	Storage and handling of raw materials.	Offloading, storage and transfer on site of all process raw materials including hydrogen peroxide, sulphuric acid and magnetite.	From receipt and storage of raw materials to transfer to process areas.
AR11	Storage and handling of waste materials.	Handling and storage of wastes on site to removal off site including filter press waste and packaging waste.	From generation of waste materials to dispatch off-site for disposal or recovery.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application EPR/WP3630WV/V002	<p>Technical standards and operating techniques detailed in documents:</p> <ul style="list-style-type: none"> - Ferric sulphate process; - Operation of oxidation vessel; - Operation of abatement equipment; - Receipt of hydrogen peroxide <p>provided in response to section 3a – technical standards, Part C3 of the application form.</p> <p>Technical standards detailed in documents:</p> <ul style="list-style-type: none"> - Environmental Risk Assessment; - Ferric sulphate process description (FER-FPD-01); <p>Section Operational Overview (of document Non-Technical Summary for the Manufacture of Ferric Sulphate).</p>	Duly Made 04/07/2019
Response to Schedule 5 Notice dated 09/07/2019	<p>Operating techniques described in the responses to the Notice (including accompanying information):</p> <ul style="list-style-type: none"> - Response 5 on inspection and maintenance regimes; 	26/07/2019

Table S1.2 Operating techniques		
Description	Parts	Date Received
	<ul style="list-style-type: none"> - Response 6 & 7 on offloading/loading chemicals; - Response 8 on bund management; - Response 9 – 11 on control of reaction vessel, hydrogen peroxide storage vessel and waste water tank; - Response 12 on control of rainwater on site; - Response 13 on control of magnetite to minimise dust releases; <p>Response 15 on Environmental Management System procedures and instructions.</p>	
Application EPR/WP3630WV/V003	<p>Technical standards and operating techniques detailed in documents:</p> <ul style="list-style-type: none"> - Technical description and BAT assessment; - Non-technical process summary; - Bund assessments; - Emergency spill procedure Widnes Works; - Flood Risk Plan; - Receipt of hydrogen peroxide; <p>provided in response to section 3a – technical standards, Part C3 of the application form.</p>	Duly Made 18/12/2019
Response to Schedule 5 Notice dated 10/02/2020	<p>Operating techniques described in the responses to the Notice (including accompanying information):</p> <ul style="list-style-type: none"> - Response 4 on control of magnetite storage and handling to minimise dust releases; - Responses 5 – 7 on management of process aqueous wastes, surface water and “grey” water for recycling; - Response 7 on management of surface water; - Response 9 on control of the operation of the magnetite slurry tank to prevent overflowing; - Response 11 on control systems to prevent uncontrolled reactions between sulphuric acid and hydrogen peroxide; - Response 12 on control of addition of sulphuric acid to process reactor; - Response 14 on preventing over-pressurisation in hydrogen peroxide storage tank due to hydrogen peroxide decomposition; 	13/03/2020

Table S1.2 Operating techniques		
Description	Parts	Date Received
	<ul style="list-style-type: none"> - Response 16 on inspection/maintenance systems for bunds, tanks, pipework, sumps and roadways; - Response 17 on operation of gaseous abatement system; - Response 18 on addition of further quantities of sulphuric acid and water after reaction batch has been transferred to the oxidation tank and before addition of hydrogen peroxide; <p>Responses 19 – 20 on handling and storage of filter press and packaging wastes.</p>	
Response to request for further information dated 18/03/2020	<p>Responses on:</p> <ul style="list-style-type: none"> - Control of level in magnetite slurry tank; - Control of gaseous abatement system; <p>Storage of IBCs of water removed from vessel containment bund.</p>	25/03/2020
Application EPR/WP3630WV/C004	Feralco Flood Plan, dated 10 June 2022	01/09/2024
Additional information provided 29/10/2024	<p>Aluminium Sulphate Production Operating Instructions, Issue No.6, April 2023</p> <p>PlusPAC Production Operating Instructions, Issue No.4, May 2023</p>	29/10/2024
Response to request for further information dated 31/10/2024	<p>Ferric Sulphate Operating Instructions – Stream 2</p> <p>Best Available Techniques & Operating Techniques V5, dated 15/11/2024:</p> <ul style="list-style-type: none"> • Section 5.3.1: BAT 6 & 7 • Section 5.3.3: <ul style="list-style-type: none"> a. Operations – Storage and Handling of Raw Materials, Products and Wastes b. Emissions and Monitoring – Fugitive Emissions 	22/11/2024

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	<p>The operator shall submit a written report to the Environment Agency for approval that details the results and conclusions of a programme of sampling and analysis of the gaseous emissions to air from release point, A1. This programme shall ensure sufficient samples, representative of site's ferric sulphate production operation, are obtained. The programme shall ensure that all sampling, testing and reporting of emissions to air are carried out in accordance with MCERTS standards.</p> <p>The operator shall use the monitoring data to update the H1 risk assessment and send a copy of the updated assessment to the Environment Agency.</p> <p>Should the updated H1 risk assessment indicate that any emissions to air cannot now be screened out as insignificant, the operator shall propose a programme to the Environment Agency for approval that will reduce emissions to air such that their impact will be insignificant.</p> <p>The operator shall implement any proposals in the report agreed by the Environment Agency to the proposed timescales from the date of approval.</p>	Complete
IC2	<p>The Operator shall submit a written report to the Environment Agency for technical assessment and written approval.</p> <p>The report must contain:</p> <ul style="list-style-type: none"> • Results of monitoring from emission point A2 of the parameters assessed within the Air Emissions Risk Assessment (AERA) submitted with the application EPR/WP3630WV/C004 and any other parameters to verify the assumptions made within the AERA. The results shall be taken from a minimum of three rounds of monitoring. • A revised AERA using the results of the monitoring where the actual emissions are higher than those in the original AERA. • Measures to be taken to reduce or abate emissions where detailed modelling does not screen out emissions. <p>The Operator shall implement any improvement measures and applicable limits identified within the report in line with a timetable agreed in writing with the Environment Agency.</p>	30/06/2025
IC3	<p>The operator shall submit an updated site condition report (SCR) to the Environment Agency for written approval, which must include the following:</p> <ul style="list-style-type: none"> • An additional section referencing previous SCRs prepared for the site for the following permits (BP3833LA, PP3733LX, BP3533LC and 	30/06/2025

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<p>WP3630WV) along with an overview of how this information has been incorporated into the updated SCR.</p> <ul style="list-style-type: none"> • Details of potential contaminants that may already be present in soil and groundwater. • Details of any existing visual / olfactory contamination. • Details of damage to existing pollution prevention measures. • Inclusion of stage 1 to 3 assessment to determine if any substances, used, produced or released on site are relevant hazardous substances (RHS) and to identify if any RHS are a potential pollution risk to soil and groundwater. • Inclusion of further information within the following sections in the operational part of the SCR to demonstrate that soil and groundwater have been protected since permit issue for the relevant permit(s) to be consolidated as part of this variation. <ul style="list-style-type: none"> ○ 5.0 Measures taken to protect land ○ 6.0 Pollution incidents that may have had an impact on land, and their remediation ○ 7.0 Soil and groundwater monitoring • Provision of further information on the construction / design details of the drainage system and sumps and evidence to demonstrate these are fit for purpose. For any below ground drainage systems this should be evidenced by recent CCTV surveys. • Provision of further information to confirm that secondary and tertiary containment will be compliant with CIRIA C736 Containment systems for the prevention of pollution. 	

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. & location	Source	Parameter	Limit (including unit)	Reference period (note 1)	Monitoring frequency (note 1)	Monitoring standard or method
A1 on site plan in Schedule 7	Scrubber stack serving AR1 & AR2	Sulphur dioxide SO ₂	50 mg/m ³	15 minutes average	Annual (note 2)	BS EN 14791
		Particulate matter	10 mg/m ³	1 hour average	Annual	BS EN 13284-1
A2 on site plan in Schedule 7	Scrubber stack serving AR3 & AR4	Sulphur dioxide SO ₂	50 mg/m ³	15 minutes average	Every 6 months (note 2)	BS EN 14791
		Particulate matter	10 mg/m ³	1 hour average	Annual	BS EN 13284-1
A3 on site plan in Schedule 7	Reactor stack number 1 serving AR8	No parameters set	--	--	--	--
A4 on site plan in Schedule 7	Reactor stack number 2 serving AR8	No parameters set	--	--	--	--
A5 on site plan in Schedule 7	Reactor stack number 1 serving AR7	No parameters set	--	--	--	--
A6 on site plan in Schedule 7	Reactor stack number 2 serving AR7	No parameters set	--	--	--	--
PR1 – PR8	Pressure relief valves from ferric sulphate hydrogen peroxide feed lines	No parameters set	--	--	--	--

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period (note 1)	Monitoring frequency (note 1)	Monitoring standard or method
PR9	Pressure relief valve on RTK02	No parameters set	--	--	--	--
PR10	Pressure relief valve on T251A	No parameters set	--	--	--	--
PR11	Pressure relief valve on T251B	No parameters set	--	--	--	--
PR12	Pressure relief valve from aluminium sulphate filter press	No parameters set	--	--	--	--
V1	Tank overflow and swan neck on T10	No parameters set	--	--	--	--
V2	Tank overflow and swan neck on T11	No parameters set	--	--	--	--

Note 1. Limits and reference period as listed, unless otherwise agreed by the Environment Agency.

Note 2. The minimum monitoring frequency may be reduced to once every year or once every 3 years if the emission levels are proven to be sufficiently stable.

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 on site plan in schedule 7	Uncontaminated surface water	--	--	--	--	--

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
emission to Stewards Brook						

Schedule 4 – Reporting

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

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1.	A1, A2	Every 12 months	1 January

Parameter	Units
Ferric sulphate	tonnes
Plus Pac	tonnes
Aluminium sulphate	tonnes

Parameter	Frequency of assessment	Units
Water usage	Annually	tonnes
Energy usage	Annually	MWh
Waste generated	Annually	tonnes
Total raw material used	Annually	tonnes

Media/parameter	Reporting format	Date of form
Air	Form air 1 or other form as agreed in writing by the Environment Agency	08/03/2021
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	07/04/2020
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	07/04/2020
Waste generation	Form waste 1 or other form as agreed in writing by the Environment Agency	07/04/2020
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	07/04/2020

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 breach of permit conditions not related to limits	
To be notified within 24 hours of detection	
Condition breached	
Date, time and duration of breach	
Details of the permit breach i.e. what happened including impacts observed.	
Measures taken, or intended to be taken, to restore permit compliance.	

(d) 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 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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

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

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

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

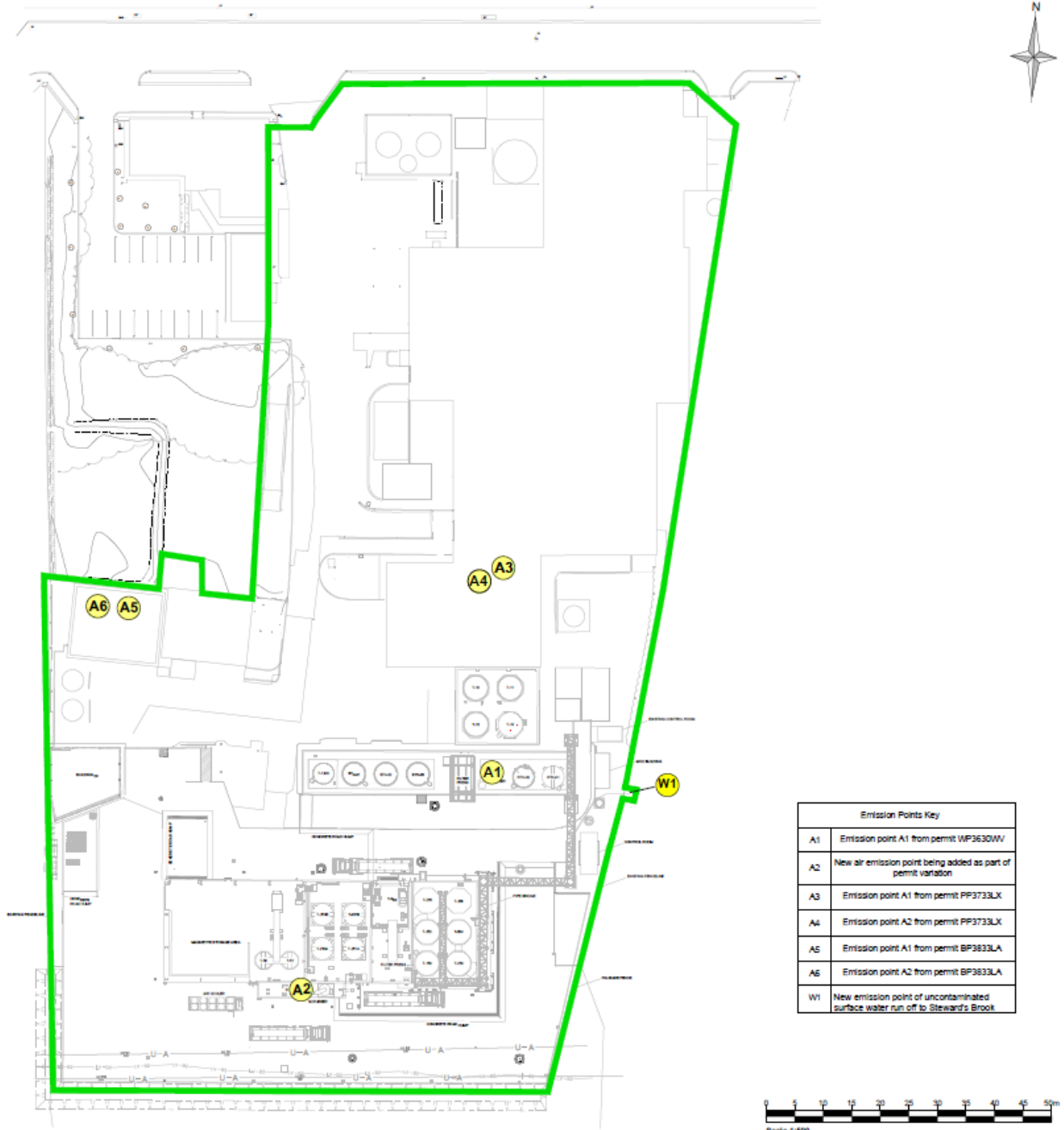
“year” means calendar year ending 31 December.

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 combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

Schedule 7 – Site plan



END OF PERMIT

Reporting Forms

Emissions to Air Reporting Form

Permit number: *[EPR/AB1234CB]*

Operator: *[A Company Name Limited]*

Facility name: *[Unit A, Anytown]*

Emissions to Air Reporting Form: version 1, 08/03/2021

Reporting of emissions to air for the period from *[DD/MM/YY]* to *[DD/MM/YY]*

Emission point	Substance / parameter	Emission Limit Value	Reference period	Test method ¹	Result ²	Sample dates and times ³	Uncertainty ⁴
<i>[e.g. A1]</i>	<i>[e.g. Oxides of nitrogen (NO and NO₂ expressed as NO₂)]</i>	<i>[e.g. 200 mg/m³]</i>	<i>[e.g. daily average]</i>	<i>[e.g. BS EN 14181]</i>	<i>[State result]</i>	<i>[State relevant dates and time periods]</i>	<i>[State uncertainty if not 95% confidence interval]</i>

Permit number
EPR/WP3630WV

Emission point	Substance / parameter	Emission Limit Value	Reference period	Test method ¹	Result ²	Sample dates and times ³	Uncertainty ⁴

Signed: *[Name]*

Date: *[DD/MM/YY]*

(Authorised to sign as representative of the operator)

Guidance for use: Use this form to report your monitoring results.

Example text is shown in bracketed grey italics. Replace the example text by entering your own site specific information. Complete columns 1 to 5 using the information from schedule 3 of your permit. Complete columns 6 to 8 with your monitoring data. Add additional rows as necessary.

¹ Where an internationally recognised standard test method is used, give the reference number. Where another method that has been formally agreed with the Environment Agency, give the appropriate identifier. In other cases state the principal technique, for example gas chromatography.

² Give the result as the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, give the result as the 'minimum to maximum' of the measured values.

³ For non-continuous measurements give the date and time of the sample that produced the result. For continuous measurements give the percentage of the process operating time covered by the result.

⁴ Complete if the uncertainty associated with the result is not a 95% confidence interval. Leave blank for 95% confidence intervals.