Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Less Common Metals Limited

Less Common Metals Limited
Unit 2 Hooton Park
North Road
Ellesmere Port
CH65 1BL

Variation application number

EPR/RP3233CZ/V006

Permit number

EPR/RP3233CZ

Less Common Metals Limited
Permit number EPR/RP3233CZ

Introductory note

This introductory note does not form a part of the notice

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

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

This variation allows for the addition of a new permitted activity – the conversion of rare earth metal oxides (principally neodymium oxide and neodymium praseodymium oxide) into rare earth metal fluorides (principally neodymium fluoride and neodymium praseodymium fluoride) in a batch process using anhydrous hydrogen fluoride gas (HF) and argon within a fluidised bed.

The process operates within a sealed container and has a conversion rate of oxide to fluoride of approximately 99%. The fluidising gases are recirculated to maximise resource use. Any excess HF is treated via an in situ wet scrubber and then extracted to pass through the existing wet scrubber on site (emission point A5).

The activity is prescribed under Section 4.2 A(1)(a)(iv) of the Environmental Permitting Regulations 2016 (EPR 2016) - production of inorganic chemical salts and is added to Table S1.1 of the permit.

The process has a theoretical maximum capacity of one batch per day (a run time of between 5-10 hours) which can produce 36-38kg of rare earth fluoride. Production on a full-time basis would produce a maximum of 12 tonnes of rare earth fluoride per annum.

The product will feed into the existing electrolysis process on site which manufactures neodymium metal from neodymium fluorides.

The new activity includes the storage of two 820 litre cylinders of anhydrous HF in a carbon steel enclosure that benefits from bunding and air extraction to the existing main site wet scrubber.

The schedules specify the changes made to the permit.

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

Status log of the permit		
Description	**Date**	**Comments**
Application received EPR/RP3233CZ/A001	Duly made 23/01/2012	Low Impact Installation with Standard Rules
Permit determined EPR/RP3233CZ	25/01/2012	Issued
Application for variation EPR/RP3233CZ/V002	Duly made 01/07/2013	Application to vary the permit to bespoke conditions.
Response to Schedule 5 Notice No. 1 dated 01/07/13	25/07/2013	General clarifications of aspects of application.
Variation determined EPR/RP3233CZ/V002	12/09/2013	Varied permit issued.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/RP3233CZ/V003 (variation and consolidation)	Duly made 30/03/2016	Application to vary permit to amend scheduled activity reference and emission points.
Variation determined EPR/RP3233CZ (PAS Billing Ref: TP3431RX)	26/05/2016	Varied and consolidated permit issued.
Regulation 60 Notice dated 16/12/16 (Notice requiring information for statutory review of permit)	Response Received 28/03/2017	Technical standards detailed in response to the information notice. Information to demonstrate that relevant BAT Conclusions are met for the non-ferrous metals industries as detailed in document reference L174.
Environment Agency initiated variation EPR/RP3233CZ/V004 (variation and consolidation) Variation determined EPR/RP3233CZ/V004 (PAS / Billing Ref: QP3834JT)	14/03/2018	Statutory review of permit – Non-ferrous metals BAT Conclusions published 30/06/16 Varied and consolidated permit issued
Application for variation EPR/RP3233CZ/V005	Duly made 29/11/2019	Application to vary permit to include a new effluent treatment plant, a hydrogen decrepitation process, and a new wet scrubber to abate HF emissions
Additional information received EPR/RP3233CZ/V005	28/07/2020	Confirmation of capacity restriction for the new effluent treatment system
	19/08/2020	Notification of increased storage of sulphuric acid for use in the effluent treatment system
	17/09/2020	Further information on the samarium-cobalt leaching process cycle, and flow monitoring
Variation determined EPR/RP3233CZ/V005 (PAS / Billing Ref: RP3233CZ)	29/10/2020	Varied permit issued.
Application EPR/RP3233CZ/V006 (variation and consolidation)	Duly made 21/05/2021	Application to vary permit to include a chemical process activity converting rare earth metal oxides to rare earth metal fluorides.
Response to Schedule 5 notice dated 03/08/2021	29/09/2021	Confirmation of the details of the final design of the facilities for the storage and use of hydrogen fluoride.
Variation determined and consolidation issued EPR/RP3233CZ (PAS / Billing Ref: TP3906LW)	23/11/2021	Varied and consolidated permit issued.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

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

Permit number

EPR/RP3233CZ

Issued to

Less Common Metals Limited ("the operator")

whose registered office is

Unit 2 Hooton Park
North Road
Ellesmere Port
CH65 1BL

company registration number 02690088

to operate a regulated facility at

Less Common Metals Limited
Unit 2 Hooton Park
North Road
Ellesmere Port
CH65 1BL

to the extent set out in the schedules.

The notice shall take effect from 23/11/2021

Name	Date
Samantha Haddock	**23/11/2021**

Authorised on behalf of the Environment Agency

Schedule 1

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

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/RP3233CZ

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/RP3233CZ/V006 authorising,

Less Common Metals Limited ("the operator"),

whose registered office is

Unit 2 Hooton Park
North Road
Ellesmere Port
CH65 1BL

company registration number 02690088

to operate an installation at

Less Common Metals Limited
Unit 2 Hooton Park
North Road
Ellesmere Port
CH65 1BL

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

Name	Date
Samantha Haddock	**23/11/2021**

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 tables S3.1, S3.2 and S3.3.

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, S3.2 and 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 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, S3.2 and S3.3 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:

Where the operator is a registered company:

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

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

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

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

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

In any other case:

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

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

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

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

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

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

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

4.4 Interpretation

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

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

Schedule 1 – Operations

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations	**Description of specified activity**	**Limits of specified activity**
Section 2.2 A(1)(a)	Producing non-ferrous metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic activities. *(production of neodymium via electrolysis; production of samarium cobalt alloys from metal oxide concentrates in a reduction-diffusion process)*	From receipt of raw materials to storage of products.
Section 2.2 B(a)	Melting, including making alloys of, non-ferrous metals (other than tin or any alloy which in molten form contains 50 per cent or more by weight of tin), including recovered products (such as refining or foundry casting) in plant with a melting capacity of 4 tonnes or less per day for lead or cadmium or 20 tonnes or less per day for all other metals. *(production of rare earth metal alloys)*	From receipt of raw materials to storage of products.
Section 4.2 A(1)(a)(iv)	Producing inorganic chemicals such as – (iv) salts (for example ammonium chloride, potassium chlorate, potassium carbonate, sodium carbonate, perborate, silver nitrate, cupric acetate, ammonium phosphomolybdate). *(production of rare earth metal fluorides)*	From receipt of raw materials to storage of products. Includes the storage of anhydrous hydrogen fluoride.
Directly Associated Activity		
Process effluent treatment and discharge	Treatment of process effluent resulting from samarium cobalt production and the subsequent discharge of the treated effluent to foul sewer.	From the production of process effluent to the discharge of treated effluent to sewer, and the off-site dispatch of de-watered filter cake (hazardous waste). De-watered filter-cake shall be stored under cover, in segregated, labelled, sealed containers pending off-site dispatch for disposal or recovery (of cobalt). No more than 10 cubic metres of process effluent shall be treated per day.

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations	**Description of specified activity**	**Limits of specified activity**
Off gas collection, abatement and discharge systems	Extraction, ducting, abatement plant (including bag filter(s) and wet scrubbers) and stacks	From the extraction of off-gases from furnaces and fluidised bed reactor to the exit point from stacks, and the off-site dispatch of potassium fluoride solution (hazardous waste) from the wet scrubbers. Potassium fluoride solution shall be stored under cover, in segregated, labelled, sealed containers pending off-site dispatch for disposal.
Hydrogen decrepitation process	Operation of a hydrogen decrepitation furnace to produce rare earth alloy powders	From receipt of raw materials to storage of products
Raw materials storage and handling	Receipt, handling and storage of all process substances	Receipt of raw materials until used in the process
Storage and handling of wastes	Handling, storing and removal of all wastes from site	From waste production by the specified activities to waste leaving the site

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application EPR/RP3233CZ/A001	Sections 1 (Overview), Section 11 (Management Systems)	01/07/2013
Response to Schedule 5 Notice dated 03/07/2013	The operating techniques described in items: 1, 2, 4, 5, 6, 7 and 8 of the response.	25/07/2013
Application for variation EPR/RP3233CZ/V003	“Scheduled activity” section of the non-technical summary, showing the maximum capacities of the furnaces.	06/01/2016
Application for variation EPR/RP3233CZ/V005	Application forms C2 and C3 and ‘Supporting Information’ document dated October 2019, the following sections: 2 - Additional Activities 3 - Emissions to Air and Water 4 - Raw Material Quantities 5 - Waste Recovery 7 - Environmental Management System 9 - Dust, Odour & Noise	26/11/2019

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
	and Appendices II - IV: II - Effluent Treatment Plant Flow Diagram III - Hydrogen Decrepitation Plant Diagram IV - Diagram of Wet Scrubber Plant	
	Email detailing how the daily treatment capacity and discharge from the effluent treatment system (for treating process effluent from samarium cobalt production) cannot exceed 10 cubic metres per day.	28/07/2020
	Email confirming that the amount of sulphuric acid stored on-site for use in the ETP will be 2500kg of 35% sulphuric acid.	19/08/2020
	Email giving further information on the restriction of process effluent production and how it relates to the samarium-cobalt leaching process cycle; details of flow monitoring of discharge to sewer.	17/09/2020
Application for variation EPR/RP3233CZ/V006	Application forms C2 and C3 and referenced supporting information.	11/01/2021
Response to Schedule 5 notice dated 03/08/2021	Confirmation of the details of the final arrangements for the storage and use of hydrogen fluoride.	29/09/2021

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC1	The operator shall submit a surface water pollution risk assessment to the Environment Agency for approval, which shall assess the impact of discharges of hazardous pollutants to surface water and/or sewer from the installation. The risk assessment shall include, but not be limited to the following: a) representative emissions data for the following hazardous pollutants: silver, arsenic, cadmium, cobalt, chromium (total), chromium (VI), copper, mercury, nickel, lead, zinc; and any other relevant substances discharged from the installation. Any emissions monitoring required should be carried out using the methods and standards described in Environment Agency M18 guidance; and b) a risk assessment in accordance with the screening procedures in Environment Agency guidance "Surface water pollution risk assessment for your environmental permit", using the representative emissions data obtained in (a) above.	Completed

Schedule 2 – Waste types, raw materials and fuels

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

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1 [Point A1 on Emission Point plan in Schedule 7]	Co-reduced samarium cobalt plant furnaces	Particulates	5 mg/m^3	Hourly average	Annual	BS EN 13284-1 and MID
A2 [Point A2 on Emission Point plan in schedule 7]	Cast samarium cobalt plant furnaces	Particulates	5 mg/m^3	Hourly average	Annual	BS EN 13284-1 and MID
A3 [Point A3 on Emission Point plan in schedule 7]	Strip cast neodymium iron boron plant furnace	Particulates	5 mg/m^3	Hourly average	Annual	BS EN 13284-1 and MID
A4 [point A4 on Emission Point plan in schedule 7]	Cast neodymium iron boron plant furnace	Particulates	5 mg/m^3	Hourly average	Annual	BS EN 13284-1 and MID
A5 to A9 [point "A5 to A9" on Emission Point plan in schedule 7]	Electrolysis plant	Particulates	5 mg/m^3	Hourly average	Annual	BS EN 13284-1 and MID
		Hydrogen fluoride	0.5 mg/m^3	Hourly average	Annual	BS ISO 15713
A10 [point A10 on Emission Point plan in schedule 7]	Hydrogen decrepitation furnace	No parameter set	No limit set	-	-	-

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 [as described in Schedule 5 notice response dated 25/07/13]	Site surface water arising's	-	-	-	-	-

Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. Unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
S1 [point S1 on Emission Point plan in schedule 7]	Effluent treatment plant serving the samarium cobalt production process	Cobalt	No limit set	Daily average NOTE 1	Monthly NOTE 2	BS EN ISO 11885 BS EN ISO 15586 BS EN ISO 17294-2
NOTE 1: For discontinuous flows, a different sampling procedure yielding representative results (e.g. spot sampling) can be used **NOTE 2:** The monitoring frequency may be adapted if the data series clearly demonstrate sufficient stability of the emissions						

Schedule 4 – Reporting

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

Table S4.1 Reporting of monitoring data			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Emissions to air Parameters as required by condition 3.5.1.	A1, A2, A3, A4, A5 to A9	Every 12 months	1 January
Emissions to sewer Parameters as required by condition 3.5.1.	S1	Every 3 months	1 Jan, 1 Apr, 1 Jul, 1 Oct

Table S4.2: Annual production/treatment	
Parameter	**Units**
Product	tonnes
Effluent discharged to sewer	m^3

Table S4.3 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Water usage	Annually	tonnes
Energy usage	Annually	MWh

Table S4.4 Reporting forms		
Parameter	**Reporting form**	**Form version number and date**
Air	Form Air 1 or other form as agreed in writing by the Environment Agency	14/03/2018
Water and Land	Form Usage 1 or other form as agreed in writing by the Environment Agency	14/03/2018
Sewer	Form Sewer 1 or other form as agreed in writing by the Environment Agency	01/09/2020
Other performance indicators	Form Performance 1 or other form as agreed in writing by the Environment Agency	14/03/2018

Schedule 5 – Notification

These pages outline the information that the operator must provide.

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

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

Part A

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

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

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

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

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

(c) Notification requirements for the 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.

“average over the sampling period” means the average value of three consecutive measurements of at least 30 minutes each, unless otherwise stated, as defined in the *General Considerations* section of the Non-Ferrous Metals BAT Conclusions. For batch processes, the average of a representative number of measurements taken over the total batch time or the result of a measurement carried out over the total batch time can be used.

“BAT-AELs” means BAT-associated emission levels, i.e. the emission levels associated with the best available techniques for emissions to air and/or water, as set out in the Non-Ferrous Metals BAT Conclusions.

“daily average” (for emissions to water/sewer) means the average over a sampling period of 24 hours taken as a flow-proportional composite sample (or as a time-proportional composite sample provided that sufficient flow stability is demonstrated), as defined in the *General Considerations* section of the Non-Ferrous Metals BAT Conclusions.

“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.

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 and not subject to BAT-AELs for air emissions, the concentration in dry air at a temperature of 273.15K, at a pressure of 101.3 kPa, and with an oxygen content of 3% dry for liquid and gaseous fuels and 6% dry for solid fuels; and/or

- in relation to emissions from non-combustion sources and not subject to BAT-AELs for air emissions, the concentration at a temperature of 273.15K and at a pressure of 101.3 kPa, with no correction for water vapour content; and/or

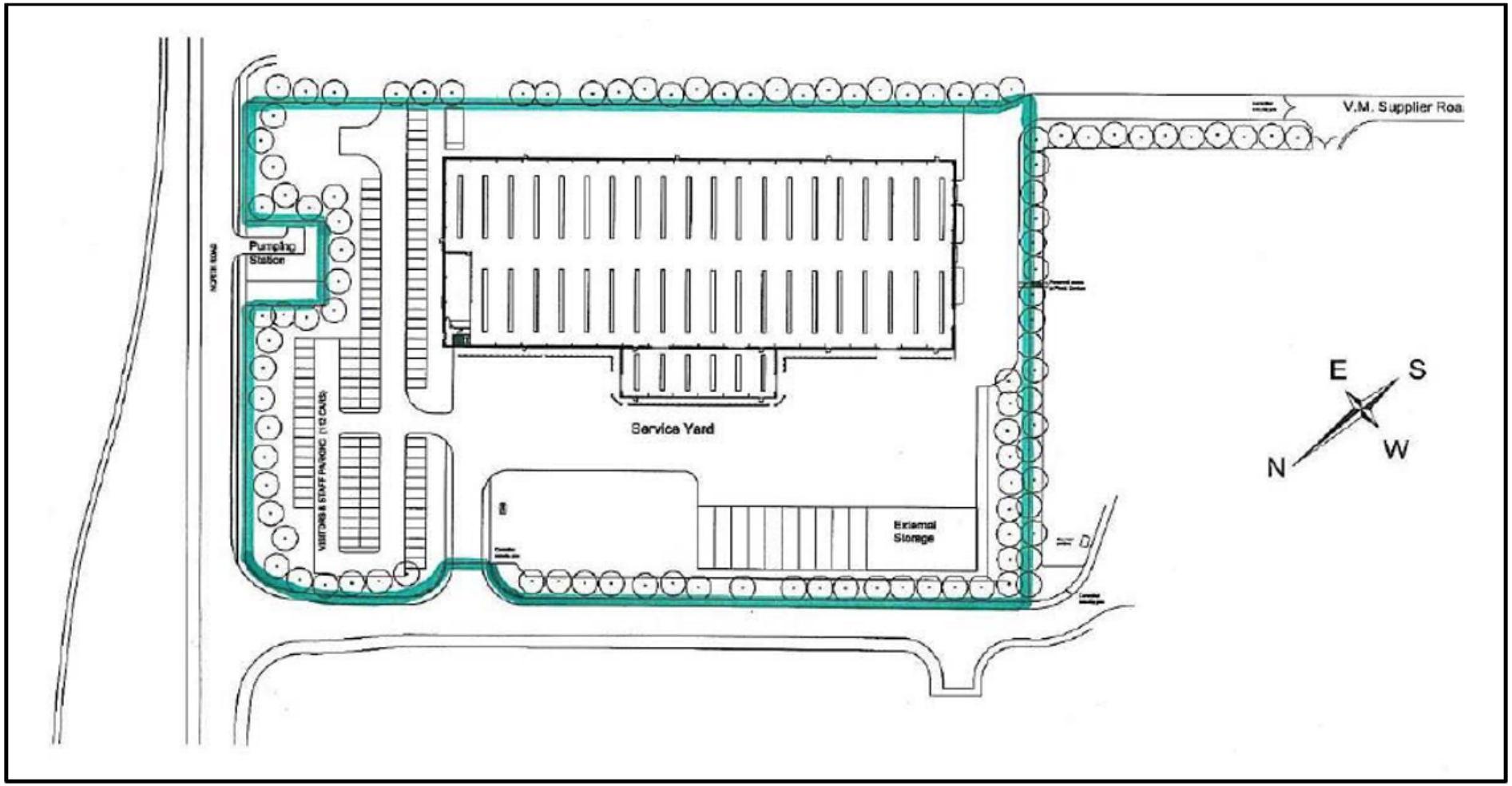
- in relation to emissions from non-combustion sources subject to BAT-AELs for air emissions, the concentration in dry air at a temperature of 273.15K and at a pressure of 101.3 kPa; and/or

- in relation to emissions from combustion processes subject to BAT-AELs for air emissions, the concentration in dry air at a temperature of 273.15K and at a pressure of 101.3 kPa, and with an oxygen content of 3% dry for liquid and gaseous fuels and 6% dry for solid fuels.

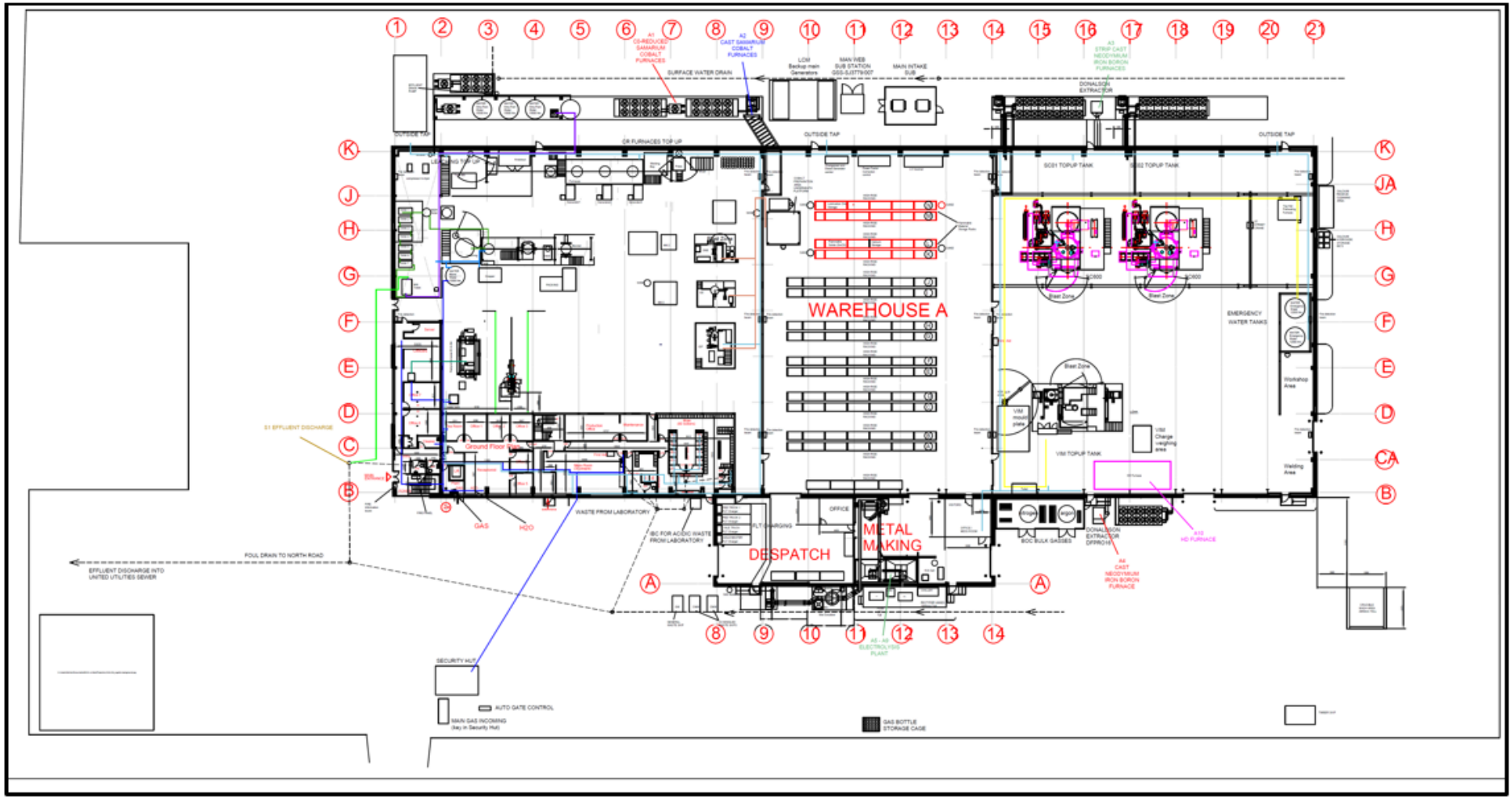
“year” means calendar year ending 31 December.

Schedule 7

Site plan



Emission Point Plan



END OF PERMIT