

## **Environment Agency**

### **Review of an Environmental Permit for an Installation subject to Chapter II of the Industrial Emissions Directive under the Environmental Permitting (England & Wales) Regulations 2016**

#### **Decision document recording our decision-making process following review of a permit**

The Permit number is:                   EPR/BL5598IR  
The Operator is:                         H J Enthoven Limited  
The Installation is:                     Darley Dale Smelter  
This Variation Notice number is:   EPR/BL5598IR/V009

#### **What this document is about**

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication by the European Commission of updated decisions on BAT Conclusions.

We have reviewed the permit for this installation against the revised BAT Conclusions for the non-ferrous metals industries sector published on 30<sup>th</sup> June 2016 in the Official Journal of the European Union. Where appropriate, we also considered other relevant BAT Conclusions published prior to this date but not previously included in a permit review for the Installation. In this decision document, we set out the reasoning for the consolidated variation notice that we have issued.

It explains how we have reviewed and considered the techniques used by the Operator in the operation and control of the plant and activities of the installation. This review has been undertaken with reference to the decision made by the European Commission establishing best available techniques (BAT) conclusions (BATc) for the non-ferrous metals industries as detailed in the Official Journal of the European Union (L174) following a European Union, implementing decision (EU) 2016/1032 of 13<sup>th</sup> June 2016. It is our record of our decision-making process and shows how we have taken into account all relevant factors in reaching our position.

As well as considering the review of the operating techniques used by the Operator for the operation of the plant and activities of the installation, the consolidated variation notice takes into account and brings together in a single document all previous variations that relate to the original permit issue. Where this has not already been done, it also modernises the entire permit to reflect the conditions contained in our current generic permit template.

The introduction of new template conditions makes the Permit consistent with our current general approach and with other permits issued to installations in this sector. Although the wording of some conditions has changed, while others have been deleted because of the new regulatory approach, it does not reduce the level of environmental protection achieved by the Permit in any way. In this document we therefore address only our determination of substantive issues relating to the new BAT Conclusions.

We try to explain our decision as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy, and we would welcome any feedback as to how we might improve our decision documents in future.

## **How this document is structured**

1. Our proposed decision
2. How we reached our decision
3. The legal framework
4. Annex 1- Review of operating techniques within the Installation against BAT Conclusions
5. Annex 2a - Review and assessment of derogation request(s) made by the operator in relation to BAT Conclusions which include an Associated Emission Level (BAT-AEL) value
6. Annex 2b - Consultation responses
7. Annex 3 - Improvement Conditions
8. Annex 4 - Review and assessment of changes that are not directly implementing BAT Conclusions
9. Annex 5 - Priority Compliance Issues & Detailed assessment of Regulation 60 Notice responses where future action likely

# 1 Our decision

We have decided to issue the Variation Notice to the Operator. This will allow it to continue to operate the Installation, subject to the conditions in the Consolidated Variation Notice that updates the whole permit.

We consider that, in reaching our decision, we have taken into account all relevant considerations and legal requirements and that the varied permit will ensure that a high level of protection is provided for the environment and human health.

The Consolidated Variation Notice contains many conditions taken from our standard Environmental Permit template including the relevant annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the Notice, we have considered the techniques identified by the operator for the operation of their installation, and have accepted that the details are sufficient and satisfactory to make those standard conditions appropriate. This document does, however, provide an explanation of our use of “tailor-made” or installation-specific conditions, or where our Permit template provides two or more options.

## 2 How we reached our decision

### 2.1 Requesting information to demonstrate compliance with BAT Conclusion techniques

We issued a Notice under regulation 60(1) of the Environmental Permitting (England and Wales) Regulations 2010 (a Regulation 60 Notice) on 16<sup>th</sup> December 2016 requiring the Operator to provide information to demonstrate where the operation of their installation currently meets, or how it will subsequently meet, the revised standards described in the relevant BAT Conclusions document.

The Notice required that where the revised standards are not currently met, the operator should provide information that,

- describes the techniques that will be implemented before 30<sup>th</sup> June 2020, which will then ensure that operations meet the revised standard, or
- justifies why standards will not be met by 30<sup>th</sup> June 2020, and confirmation of the date when the operation of those processes will cease within the installation or an explanation of why the revised BAT standard is not applicable to those processes, or
- justifies why an alternative technique will achieve the same level of environmental protection equivalent to the revised standard described in the BAT Conclusions.

Where the Operator proposed that they were not intending to meet a BAT standard that also included a BAT Associated Emission Level (BAT AEL) described in the BAT Conclusions Document, the Regulation 60 Notice required that the Operator make a formal request for derogation from compliance with that AEL (as provisioned by Article 15(4) of IED). In this circumstance, the Notice identified that any such request for derogation must be supported and justified by sufficient technical and commercial information that would enable us to determine acceptability of the derogation request.

The Regulation 60 Notice response from the Operator was received on 31/03/17.

We considered it was in the correct form and contained sufficient information for us to begin our determination of the permit review but not that it necessarily contained all the information we would need to complete that determination.

The Operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 60 Notice response that appears to be confidential in relation to any party.

## 2.2 Review of our own information in respect to the capability of the installation to meet revised standards included in the BAT Conclusions document

Based on our records and previous experience in the regulation of the installation we consider that the operator will be able to comply with the techniques and standards described in the BAT Conclusions. For the majority of the BAT Conclusions the operator has demonstrated that they currently operate in compliance with the requirements of the BAT Conclusions other than for those techniques and requirements described in BAT Conclusion 16, 17, 94 and 99. In relation to these BAT Conclusions, we agree with the operator in respect to their current stated capability as recorded in their regulation 60 Notice response and understand that they will be compliant before 30<sup>th</sup> June 2020 (the “compliance date”). We have therefore included Improvement Conditions IC1 and IC2 in the Consolidated Variation Notice to ensure that the requirements of the BAT Conclusion are delivered before 30<sup>th</sup> June 2020.

## 2.3 Requests for Further Information during determination

Although we were able to consider the Regulation 60 Notice response generally satisfactory at receipt, we did in fact need more information in order to complete our permit review assessment and produce an updated Consolidated Variation Notice. We received additional information and/or clarification from the Operator during the determination as follows:

- additional information received with respect to BAT 17 of the NFM BAT Conclusions, regarding BAT-AEL compliance for direct discharges to surface water
- additional information received in response to our letter, ref. EMD/RI/MR/EPR-BL5598IR, dated 20/06/18, received 06/07/18, regarding information in relation to the quantity and throughput of hazardous waste received on-site and processed via the various activities
- response to our email dated 25/11/19, received 30/01/20, regarding information in relation to general process description, waste codes and tonnages, emission points to air and surface water, and installation boundary plan
- response to our email dated 06/04/20, received 15/04/20, regarding clarification in relation to general process description, waste types, effluent treatment and stack heights
- further clarification on waste types accepted for processing via the permitted activities, received 21/04/20, following meeting via teleconference with Operator on 20/04/20
- response to our email dated 30/04/20, received 06/05/20, regarding clarification in relation to location of emission points to surface waters
- response to our email dated 04/06/20, received 04/06/20, regarding installation boundary plan, and treated effluent discharge flow limit.

We made a copy of this information available to the public in the same way as the response(s) to our information request(s).

## 2.4 Surface Water Pollution Risk Assessment

As part of our delivery of the Water Framework Directive (WFD) requirements, we need to identify and assess the impact of all sources of hazardous pollutants to surface waters from regulated industry. We use the term 'hazardous pollutants' to collectively describe substances covered by the EQSD<sup>1</sup> (priority hazardous substances, priority substances and "other pollutants"). It also applies to the specific pollutants listed in the 2015 Directions<sup>2</sup>, and substances which have operational (non-statutory) Environmental Quality Standards (EQS).

For all installations with discharges to surface water and/or sewer we required the operator, via our Regulation 60 Notice, to undertake a surface water pollution risk assessment, in two stages, as follows:

<sup>1</sup> Environmental Quality Standards Directive (EQSD) (2008/105/EC, as amended by 2013/39/EU)

<sup>2</sup> The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015

- a) Provide emissions data for the following hazardous pollutants: silver, arsenic, cadmium, cobalt, chromium (total), chromium (VI), copper, mercury, nickel, lead and zinc. The BAT Conclusions for the Non-Ferrous Metals Industries specify BAT-AELs associated with the direct discharge of these substances to surface water. We therefore considered that these substances potentially posed the highest risk from industry and listed them in our Regulation 60 Notice. In addition, operators were required to identify and assess any other hazardous pollutants that may be present in their effluent. A full list of hazardous pollutants is included in our surface water pollution risk assessment guidance, which we 'signposted' operators to via the Regulation 60 Notice.
- b) Undertake a risk assessment using the above emissions data to determine whether any hazardous pollutants were liable to cause pollution of the downstream receiving waters. The WFD requires Member States to prior regulate, all substances in a discharge which are "liable to cause pollution". Previously discharges from the Non-Ferrous Metals Industries were controlled on a "liable to contain" approach set by the Dangerous Substances Directive through either numeric limits, or descriptive conditions. Under the "liable to cause pollution" approach we would only consider applying numeric emission limits to those pollutants calculated to have the potential to cause pollution.

The risk assessment methodology uses a number of sequential screening steps to determine if a substance warrants detailed modelling and hence any emission limits being required, namely:

- Screen out insignificant emissions that do not warrant further investigation;
- Determine if significant load test is failed (for priority hazardous substances only);
- Decide if detailed modelling is needed;
- Assess emissions against relevant standards and set permit limits where considered necessary.

The methodology provides for undertaking assessments of both direct and indirect discharges to surface water, 'indirect' meaning that the effluent is discharged to foul sewer from the installation and is treated at a sewage treatment works (STW) prior to discharge to surface water. Treatment at the STW will remove a proportion of a discharged substance from the final effluent discharged to the environment. This removal needs to be taken into account when calculating the concentration of a hazardous pollutant which will be discharged to a receiving water via the sewage works. This is achieved by applying STRFs (sewage treatment reduction factors) within the screening steps.

We have used the non-ferrous metals permit review to regulate any discharge of hazardous pollutants to surface waters from this installation using the “liable to cause pollution” approach. Based on the written submissions provided in response to our Regulation 60 Notice the Operator has confirmed that they discharge hazardous pollutants to surface water via the on-site effluent treatment plant. Details of how we have considered the Operator’s response is provided in the Key Issues section in Annex 1.

## 2.5 Condition of Soil and Groundwater

Articles 16 and 22 of the Industrial Emissions Directive (IED) require that a quantified baseline is established for the level of contamination of soil and groundwater with hazardous substances, in order that a comparison can be made on final cessation of activities.

We have used the non-ferrous metals permit review to regulate against the above IED requirements. Our Regulation 60 Notice required operators, where the activity of the installation involved the use, production or release of a relevant hazardous substance (as defined in Article 3(18) of the Industrial Emissions Directive), to carry out a risk assessment considering the possibility of soil and groundwater contamination at the installation with such substances. Where any risk of such contamination was established we requested that the operator either:

- prepare and submit a baseline report containing information necessary to determine the current state of soil and groundwater contamination; or
- provide a summary report referring to information previously submitted where they were satisfied that such information represented the current state of soil and groundwater contamination

so as to enable a quantified comparison to be made with the state of soil and groundwater contamination upon definitive cessation the activity.

Where operators concluded that there were no risks of soil or groundwater contamination (due to there not being any release of hazardous substances), they were required to provide a copy of the risk assessment.

Our intention was to use the non-ferrous metals permit review to regulate any discharge of hazardous substances to soil and groundwater. However the Operator has not provided a satisfactory response to question 7 on our Regulation 60 Notice to enable us to undertake this aspect of the review within the agreed project timeline. We have therefore carried over this requirement into the Consolidated Variation Notice.

We have included Improvement Condition IC3 requiring the Operator to submit a risk assessment considering the possibility of soil and groundwater contamination where the activity involves the use, production or release of a relevant hazardous substance.



A follow-up Improvement Condition (IC4) has also been included which requires the Operator, if having established that there is a risk to soil and groundwater, to submit a baseline report compliant with Article 22 of the IED, containing information necessary to determine the current state of soil and groundwater contamination. This shall enable a quantified comparison to be made with the state of soil and groundwater contamination upon definitive cessation of activity.

The Operator will be required to submit their IC3 response within 3 months of the effective date of our notice, and their IC4 response (if deemed necessary) within 12 months of the effective date.

### **3 The legal framework**

The Consolidated Variation Notice will be issued under Regulations 18 and 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the IED;
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that in issuing the Consolidated Variation Notice, it will ensure that the operation of the Installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

We have set emission limit values (ELV's) in line with the BAT Conclusions, unless a tighter, i.e. more stringent, limit was previously imposed and these limits have been carried forward. For emissions to each relevant environmental receptor (i.e. air, or surface water), the emission limits and monitoring requirements have been incorporated into the Consolidated Variation Notice via two tables in Schedule 3 – Emissions and monitoring, as follows:

#### *Emissions to air*

- Table S3.1a, the requirements of which are effective from the date of issue of the notice, and which contains the existing ELVs and monitoring requirements; and
- Table S3.1b, the requirements of which will take effect from 30<sup>th</sup> June 2020, and which contains amended ELV's where a BAT-AEL is specified in the BAT Conclusions, and any associated updated monitoring requirements.

Emissions to surface water

- Table S3.2a, the requirements of which are effective from the date of issue of the notice, and which contains the existing ELVs and monitoring requirements; and
- Table S3.2b, the requirements of which will take effect from 30<sup>th</sup> June 2020, and which contains amended ELV's where a BAT-AEL is specified in the BAT Conclusions, and any associated updated monitoring requirements.

## **Annex 1**

### **Review of operating techniques within the Installation against BAT Conclusions**

BAT Conclusions for the non-ferrous metals industries, were published by the European Commission on 30<sup>th</sup> June 2016. There are 184 BAT Conclusions. This annex provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation.

This annex should be read in conjunction with the Consolidated Variation Notice.

The overall status of compliance with the BAT conclusion is indicated in the table as:

- NA Not Applicable
- CC Currently Compliant
- FC Compliant in the future (within 4 years of publication of BAT conclusions)
- NC Not Compliant

<b>Table 1: Decision checklist for relevant BAT Conclusions</b>		
<b>Summary of BAT Conclusion requirement for Non-Ferrous Metals Industries</b>	<b>Status NA / CC / FC / NC</b>	<b>Assessment of the installation capability with the BAT Conclusion requirement Type of process: LEAD AND/OR TIN PRODUCTION</b>
BAT Conclusions that are not applicable to this installation	<b>NA</b>	<p><b>General BAT Conclusions for Non-Ferrous Metals Industries: 11, 13,</b></p> <p>BAT Conclusions for copper production: 20-54 inclusive</p> <p>BAT Conclusions for alumina production: 55-57 inclusive</p> <p>BAT Conclusions for anode production: 58-63 inclusive</p> <p>BAT Conclusions for primary aluminium production: 64-73 inclusive</p> <p>BAT Conclusions for secondary aluminium production: 74-86 inclusive</p> <p>BAT Conclusions for salt slag recycling process: 87-89 inclusive</p> <p><b>BAT Conclusions for lead and/or tin production: 102</b></p> <p>BAT Conclusions for primary zinc production: 108-120 inclusive</p> <p>BAT Conclusions for secondary zinc production, 121-130 inclusive</p> <p>BAT Conclusions for cadmium production: 131-133 inclusive</p> <p>BAT Conclusions for precious metals production: 134-149 inclusive</p> <p>BAT Conclusions for ferro-alloys production: 150-162 inclusive</p> <p>BAT Conclusions for nickel and/or cobalt production: 163-176 inclusive</p> <p>BAT Conclusions for carbon and/or graphite production: 177-184 inclusive</p>
BAT Conclusions where we accept the Operator's Reg 60 notice response that they are	<b>CC</b>	<b>General BAT Conclusions for Non-Ferrous Metals Industries: 1-10, 12, 14, 15, 18, 19</b>

<b>Table 1: Decision checklist for relevant BAT Conclusions</b>		
<b>Summary of BAT Conclusion requirement for Non-Ferrous Metals Industries</b>	<b>Status NA / CC / FC / NC</b>	<b>Assessment of the installation capability with the BAT Conclusion requirement Type of process: LEAD AND/OR TIN PRODUCTION</b>
currently compliant and no further explanation is required.		<b>BAT Conclusions for lead and/or tin production: 90, 91, 92, 93, 95, 96, 97, 98, 100, 101, 103, 104, 105, 106 and 107</b>
BAT Conclusions where improvements will be undertaken on site within the 4 year period in order to achieve compliance with the narrative and/or BATAEL prior to the 4 year deadline	<b>FC</b>	<b>General BAT Conclusions for Non-Ferrous Metals Industries: 16, 17</b>  <b>BAT Conclusions for lead and/or tin production: 94, 99</b>
BAT Conclusions where the Operator has responded that they are not compliant and have not submitted any plans to become compliant	<b>NC</b>	<b>None</b>

## Key Issues

Where relevant and appropriate, we have incorporated the techniques described by the Operator in their Regulation 60 Notice response as specific operating techniques required by the permit, through their inclusion in Table S1.2 of the Consolidated Variation Notice.

### **BAT-AELs and monitoring requirements for emissions to air from secondary lead production**

The following paragraphs outline how we have amended Table S3.1b of the permit to take into account the BAT-AELs and monitoring requirements in the BAT Conclusions that shall apply from 30/06/20.

The BAT Conclusions for secondary lead production contain BAT-AELs for emissions to air for the following substances: Dust, Lead, TVOC, PCDD/F, and SO<sub>2</sub>.

The relevant emission points to air, to which BAT-AELs from secondary lead production apply, are as follows: A1, A2, A4, A5, A7 and A10.

#### BAT-AEL for dust (particulate matter)

Several of the relevant BAT-Conclusions specify a BAT-AEL for dust, as follows

- BAT 94 (raw material preparation), BAT-AEL is  $\leq 5 \text{ mg/m}^3$
- BAT 95 (battery preparation - crushing, screening and classifying), BAT-AEL is  $\leq 5 \text{ mg/m}^3$
- BAT 96 (charging, smelting and tapping), BAT-AEL range is 2-4  $\text{mg/m}^3$
- BAT 97 (re-melting, refining and casting), BAT-AEL range is 2-4  $\text{mg/m}^3$

BAT 94 applies to the following emission points: **A1** serving the rotary furnaces, charge dryer, rotary pots, and reverberatory furnace; **A4** serving the charge preparation building; and **A7** serving the materials handling building.

BAT 95 applies to emission point **A5** serving the MA battery breaker.

BAT 96 applies to emission points **A1** and **A2** serving the refinery kettles and reverberatory furnace holding kettles.

BAT 97 applies to the following emission points: **A2** and **A10** serving the strip mill.

#### *Emission point A1*

Given that more than one BAT-AEL applies to emission point A1, due to the layout of the extraction system which results in processes feeding into a single

stack, we have applied the more stringent BAT-AEL of 4 mg/m<sup>3</sup> on the permit, rather than 5 mg/m<sup>3</sup>.

We have included an ELV for dust of 4 mg/m<sup>3</sup> which is in accordance with the upper BAT-AEL value in BAT 96. This replaces the current ELV of 5 mg/m<sup>3</sup> and will apply from 30/06/20. Therefore the ELV for emission point A1 has been updated within the permit.

#### *Emission point A2*

We have included an ELV for dust of 4 mg/m<sup>3</sup> which is in accordance with the upper BAT-AEL value in BAT 96 and 97. This replaces the current ELV of 5 mg/m<sup>3</sup> and will apply from 30/06/20. Therefore the ELV for emission point A2 has been updated within the permit.

#### *Emission point A4*

We have retained the current ELV for dust of 5 mg/m<sup>3</sup> as this is already in accordance with the BAT-AEL value in BAT 94.

#### *Emission point A5*

We have retained the current ELV for dust of 5 mg/m<sup>3</sup> as this is already in accordance with the BAT-AEL in BAT 95.

#### *Emission point A7*

We have retained the current ELV for dust of 5 mg/m<sup>3</sup> as this is already in accordance with the BAT-AEL value in BAT 94.

#### *Emission point A10*

We have included an ELV for dust of 4 mg/m<sup>3</sup> which is in accordance with the upper BAT-AEL value in BAT 97. This replaces the current ELV of 5 mg/m<sup>3</sup> and will apply from 30/06/20. Therefore the ELV for emission point A10 has been updated within the permit.

#### *Monitoring*

The current permit requires the Operator to undertake periodic dust monitoring at the above emission points on a quarterly basis. We are satisfied that from 30/06/20 the Operator's proposal to undertake periodic compliance monitoring, twice yearly, is appropriate for the installation. BAT as set out in the BAT Conclusions (where continuous monitoring is not required) is for more frequent periodic monitoring, and in this case 'twice yearly' exceeds the minimum BAT requirement of 'once per year'.

#### BAT-AEL for Lead

Several of the relevant BAT-Conclusions specify a BAT-AEL for lead, as follows

- BAT 96 (charging, smelting and tapping), BAT-AEL is  $\leq 1$  mg/m<sup>3</sup>
- BAT 97 (re-melting, refining and casting), BAT-AEL is  $\leq 1$  mg/m<sup>3</sup>

BAT 96 applies to emission points **A1** and **A2**.

BAT 97 applies to emission points **A2** and **A10**.

#### *Emission point A1*

We have included an ELV for lead of 1 mg/m<sup>3</sup> which is in accordance with the BAT-AEL value in BAT 96. This replaces the current ELV of 2 mg/m<sup>3</sup> and will apply from 30/06/20. Therefore the ELV for emission point A1 has been updated within the permit.

#### *Emission point A2*

We have included an ELV for lead of 1 mg/m<sup>3</sup> which is in accordance with the BAT-AEL value in BAT 96 and 97. This replaces the current ELV of 2 mg/m<sup>3</sup> and will apply from 30/06/20. Therefore the ELV for emission point A2 has been updated within the permit.

#### *Emission point A10*

We have included an ELV for lead of 1 mg/m<sup>3</sup> which is in accordance with the BAT-AEL value in BAT 97. This replaces the current ELV of 2 mg/m<sup>3</sup> and will apply from 30/06/20. Therefore the ELV for emission point A10 has been updated within the permit.

#### *Monitoring*

The current permit requires the Operator to undertake periodic lead monitoring at the above emission points on a weekly basis. We are satisfied that from 30/06/20 the Operator's proposal to undertake periodic compliance monitoring, twice yearly, is appropriate for the installation. BAT as set out in the BAT Conclusions (where continuous monitoring is not required) is for more frequent periodic monitoring, and in this case 'twice yearly' exceeds the minimum BAT requirement of 'once per year'.

The BAT Conclusions also require monitoring of lead emissions from processes associated with BAT 94 and BAT 95. Therefore the permit includes a yearly monitoring requirement for lead at emissions points A4, A5 and A7 in accordance with minimum BAT.

#### BAT-AEL for TVOC

The BAT-Conclusions specify a BAT-AEL for total volatile organic carbon (TVOC), as follows

- BAT 98 (raw material drying and smelting), BAT-AEL range is 10-40 mg/m<sup>3</sup>

BAT 98 applies to emission points **A1** and **A2**.

#### *Emission point A1*



We have included an ELV for TVOC of 40 mg/m<sup>3</sup> which is in accordance with the upper BAT-AEL value in BAT 98. This replaces the current ELV of 50 mg/m<sup>3</sup> and will apply from 30/06/20. Therefore the ELV for emission point A1 has been updated within the permit.

#### *Emission point A2*

We have included an ELV for TVOC of 40 mg/m<sup>3</sup> which is in accordance with the upper BAT-AEL value in BAT 98. This replaces the current ELV of 50 mg/m<sup>3</sup> and will apply from 30/06/20. Therefore the ELV for emission point A2 has been updated within the permit.

#### *Monitoring*

The current permit requires the Operator to undertake periodic VOC (as C) monitoring at the above emission points on a twice yearly basis. We are satisfied that from 30/06/20 the Operator's proposal to undertake periodic compliance monitoring for TVOC, twice yearly, is appropriate for the installation. BAT as set out in the BAT Conclusions (where continuous monitoring is not required) is for more frequent periodic monitoring, and in this case 'twice yearly' exceeds the minimum BAT requirement of 'once per year'.

#### BAT-AEL for PCDD/F

The BAT-Conclusions specify a BAT-AEL for dioxins and furans (PCDD/F), as follows

- BAT 99 (smelting), BAT-AEL is  $\leq 0.1$  ng I-TEQ/m<sup>3</sup>

BAT 99 applies to emission points **A1** and **A2**.

#### *Emission point A1*

We have included an ELV for PCDD/F of 0.1 ng I-TEQ/m<sup>3</sup> which is in accordance with the BAT-AEL value in BAT 99. This replaces the current ELV of 1 ng I-TEQ/m<sup>3</sup> and will apply from 30/06/20. Therefore the ELV for emission point A1 has been updated within the permit.

#### *Emission point A2*

We have included an ELV for PCDD/F of 0.1 ng I-TEQ/m<sup>3</sup> which is in accordance with the BAT-AEL value in BAT 99. This replaces the current ELV of 1 ng I-TEQ/m<sup>3</sup> and will apply from 30/06/20. Therefore the ELV for emission point A2 has been updated within the permit.

#### *Monitoring*

The current permit requires the Operator to undertake periodic monitoring of dioxins and furans at the above emission points on a twice yearly basis. We are satisfied that from 30/06/20 the Operator's proposal to undertake periodic compliance monitoring for PCDD/F, twice yearly, is appropriate for the installation. BAT as set out in the BAT Conclusions (where continuous

monitoring is not required) is for more frequent periodic monitoring, and in this case 'twice yearly' exceeds the minimum BAT requirement of 'once per year'.

### BAT-AEL for SO<sub>2</sub>

The BAT-Conclusions specify a BAT-AEL for sulphur dioxide (SO<sub>2</sub>), as follows

- BAT 100 (charging, smelting and tapping), BAT-AEL range is 50-350 mg/m<sup>3</sup>

BAT 100 applies to emission point **A1**.

#### *Emission point A1*

We have included an ELV for SO<sub>2</sub> of 350 mg/m<sup>3</sup> which is in accordance with the upper BAT-AEL value in BAT 100. This replaces the current ELV of 500 mg/m<sup>3</sup> and will apply from 30/06/20. Therefore the ELV for emission point A1 has been updated within the permit.

#### *Monitoring*

The current permit requires the Operator to undertake periodic monitoring of SO<sub>2</sub> at the above emission point on a twice yearly basis. We are satisfied that from 30/06/20 the Operator's proposal to undertake periodic compliance monitoring for SO<sub>2</sub>, twice yearly, is appropriate for the installation. BAT as set out in the BAT Conclusions (where continuous monitoring is not required) is for more frequent periodic monitoring, and in this case 'twice yearly' exceeds the minimum BAT requirement of 'once per year'.

### **Update of emission points for discharges to air, land and water**

Updated emission point plans have been submitted by the Operator and as a consequence the following redundant emission points have been removed from the permit:

- Tables S3.1 (a & b) Emissions to air: A3, A6, A8, A9 and A13
- Tables S3.2 (a & b) Emissions to water: W3

In addition we have removed the requirements set out in Table 6.2.2 of the current permit which related to emission into land. This related to the discharge of sewage from staff toilets to 4 separate soakaways.

The Operator has confirmed that this effluent is now directed to a new on-site effluent treatment plant for discharge to surface waters. The discharge is regulated via a separate environmental permit for a standalone Water Discharge Activity, ref. EPR/MB3799DT, issued in January 2020. This is because the discharge is sewage only from staff welfare facilities and is not in any way related to any processing activity of the installation.

## **Other monitoring for emissions to air (BAT 10)**

We have amended the emissions to air table S3.1b to reflect the current monitoring requirements set out in the BAT 10. In doing so we have removed the following substances from the table together with their associated ELV and monitoring requirements (as appropriate) – carbon monoxide, nickel, tin, zinc, selenium, sulphur dioxide (combustion gases), tellurium, thallium, hydrogen chloride and sulphuric acid. We have retained periodic monitoring for antimony, arsenic, cadmium, copper and mercury within the varied permit but at the reduced frequency of once per year, this being reflective of environmental risk and in accordance with BAT 10.

We have retained a monitoring requirement for NO<sub>x</sub> emissions in accordance with the BAT Conclusions. There is no BAT-AEL applicable to emissions of NO<sub>x</sub> from pyrometallurgical processes in secondary lead production, and we are satisfied with the Operator's use of oxy-fuel burners to minimise NO<sub>x</sub> emissions. Existing NO<sub>x</sub> ELVs have been removed from emission points A1, A11, A12, A14, A15 and A16 but we have retained a monitoring requirement, at a frequency of once per year in accordance with BAT 10.

## **BAT-AELs and monitoring requirements for direct emissions to water from secondary lead production**

The following paragraphs outline how we have amended Table S3.2b of the permit to take into account the BAT-AELs and monitoring requirements in the BAT Conclusions that shall apply from 30/06/20.

The BAT Conclusions for secondary lead production contain BAT-AELs for direct emissions to a receiving water body for the following substances: Arsenic, Cadmium, Cobalt, Copper, Mercury, Nickel, Lead and Zinc.

The relevant emission point to water, to which BAT-AELs from secondary lead production apply, is emission point W1. This is a direct discharge (via the on-site Effluent Treatment Plant (ETP)) to the River Derwent.

In applying the BAT-AELs to the varied permit we have had to amend the existing ELVs which are currently expressed in terms of mass release (in kg/day), to ELVs which are expressed as concentrations (in mg/litre), because this is how the BAT-AELs are expressed in the BAT conclusions.

The current permit includes a footnote to the emissions to water table which explains that "Absolute mass release" ELVs in kg/day have been used which relate directly to environmental impact. As well as indicating the mass release ELV for each substance, the emissions table also contained a corresponding figure for the equivalent concentration based figure (in mg/litre) at an ETP discharge rate of 60.12 m<sup>3</sup>/hr, i.e. the flow rate used in the impact assessment for the original permit application. These concentration based figures were

included in the permit for direct comparison purposes only, and were not used to assess permit compliance.

The table below shows the BAT-AELs that have been applied as ELVs to the varied permit at emission point W1. The table also shows the mass release ELVs in the current permit that are being replaced together with the corresponding equivalent concentration based figure. This is therefore indicative of the difference between the old and new standards being applied.

Substance	BAT-AEL (mg/l)	Current mass release ELV (kg/d)	Equivalent concentration based figure (mg/l)
<b>Arsenic</b>	0.1	0.721	0.5
<b>Cadmium</b>	0.1	0.289	0.2
<b>Cobalt</b>	0.1	No ELV	No ELV
<b>Copper</b>	0.2	0.721	0.5
<b>Mercury</b>	0.05	0.014	0.01
<b>Nickel</b>	0.5	0.721	0.5
<b>Lead</b>	0.5	1.2, 1.3. & 1.443 <sup>[1]</sup>	1.0
<b>Zinc</b>	1.0	1.0 & 1.2 <sup>[1]</sup>	1.0

<sup>[1]</sup> Where more than one ELV is included in the current permit, each has a different reference period

### Monitoring for emissions to water (BAT 16)

We have made the following other amendments to table S3.2b to reflect the monitoring requirements set out in BAT 16, and the list of BAT-AELs set out in BAT 17:

- we have removed the ELV for antimony but retained a weekly monitoring requirement
- we have added a weekly monitoring requirement for iron, sulphate and tin. There are no ELVs for these substances.

All of the metals with ELVs in the current permit are monitored as a minimum once a week with some more frequently at 3 days per week, in the case of lead and cadmium. BAT 16 requires that monitoring shall be carried out at least once per month. We have determined that periodic monitoring on a weekly basis is appropriate for all substances referenced in BAT 16, with the exception of lead and cadmium that shall remain at 3 times per week. This is reflective of the importance of the receiving water environment and the potential risk of harm from the discharge.

The current permit also includes ELVs for a number of other substances which are not mentioned in the BAT conclusions. These are: Biochemical Oxygen Demand (BOD), Suspended solids, Total hydrocarbon oil, pH, and Ammonium (total). For BOD, SS and Ammonium the current ELVs are in terms of mass release (kg/day) with a corresponding equivalent concentration based figure also given. We have carried these over to the varied permit, using the old concentration based figure as the new ELV expressed in mg/litre, as shown in the table below.

Substance	ELV (mg/l)	Current mass release ELV (kg/d)	Equivalent concentration based figure (mg/l)
<b>BOD</b>	10.0	14.429	10.0
<b>Suspended solids</b>	35.0	50.501	35.0
<b>Ammonium</b>	5.0	7.214 & 7.211 <sup>[1]</sup>	5.0

<sup>[1]</sup> Where more than one ELV is included in the current permit, each has a different reference period

In the varied permit ammonium is referenced as ‘ammoniacal nitrogen’ (to be consistent with how the substance is now regulated), and similarly for total hydrocarbon oil, this has been changed to ‘oil and grease’ with just a daily visual inspection now required. The ELVs and monitoring requirements for pH remain unchanged.

### Effluent flow rate

The current permit does not include an effluent flow limit during normal operation because the ELVs are expressed in mass release terms. In changing from mass release based ELVs to concentration based ELVs we must also include an effluent flow limit to ensure that the ‘load’ (flow x concentration) of each substance being discharged to the river is controlled and can be appropriately regulated.

We have included a flow limit of 61m<sup>3</sup>/hr in the varied permit, this simply being the 60.12m<sup>3</sup>/hr figure mentioned above, rounded up to 61m<sup>3</sup>/hr. Our original decision document from 2004 stated that: “*Typical ETP average is 42/43 m<sup>3</sup>/hr (11.9 l/sec), 50m<sup>3</sup>/hr is nominal and 60-65 m<sup>3</sup>/hr (17-18 l/s) under very rainy conditions. The ETP hydraulic design is ~100m<sup>3</sup>/hr.*” So a flow limit of 61m<sup>3</sup>/hr is approximately consistent with this statement which would have been based on information in the original permit application.

The legacy drainage systems on-site convey both process effluent and storm water to an ETP that also incorporates a blind tank (essentially a storm tank). The Operator raised concerns for meeting the 61m<sup>3</sup>/hr flow limit if applied as an ‘hourly maximum’ and in support submitted daily flow monitoring records for the period October 2019 to February 2020. Having reviewed this data we have applied the 61m<sup>3</sup>/hr limit as a ‘weekly average’ based on the mean of

daily hourly averages for the week in question, obtained using continuous effluent flow measurement. We have also included an additional definition, for “daily hourly average” in Schedule 6 of the varied permit. We are satisfied this combination of flow limit and reference period will mean that the discharge is appropriately controlled during normal operational conditions. We have discussed and agreed this flow limit with the Operator.

The current permit did include a flow limit of 100m<sup>3</sup>/hr that applies during abnormal operational conditions, this being described in the permit as when the ELV for suspended solids, pH, cadmium and lead is breached and/or when the ETP Blind tank overflows. We have maintained this 100m<sup>3</sup>/hr absolute limit in the varied permit as a ‘maximum’ value because this is in effect the backstop limit for controlling downstream impact under the above circumstances, which typically arise as a result of prolonged heavy rainfall. Our original decision document states that this 100m<sup>3</sup>/hr “*value has been set to put a ceiling on significant environmental impact as emissions are likely to breach EQSs and EALs depending on concentration.*”

The Operator currently has continuous flow recording in place for effluent flow monitoring and this requirement is carried over into the varied permit.

## **Surface Water Pollution Risk Assessment**

In response to questions 5 and 6 on our Regulation 60 Notice the Operator submitted a H1 assessment from March 2016 which considered the following hazardous pollutants listed on their permit - ammonia, arsenic, cadmium, chromium III, copper, lead, mercury, nickel and zinc. These substances are discharged from the on-site effluent treatment plant (ETP) directly to the River Derwent. The H1 assessment used on-site monitoring data for each substance. The Operator stated that they considered the H1 assessment from March 2016 to still be representative of the position in March 2017, this being when we received their Regulation 60 Notice response.

The H1 screening tool is used across permitting regimes within the Environment Agency. Generally, for discharges to inland watercourses, hazardous pollutants are assessed against a series of freshwater screening tests incorporated within the H1 tool as part of the process of determining whether the discharge is “liable to cause pollution” of receiving waters, either directly or indirectly via a sewage treatment works (STW). Assessing whether a substance is liable to cause pollution is a two-step process. H1 screening is the first step and modelling is the second step. For substances which do not screen out as insignificant during step 1, modelling is then used to determine whether the discharge needs to be controlled with emission limit values ELVs on the permit, and if so, the level at which those ELVs should be set.

Additionally for installations subject to the IED where mandatory BAT-AELs apply, the H1 tool can be used to indicate the significance of the discharge at

those BAT-AELs. Modelling could then be used to determine whether more stringent ELVs than those provided for by the BAT-AELs are necessary to sufficiently protect water quality downstream, i.e. would it be necessary to require the operator to go beyond BAT to secure environmental protection.

Freshwater screening tests Part A (1-4), as incorporated within Version 2.78 (Jan 17) of the H1 screening tool are summarised below:

- *Test 1* checks whether the concentration of the substance in the discharge exceeds 10% of the environmental quality standard (EQS). If it's less than 10% of the EQS then the substance isn't a risk to the environment and no further assessment is required, i.e. the substance is screened out. If it's more than 10% of the EQS then the test is failed and the assessment proceeds to test 2.
- *Test 2* introduces the dilution available in the receiving water, using river flow data and the daily discharge volume of the effluent. The test checks whether the process contribution (PC) of the substance exceeds 4% of the EQS. The PC is the concentration of a discharged substance in the receiving water after it's been diluted. If the PC is less than 4% of the EQS then the substance isn't a risk to the environment and no further assessment is required. If the PC is more than 4% of the EQS then the test is failed and the assessment proceeds to test 3.
- *Test 3* considers the predicted environmental concentration (PEC) and requires upstream background concentration (BC) data for the substance. The PEC in the water downstream of the discharge is a combination of the PC and BC. The test checks whether the discharge increases the concentration of the substance in the receiving water by more than 10% of the substance's EQS value. If the difference between the PEC and BC is more than 10% of the EQS then the test is failed. We consider that the substance is potentially a risk to the environment and should be further assessed by the Environment Agency by modelling of the discharge. If the difference between the PEC and BC is less than 10% of the EQS, although the test is passed, the assessment proceeds to test 4 because both tests 3 and 4 must be passed in order for the substance to be screened out.
- *Test 4* checks whether the PEC exceeds the EQS. If it is greater, then the substance should be further assessed by the Environment Agency by modelling of the discharge. If the PEC is less than the EQS, the test is passed, further modelling is not required, and the substance is considered not to pose a risk to the environment.

In addition to the above Part A screening tests we also carry out a Part B 'significant load' test for any priority hazardous substances in the discharge. This is to determine whether the annual amount of such substances exceeds the significant load limit (an annual load limit that has been set for priority

hazardous pollutants). For priority hazardous substances both Part A and Part B tests must be passed in order for a substance to be screened out.

### ***Audit of Operator's H1 assessment***

The results from the Operator's H1 assessment showed that the PC for all pollutants except cadmium and lead screened out having taken account of the dilution available in the receiving water. The Operator did not subsequently include background concentrations for cadmium and lead in order to calculate the PEC, thereby not completing that particular test, yet they concluded that detailed modelling was not required, with cadmium and lead identified as priorities for ongoing control. There were a couple of main issues with the Operator's assessment.

Firstly, the Operator's H1 assessment from 2016, submitted in March 2017, was made on an incorrect and outdated version of our H1 tool, namely Version 2.10 (May 2010). We are currently using version 2.78 (available to operators from Jan 2017). The assessment methodology in version 2.10 of the tool does not contain the same tests as those outlined above, and as such it did not allow the Environment Agency to undertake a robust audit and verification of the Operator's results in accordance with our current guidance.

Secondly, in their H1 assessment the Operator used a flow figure for the receiving water, the River Derwent, of 12m<sup>3</sup>/s. This is a significant overestimation of the amount of water in the river during periods of low flow and as a consequence would have resulted in the H1 tool under-estimating the potential impact due to the assumption of there being more dilution available in the river than would be the case in reality. The H1 tool requires the user to input the Q95 river flow, i.e. the flow in the river that is expected to be exceeded for 95% of the time. The Q95 is chosen to be reflective of a low flow situation, during the summer for example when the river and its ecology is likely to be under increased stress, with less capacity to cope with any input of effluent. To put the Operator's 12m<sup>3</sup>/s figure in context, published river flow monitoring data shows the Q95 flow at Chatsworth about 7km upstream of the installation to be approximately 1.5m<sup>3</sup>/s, while at Matlock Bath, 7km downstream of the installation the Q95 flow is approximately 3.2m<sup>3</sup>/s. Our view is that the Operator may have used the 'mean flow' rather than the Q95 in their assessment because the mean recorded river flow at Matlock Bath is approximately 13m<sup>3</sup>/s.

For these reasons we have included Improvement Condition IC5 in the varied permit requiring that the Operator undertakes a further surface water pollution risk assessment, with a submission deadline of 30<sup>th</sup> June 2021. The wording of IC5 is copied below:



*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 from the installation upon the River Derwent.*

*The risk assessment shall be undertaken in accordance with published Environment Agency guidance on [.GOV.UK](https://www.gov.uk) and shall include the following:*

- 1) Results of emissions monitoring from the on-site Effluent Treatment Plant, carried out using the methods and standards specified in table S3.2b of this permit, and as described in Environment Agency [M18](#) guidance;*
- 2) Completion of Phase 1 Part A screening tests for the following substances, as listed the Non-ferrous metals BAT Conclusions: antimony, arsenic, cadmium, cobalt, copper, iron, mercury, nickel, lead, tin, sulphate and zinc; and the reporting of results;*
- 3) Completion of Phase 1 Part B screening tests for the following priority hazardous substances: cadmium and mercury; and the reporting of results.*

This will enable the Environment Agency to (a) determine the potential risk to downstream water quality with increased certainty (b) undertake detailed modelling if necessary with a robust dataset based on effluent monitoring (both in terms of flow and quality) gathered over the coming year, and (c) ensure that permit limits are protective of the river downstream.

In the interim period we are satisfied that the ELVs in table S3.2b of the varied permit (as discussed above) will result in an improvement in the quality of the discharge, because the BAT-AELs (with the exception of mercury) are either equivalent to, or more stringent than the comparative concentration based figure for each ELV in the current permit. Mercury is strictly controlled by the Operator by their use of raw materials with a low mercury content and historic monitoring results indicate that levels of mercury in the discharge are already significantly less than the BAT-AEL.

## **Annex 2a**

### **Assessment, determination and decision where an application(s) for Derogation from BAT Conclusions with associated emission levels (AEL) has been requested.**

The IED enables a competent authority to allow derogations from BAT AELs stated in BAT Conclusions under specific circumstances as detailed under Article 15(4):

‘By way of derogation from paragraph 3, and without prejudice to Article 18, the competent authority may, in specific cases, set less strict emission limit values. Such a derogation may apply only where an assessment shows that the achievement of emission levels associated with the best available techniques as described in BAT Conclusions would lead to disproportionately higher costs compared to the environmental benefits due to:

- (a) the geographical location or the local environmental conditions of the installation concerned; or
- (b) the technical characteristics of the installation concerned.

The competent authority shall document in an annex to the permit conditions the reasons for the application of the first subparagraph including the result of the assessment and the justification for the conditions imposed. ‘

A summary of any derogation(s) granted is also recorded in an Annex of the Consolidated Variation Notice in accordance with the requirement of IED Article 15(4) as described above.

The Operator did not request derogation from compliance with any AEL included within the BAT Conclusions as part of their Regulation 60 Notice response.

## **Annex 2b**

### **Advertising and Consultation on the draft decision**

This section is not applicable as no derogations from BAT-AEL's have been considered, nor is the installation a site of high public interest.

## Annex 3

### Improvement Conditions

Based on the information in the Operator's Regulation 60 Notice response and our own records of the capability and performance of the installation at this site, we consider that we need to set improvement conditions so that the outcome of the techniques detailed in the BAT Conclusions are achieved by the installation. These improvement conditions, IC1 and IC2, are set out below and justification for them is provided in Annex 5 of this decision document.

We also consider that we need to set improvement conditions relating to changes in the permit not arising from the review of compliance with BAT Conclusions. These improvement conditions, IC3 to IC5, are set out below and justification for them is provided in this decision document as follows: IC3 and IC4 in relation to baseline reporting under IED (see Section 2.5); and IC5 in relation to surface water pollution risk assessment (see Annex 1, Key Issues).

If the consolidated permit contains existing improvement conditions that are not yet complete or the opportunity has been taken to delete completed improvement conditions then the numbering in the table below will not be consecutive as these are only the improvement conditions arising from this permit variation.

<b>Reference</b>	<b>Improvement Condition</b>	<b>Completion date</b>
IC1	<p>The operator shall submit, for approval by the Environment Agency, a report setting out progress to achieving the Non-ferrous metals BAT conclusion AELs where BAT is currently not achieved, but will be achieved before 30<sup>th</sup> June 2020. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"><li>1) Current performance against the BATc AELs</li><li>2) Methodology for reaching the AELs</li></ol> <p>The report shall address the following BATc - 17, 94 and 99:</p> <ul style="list-style-type: none"><li>• BAT 17 – BAT-AELs for direct discharge of wastewater to surface water</li><li>• BAT 94 – BAT-AEL for dust in emissions to air from raw material preparation areas</li></ul>	30/06/2020

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Improvement Condition</b>	<b>Completion date</b>
	<ul style="list-style-type: none"> <li>BAT 99 – BAT-AEL for PCDD/F in emissions to air from the smelting of secondary lead raw materials</li> </ul>	
IC2	<p>The operator shall submit, for approval by the Environment Agency, a report setting out progress to achieving the Non-ferrous metals ‘Narrative’ BAT where BAT is currently not achieved, but will be achieved before 30<sup>th</sup> June 2020 The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> <li>Methodology for achieving BAT</li> <li>Associated targets / timelines for reaching compliance by 30<sup>th</sup> June 2020.</li> </ol> <p>The report shall address the following BATc - 16, 17, 94 and 99:</p> <ul style="list-style-type: none"> <li>BAT 16 – monitoring of emissions to surface water</li> <li>BAT 17 – abatement of wastewater to surface water</li> <li>BAT 94 – abatement of emissions to air from raw material preparation areas</li> <li>BAT 99 – abatement of emissions to air from the smelting of secondary lead raw materials</li> </ul>	30/06/2020
IC3	<p>The operator shall submit, for approval by the Environment Agency, a risk assessment considering the possibility of soil and groundwater contamination at the installation where the activity involves the use, production or release of a relevant hazardous substance (as defined in Article 3(18) of the Industrial Emissions Directive). The risk assessment shall clearly establish with appropriate evidence whether or not there is a risk of contamination of soil and groundwater.</p>	30/09/2020
IC4	<p>Where the risk assessment carried out under IC3 above establishes a risk to soil and groundwater the operator shall:</p>	30/06/2021

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Improvement Condition</b>	<b>Completion date</b>
	<p>1) prepare and submit a baseline report compliant with Article 22 of the Industrial Emissions Directive (IED) containing information necessary to determine the current state of soil and groundwater contamination; or</p> <p>2) provide a summary report referring to information previously submitted where the operator is satisfied that such information represents the current state of soil and groundwater contamination,</p> <p>so as to enable a quantified comparison to be made with the state of soil and groundwater contamination upon definitive cessation of activity.</p>	
IC5	<p>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 from the installation upon the River Derwent.</p> <p>The risk assessment shall be undertaken in accordance with published Environment Agency guidance on <a href="https://www.gov.uk">.GOV.UK</a> and shall include the following:</p> <p>1) Results of emissions monitoring from the on-site Effluent Treatment Plant, carried out using the methods and standards specified in table S3.2b of this permit, and as described in Environment Agency <a href="#">M18</a> guidance;</p> <p>2) Completion of Phase 1 Part A screening tests for the following substances, as listed the Non-ferrous metals BAT Conclusions: antimony, arsenic, cadmium, cobalt, copper, iron, mercury, nickel, lead, tin, sulphate and zinc; and the reporting of results;</p> <p>3) Completion of Phase 1 Part B screening tests for the following priority hazardous substances: cadmium and mercury; and the reporting of results.</p>	30/06/2021

## Annex 4

### **Review and assessment of changes that are not directly implementing BAT Conclusions**

#### **Waste types and quantities**

The purpose of the installation is to recover lead and other commercially valuable components from lead-bearing materials including wastes. The materials include waste lead-acid batteries, lead scrap from the battery manufacturing industry and other sources, lead dross from external sources and dross, lead-bearing dusts, sinter and sludges generated internally.

Article 23(1) of the Waste Framework Directive (Directive 2008/98/EC, the requirements of which are implemented via the Environmental Permitting Regulations 2016 (EPR)), requires that permits for establishments that carry out waste treatment shall specify at least the types and quantities of waste that may be treated. During our permit review we discussed and clarified with the Operator the types of waste that they receive on-site for processing via the permitted activities. The Operator provided a list of those wastes, coded by the European Waste Catalogue (EWC) number, which they accept at the installation.

We have specified the permitted waste types, descriptions and quantities which can be accepted at the installation in Tables S2.2 and S2.3 of the varied permit. Table S2.2 lists the waste types and quantities for the processing of waste batteries, while table S2.3 lists the waste types and quantities for the processing of lead bearing waste materials apart from batteries. Waste lead-acid batteries account for up to approximately 93% of all waste received for processing at the installation.

#### **Review of activities involving the handling (including storage) and treatment of hazardous waste at the installation**

The original permit for the installation was issued in January 2004. It was then subsequently varied in September 2006 following an application made by the Operator, principally to add a reverberatory furnace, abatement plant and a flue gas desulphurisation (FGD) / gypsum isolation plant. The 'activities' table in the current permit, Table 1.1.1 shown below, has remained unchanged since that variation (V002) in 2006.

**Table 1.1.1**

<b>Activity under Schedule 1 of the Regulations/ Associated Activity</b>	<b>Activity under Schedule 1 of the Regulations/ Associated Activity</b>	<b>Activity under Schedule 1 of the Regulations/ Associated Activity</b>	<b>Activity under Schedule 1 of the Regulations/ Associated Activity</b>
All materials storage, handling and preparation	Receive raw materials from suppliers or recovery of raw materials from battery breaking. Preparation and storage of raw materials or process feedstocks.	Directly associated activity	Recovery of raw materials from the Battery Breaker or receipt on site. Subsequent processing and feeding materials only for the installation smelting, melting or refining processes or flue gas desulphurisation/ gypsum isolation. Excludes Poly plant activities.
Producing non-ferrous metals from secondary raw materials	Operation of all smelting activities to produce lead.	Section 2.2 Part A(1) (a)	Feed of materials and fuels for smelting in Rotary furnaces and Reverberatory furnace through to discharge of molten lead and discharge from the process stacks.
Melting, including making alloys, of non-ferrous metals including secondary raw materials, recovered Lead products, Lead scrap to Lead refining.	Operation of all melting activities to produce lead products; ingots, strip, shot and wire.	Section 2.2 Part A(1) (b) and Part B (a)	Receipt of intermediate materials through specified activities to produce and despatch products from the installation. Includes releases into air, fugitive emissions, releases to water and control of waste.
Storage and handling of solid and liquid wastes	Storage and handling of associated solid and liquid wastes, and other lead bearing wastes	Directly associated activity	From separation of wastes to despatch or releases from installation



<b>Table 1.1.1</b>			
<b>Activity under Schedule 1 of the Regulations/ Associated Activity</b>	<b>Activity under Schedule 1 of the Regulations/ Associated Activity</b>	<b>Activity under Schedule 1 of the Regulations/ Associated Activity</b>	<b>Activity under Schedule 1 of the Regulations/ Associated Activity</b>
Water discharges to controlled waters	Treatment and discharge of process or surface water and site drainage from the installation.	Directly associated activity	All Effluent Treatment and any interceptors to point of entry to controlled waters
Water discharges to ground waters	Treatment and discharge of foul sewer from the installation.	Directly associated activity	From the Foul sewers feeding Klargester units to soakaways.
Flue gas desulphurisation and isolation of gypsum	Treatment of reverberatory furnace off gases with lime and isolation of resulting gypsum.	Directly associated activity	Reverberatory furnace gases through to isolation, storage and despatch of gypsum, including emission to air.

In updating the permit and consolidating all previous variations to produce a single, modern permit, we have reviewed the activities table to check it correctly identifies the activities which take place at the installation in accordance with those listed in current legislation.

Under EPR to define an installation it is necessary to identify all the listed activities and it is then necessary to identify any other non-listed activities that are directly associated to the listed activities.

An installation is defined in EPR as a stationary technical unit where one or more activities listed in Part 2 of schedule 1 are carried on and any other location on the same site where any other directly associated activity is carried on. Installation is defined in effectively the same terms in the IED.

In applying this definition to a particular case the starting point is to identify the listed activities undertaken at a particular site. Answers given by the EU's DG Environment on the implementation of the IED chapter 1 confirms this approach. As does Defra's IED EPR Guidance on Part A installations. This is referred to as 'limb (i)' in the Defra guidance. Only after the listed activities have been identified do you go on to identify any non-IED activities that are part of the installation – this is "limb (ii)" in the Defra guidance and the "any other directly associated activities". This is confirmed in examples 3 and 4 in annex 2 to the Defra guidance. The 'any other' refers to unlisted or non-IED activities.

Identifying the listed activities and then any unlisted directly associated activities is how the Environment Agency has structured its permits for many years and how this permit has always been structured.

In commencing our review we considered it likely that the scale of certain waste activities would mean that they should be permitted as 'listed activities' under Schedule 1 of the EPR, rather than as 'Directly Associated Activities' (DAA's). These waste activities are as follows:

- 1) the crushing / breaking of batteries in the mechanical 'MA battery breaker';
- 2) the treatment of battery acid in the Dove plant to obtain synthetic gypsum;
- 3) the treatment of process effluents in the on-site Effluent Treatment Plant (ETP) prior to the treated effluent being discharged to the River Derwent;
- 4) the treatment of reverberatory furnace off-gases in the FGD plant to obtain synthetic gypsum,

which would fall under Section 5.3 Part A(1)(a)(ii) of EPR, *Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment*, and

- 5) the storage of hazardous waste received on-site prior to use in the process,

which would fall under Section 5.6 Part A(1)(a) of EPR, *Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes pending any of the activities listed in Sections 5.1, 5.2, 5.3...*

In mid-2018 the Operator provided information on waste capacities and throughputs in relation to the above activities, as shown in column 3 of the table below.

<b>EPR Schedule 1 activity reference</b>	<b>Type of process</b>	<b>Activity capacity (confirmed by the Operator)</b>	<b>EPR activity capacity threshold</b>
Section 5.3A(1)(a)(ii)  Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment	Operation of the MA Battery Breaker, to crush/ break apart the lead-acid batteries	960 tonnes per day	10 tonnes per day  This threshold refers to the total aggregate hazardous waste treatment capacity on-site
	Operation of the Dove plant to treat battery acid so as to obtain synthetic gypsum	50 tonnes per day	

EPR Schedule 1 activity reference	Type of process	Activity capacity (confirmed by the Operator)	EPR activity capacity threshold
	Operation of the Effluent treatment plant (ETP) to treat process effluent	3000 tonnes per day	
	Operation of the flue gas desulphurisation plant so as to obtain synthetic gypsum	150 tonnes per day	
Section 5.6A(1)(a)  Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes	Bulk lead-acid battery storage	10,000 tonnes nominal  Highest stock within the building in last 10 years was 9450 tonnes	50 tonnes  This threshold refers to the total aggregate hazardous waste storage capacity on-site
	Battery acid storage	165 tonnes	
	Storage of scrap lead, CRT, glass Frit, etc.	No specific capacity, but receipts for 2183 tonnes of waste over last year	

This information has enabled the Environment Agency to confirm that in addition to the lead smelting and refining 'listed activities' undertaken under Section 2.2 of EPR, other 'listed activities' take place involving the treatment and storage of hazardous wastes. Whilst these activities can also be considered to be directly associated to the lead smelting and refining processes due to their capacities they are listed activities in their own right under Sections 5.3 and 5.6 of EPR. Paragraph 3.9 and example 4 in annex 2 of the Defra guidance confirms one listed activity can be directly associated to another.

We have amended the activities table in the varied permit (Table S1.1) to include these 'listed activities'. In doing so we are satisfied that they are not new activities. While currently described as directly associated activities and not by reference to a Schedule 1 activity reference the wording in the 'Limits

of specified activity' column within Table 1.1.1 of the current permit does not restrict the activities to below the listed activity threshold. We are satisfied that all of the processes in question have been undertaken at the installation, and regulated under the current permit from when it was either originally issued in 2004, or when first varied in 2006 when the FGD / gypsum isolation process was added. We are further satisfied that the capacity of these processes has not changed markedly over the years, therefore our amendments in Table S1.1 only serve to correctly reflect these established processes in accordance with current legislation, rectifying discrepancies in the layout of the current permit. Furthermore the site was initially permitted under the Pollution Prevention and Control Regulations 2000 which at the time had a more restricted range of listed activities although the operation of the effluent treatment plant should have been listed from the outset. It is unclear why this was not done at the time although it may have been overlooked as operation of the treatment plant was not clearly identified as an activity. So the changes to the activities table update the permit to correct this one point and reflect regulatory changes that mean the other activities are now listed in their own right.

The Operator has sought to describe some of these listed activities as sub-processes but a stationary technical unit can consist of a number of components or sub-processes functioning together. The Operator also considers that some of the listed activities are directly associated activities under the limb (ii) test. As explained above this test is only applied after all the listed activities have been identified. They do not dispute their capacity exceeds the listed thresholds.

The lead acid batteries and other lead bearing materials accepted at the site have been discarded and are waste. The breaking of the batteries is a waste treatment activity. Other commercially valuable materials are obtained from the process including polypropylene chippings from the battery casings and synthetic gypsum from the treatment of battery acid and flue gas. Processing the battery casings, battery acid and flue gas to obtain these materials are all waste treatment activities. Whether the materials meet the end of waste test at the end of the processing in accordance with Article 6(4) of the Waste Framework Directive has not been assessed by the Environment Agency. The Operator was invited to make a submission for assessment in 2012 but has not done so. Even if end of waste was achieved the processing to achieve that would still be a waste recovery treatment activity and that processing is over the threshold for a listed activity as explained above.

The Operator is unhappy with the fact the introductory note to the permit reflects the end of waste position as above. It would remain the same whether the waste treatment activities were described as listed activities or directly associated activities. Whilst the Operator has indicated they will appeal this decision unless both the identification of listed activities and the introductory note are changed, the note is not part of the permit and is not subject to the right of appeal in Regulation 31 which only relates to permit conditions. As explained, the identification of the listed activities accords with the statutory definition, relevant guidance and long established practice.

## ***Waste handling and treatment***

Under Article 21(3) of the IED (which we are required to comply with by virtue of paragraph 7 of schedule 7 EPR) within 4 years of the publication of the decision on BAT conclusions relating to the main activity of an installation the permit conditions need to be reconsidered and the reconsideration shall take into account all the other new or updated BAT conclusions applicable to that installation adopted since the permit was last reconsidered. Article 24(2)(d) provides that the public shall be informed of the BAT reference documents relevant to an installation. The reference to documents plural confirms more than one BAT conclusions may be relevant to a single installation. Brefs or BAT Conclusions identify other Brefs or BAT Conclusions that are or may be relevant to the activities they cover. This confirms that, for example, listed waste treatment activities can be carried on as part of an installation relating to a different main activity.

The Non-Ferrous Metal Industries BAT reference document (Bref) confirms that “other reference documents which are relevant for the activities covered in this document are the following:” it then lists a number of documents including the Waste Treatment Bref concerning waste handling and treatment.

Updated BAT conclusions for waste treatment including activities specified in section 5.1 (hazardous waste treatment) and 5.5 (hazardous waste storage) of annex 1 to the IED were published on 17<sup>th</sup> August 2018. These BAT conclusions confirmed that they do not apply to the “direct recovery (i.e. without pretreatment) of waste as a substitute for raw materials in installations carrying out activities covered by other BAT conclusions, e.g: Direct recovery of lead (e.g. from batteries), zinc or aluminium salts or recovery of the metals from catalysts. This may be covered by the BAT conclusions for the non-ferrous metal industries (NFM)”. In this case the waste batteries are subject to extensive pre-treatment in order to separate the lead from the other battery components so that it can be smelted and refined, therefore the Waste Treatment BAT conclusions do apply to that treatment and to other waste treatment activities undertaken. The Waste Treatment BAT conclusions do not apply to the smelting of scrap metal and metal-bearing materials. These may again be covered by the NFM BAT conclusions or those for iron and steel production or for the smitheries and foundries industry.

This current permit review was prompted by publication of the NFM BAT conclusions on 30<sup>th</sup> June 2016 which cover the main activities undertaken at the installation. Had the Operator’s permit been reviewed as originally intended (between October and December 2017 according to our project plan) this would have been completed before publication of the Waste Treatment BAT conclusions so they would not have been considered.

We understand this to be the only site in England undertaking these operations at this scale. We are aware that the review of environmental permits for all competitor sites across Europe including those similar sites within the Operator’s parent group of companies (Eco-Bat Technologies Ltd)

was undertaken before publication of the Waste Treatment BAT conclusions. Therefore in this particular case in the interests of maintaining a level playing field we have not taken the Waste Treatment BAT conclusions into account as part of this review. This means that in the future all similar installations can be assessed against the Waste Treatment BAT conclusions when permits are being reconsidered.

In the interim, we are satisfied that the Operator has controls in place for the handling and treatment of waste and that the revised permit will ensure that no significant pollution is caused and will still deliver a high level of protection for the environment as a whole.

In reaching this decision we have had regard to the growth duty under Section 108 of the Deregulation Act 2015 and the DG Environment view that there should not be major discrepancies in the date of application of BAT across Member States.

If we do have any concerns about the environmental performance of an installation we can review a permit at any time. We may also be required to review our approach if it is challenged by a third party. Similarly any appeal from the Operator could lead to an Inspector deciding to review our approach and to apply the Waste Treatment BAT conclusions to the permitted activities at this time.

## Annex 5

### Priority Compliance Issues & detailed assessment of Regulation 60 Notice responses where future action likely

BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
	<b>BAT 1-19: General requirements</b>					
1	In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the features given	1.1	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 1.</p> <p>They stated that they operate to a formal Environmental Management System, registered under BS EN ISO 14001:2004, and were aiming to achieve registration to BS EN ISO 14001:2015 during 2017.</p> <p>They state that their EMS incorporates the requirements listed in BAT 1 (a)-(i), and the it also includes the EMS-related matters referred to in BAT 4 (apply a maintenance management system with respect to the performance of dust abatement systems) and BAT 6 (set up an action plan to tackle diffuse dust emissions) respectively.</p>	None

BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
					The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT Conclusion.	
2	In order to use energy efficiently, BAT is to use a combination of the techniques given	1.2	CC	CC	<p>The operator has confirmed in their response that they are mainly (but not totally) compliant with BAT 2.</p> <p>They state that they operate to a formal Energy Management System (EnMS), registered under BS EN ISO 50001:2011.</p> <p>They state that their EnMS fully satisfies the requirements of BAT 2, and that they use a combination of the given techniques, as follows:</p> <ul style="list-style-type: none"> <li>(a) Energy efficiency management system (e.g. ISO 50001)</li> <li>(h) Use oxygen-enriched air or pure oxygen in the burners to reduce energy consumption by allowing autogenous smelting or the complete combustion of carbonaceous material</li> <li>(i) Dry concentrates and wet raw materials at low temperatures</li> </ul>	None



BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
					<p>(l) Suitable insulation for high temperature equipment such as steam and hot water pipes</p> <p>(n) Use high efficiency electric motors equipped with variable-frequency drive, for equipment such as fans; and</p> <p>(o) Use control systems that automatically activate the air extraction system or adjust the extraction rate depending on actual emissions .</p> <p>While the following techniques are not currently applied the operator states that they may be considered in the future:</p> <p>(b) Regenerative or recuperative burners</p> <p>(c) Heat recovery (e.g. steam, hot water, hot air) from waste process heat</p> <p>(g) Use hot gases from the launder as preheated combustion air: and</p> <p>(k) Recirculate the flue-gas back through an oxy-fuel burner to recover the energy contained in the total organic carbon present</p>	

BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
					<p>The operator states that the remainder of the BAT 2 techniques, i.e. (d), (e), (f), (j) and (m) are not applicable, as they relate to types of process that are not used at the installation.</p> <p>The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT Conclusion.</p>	
3	In order to improve overall environmental performance, BAT is to ensure stable process operation by using a process control system together with a combination of the techniques given	1.1	CC	CC	<p>The operator has confirmed in their response that they are mainly (but not totally) compliant with BAT 3.</p> <p>They state that their process control systems include automatic and semi-automatic systems, as well as teams of process operators, trained in the process control techniques for their respective processes.</p> <p>In addition to the they state that they employ a combination of the given techniques to comply with BAT 3, as follows:</p>	None

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					<p>a) Inspect and select input materials according to the process and the abatement techniques applied</p> <p>(b) Good mixing of the feed materials to achieve optimum conversion efficiency and reduce emissions and rejects</p> <p>(c) Feed weighing and metering systems</p> <p>(d) Processors to control material feed rate, critical process parameters and conditions including the alarm, combustion conditions and gas additions</p> <p>(e) On-line monitoring of the furnace temperature, furnace pressure and gas flow</p> <p>(f) Monitor the critical process parameters of the air emission abatement plant such as gas temperature, reagent metering, pressure drop, ESP current and voltage, scrubbing liquid flow and pH and gaseous components (e.g. O<sub>2</sub>, CO, VOC), and (j) Temperature monitoring and control at melting and smelting furnaces to prevent the generation of metal and metal oxide fumes through overheating.</p> <p>(k) (Processor to control the reagents feeding and the performance of the waste water treatment plant, through on-line monitoring of temperature, turbidity, pH,</p>	

BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
					<p>conductivity and flow) is satisfied in terms of pH and flow. Turbidity, temperature and conductivity monitoring will also be in place by the compliance date of 30th June 2020.</p> <p>Technique (h) (On-line monitoring of vibrations to detect blockages and possible equipment failure) is not currently applied, and may be considered in the future by the operator.</p> <p>The operator states that the remainder of the BAT 3 techniques are not applicable, as they relate to types of process that are not undertaken at the installation.</p> <p>The Environment Agency is satisfied that given the range of techniques used, the operator is already compliant, and recognises that they intend to bring more process monitoring on-line by the compliance date.</p> <p>The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT Conclusion.</p>	

BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
4	In order to reduce channelled dust and metal emissions to air, BAT is to apply a maintenance management system which especially addresses the performance of dust abatement systems as part of the environmental management system (see BAT 1)	3.1	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 4.</p> <p>They state that as part of their EMS, the abatement systems (including Effluent Treatment Plant (ETP), bag filters, Flue Gas Desulphurisation (FGD) and wet scrubbers) are maintained in accordance with the EAM Maintenance Management System.</p> <p>The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT conclusion.</p>	None
5	In order to prevent or, where this is not practicable, to reduce diffuse emissions to air and water, BAT is to collect diffuse emissions as much as possible nearest to the source and treat them	3.2	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 5.</p> <p>They state that diffuse emissions are collected and treated at source wherever practicable.</p> <p>Diffuse emissions to air are collected by means of hoods and ductwork, through which they are constrained to flow, prior to being treated in bag filter plants and scrubbers.</p> <p>All process areas are constructed on impervious hard standing, and all liquid effluent is constrained to flow through</p>	None

BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
					<p>drains to the effluent treatment plant, where the effluent is treated prior to discharge from site. A significant proportion of the effluent is further treated in a reverse osmosis / ion exchange plant and returned to the site for re-use.</p> <p>The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT conclusion.</p>	
6	<p>In order to prevent or, where this is not practicable, to reduce diffuse dust emissions to air, BAT is to set up and implement an action plan on diffuse dust emissions, as part of the environmental management system (see BAT 1), that incorporates both of the following measures:</p> <p>(a) identify the most relevant diffuse dust emission sources (using e.g. EN 15445);</p> <p>(b) define and implement appropriate actions and techniques to prevent or reduce diffuse emissions over a given time frame.</p>	3.2	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 6.</p> <p>They state that as part of their EMS, they have identified the significant sources of fugitive emissions, and are making ongoing improvements in accordance with an Action plan.</p> <p>The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT conclusion.</p>	None
7	In order to prevent diffuse emissions from the storage of raw materials, BAT	3.2	CC	CC	The operator has confirmed in their response that they are mainly (but not totally) compliant with BAT 7.	None

BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
	is to use a combination of the techniques given				<p>They state that they meet BAT through employing a combination of the given techniques, as follows:</p> <ul style="list-style-type: none"> <li>(a) Enclosed buildings or silos/bins for storing dust-forming materials such as concentrates, fluxes and fine materials</li> <li>(b) Covered storage of non-dust-forming materials such as concentrates, fluxes, solid fuels, bulk materials and coke and secondary materials that contain water-soluble organic compounds</li> <li>(c) Sealed packaging of dust-forming materials or secondary materials that contain water-soluble organic compounds</li> <li>(e) Use water sprays and fog sprays with or without additives such as latex for dust-forming materials</li> <li>(h) Tank construction materials that are resistant to the contained materials</li> </ul>	

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					<p>(k) Design storage areas so that any leaks from tanks and delivery systems are intercepted and contained in bunds that have a capacity capable of containing at least the volume of the largest storage tank within the bund; delivery points are within the bund to collect any spilled material</p> <p>(n) Regular cleaning of the storage area and, when needed, moistening with water; and</p> <p>(r) Use oil and solid interceptors for the drainage of open outdoor storage areas. Use of concreted areas that have kerbs or other containment devices for the storage of material that can release oil, such as swarf.</p> <p>The operator states that the following techniques are applied in some, but not all, cases, and there may be scope to utilise them further in some areas in the future to bring about further improvements:</p>	



BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
					<p>(f) Dust/gas extraction devices placed at the transfer and tipping points for dust-forming materials</p> <p>(i) Reliable leak detection systems and display of tank's level, with an alarm to prevent overfills; and</p> <p>(m) Collect and treat emissions from storage with an abatement system designed to treat the compounds stored. Collect and treat before discharge any water that washes dust away</p> <p>The operator states that the remainder of the BAT 7 techniques are not applicable, as they relate to types of process, materials or storage that are not used at the installation.</p> <p>The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT conclusion.</p>	
8	In order to prevent diffuse emissions from the handling and transport of raw	3.2	CC	CC	The operator has confirmed in their response that they are mainly (but not totally) compliant with BAT 8.	None

BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
	materials, BAT is to use a combination of the techniques given				<p>They state that they meet BAT through employing a combination of the given techniques, as follows:</p> <ul style="list-style-type: none"> <li>(a) Enclosed conveyors or pneumatic systems to transfer and handle dust-forming concentrates and fluxes and fine-grained material</li> <li>(b) Covered conveyors to handle non-dust-forming solid materials</li> <li>(d) Closed bags or drums to handle materials with dispersible or water-soluble components</li> <li>(i) Adjust the speed of open belt conveyors (&lt; 3,5 m/s)</li> <li>(n) Wash wheels and chassis of vehicles used to deliver or handle dusty materials</li> <li>(o) Use planned campaigns for road sweeping), and</li> <li>(p) Segregate incompatible materials (e.g. oxidising agents and organic materials).</li> </ul> <p>The operator states that the following techniques are applied in some, but not all, cases, and there may be scope to utilise</p>	

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					<p>them further in some areas in the future to bring about further improvements:</p> <ul style="list-style-type: none"> <li>(c) Extraction of dust from delivery points, silo vents, pneumatic transfer systems and conveyor transfer points, and connection to a filtration system (for dust-forming materials)</li> <li>(f) Sprinkling to moisten the materials at handling points</li> <li>(g) Minimise transport distances</li> <li>(h) Reduce the drop height of conveyor belts, mechanical shovels or grabs</li> <li>(j) Minimise the speed of descent or free fall height of the materials</li> <li>(k) Place transfer conveyors and pipelines in safe, open areas above ground so that leaks can be detected quickly and damage from vehicles and other equipment can be prevented. If buried pipelines are used for non-hazardous materials, document and mark their course and adopt safe excavation systems and</li> <li>(q) Minimise material transfers between processes are applied in some, but not all,</li> </ul>	

BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
					<p>cases, and may be considered in the future by the operator.</p> <p>They state that technique (l) i.e. the automatic resealing of delivery connections for handling liquid and liquefied gas is not currently applied, but may be considered in the future by the operator.</p> <p>The remainder of the BAT 7 techniques are not applicable, as they relate to types of process, materials or storage that are not used at the installation.</p> <p>The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT conclusion</p>	
9	In order to prevent or, where this is not practicable, to reduce diffuse emissions from metal production, BAT is to optimise the efficiency of off-gas collection and treatment by using a combination of the techniques given	3.2	CC	CC	<p>The operator has confirmed in their response that they are mainly (but not totally) compliant with BAT 9.</p> <p>They state that they meet BAT through employing a combination of the given techniques, as follows:</p>	None

BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
					<ul style="list-style-type: none"> <li>(a) thermal or mechanical pretreatment of secondary raw materials to minimise organic contamination of the furnace feed</li> <li>(b) use a closed furnace with a properly designed dedusting system or seal the furnace and other process units with an adequate vent system</li> <li>(c) use a secondary hood for furnace operations such as charging and tapping</li> <li>(d) dust or fume collection where dusty material transfers take place</li> <li>(e) optimise the design and operation of hooding and ductwork to capture fumes arising from the feed port and from hot metal, matte or slag tapping and transfers in covered launders</li> <li>(f) furnace/reactor enclosures such as “house-in-house” or “doghouse” for tapping and charging; and</li> <li>(i) treat the collected emissions in an adequate abatement system.</li> </ul>	

BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
					<p>They state that technique (g) i.e. optimisation of the off-gas flow from the furnace through the use computerised fluid dynamics studies and tracers, is not fully applied in that the systems are computerised, but they do not use tracers</p> <p>They further state that technique (h) i.e. the use of charging systems for semi-closed furnaces to add raw materials in small amounts, has been assessed as not being applicable to the installation.</p> <p>The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT conclusion.</p>	
10	<p>BAT is to monitor the stack emissions to air with at least the given frequency and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality</p>	3.1 3.5	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 10.</p> <p>The relevant stack emission points to air (which does not include stacks emitting just combustion gases) are A1, A2, A4, A5, A7 and A10. The operator already monitors these stacks for relevant substances as set</p>	None

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					<p>out in BAT 10, in most cases at a frequency which exceeds minimum BAT which is 'once per year', i.e. most substances are monitored quarterly. They do not operate CEMs on these emission points, and have proposed based on historical monitoring data that as emissions are low and in many cases, lower than the BAT-AEL, periodic monitoring remains appropriate and provides sufficient control. They have proposed that a monitoring frequency of 'twice per year' be applied which exceeds minimum BAT.</p> <p>The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT conclusion.</p>	
11	<p>In order to reduce mercury emissions to air (other than those that are routed to the sulphuric acid plant) from a pyrometallurgical process, BAT is to use one or both of the techniques given. BAT-AEL for Hg</p>	NA	CC	NA	<p>The operator has confirmed in their response that they are currently compliant with BAT 11 through using raw materials that have a low mercury content.</p> <p>The Environment Agency has determined that this BAT Conclusion and BAT-AEL are not applicable to this installation. This is because they relate to pyrometallurgical</p>	None

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					processes, which are typically undertaken during primary metal production, and are not applicable to the production of secondary lead at this site.	
12	In order to reduce emissions of SO <sub>2</sub> from off-gases with a high SO <sub>2</sub> content and to avoid the generation of waste from the flue-gas cleaning system, BAT is to recover sulphur by producing sulphuric acid or liquid SO <sub>2</sub>	3.2	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT12.</p> <p>The operator states that they achieve BAT, as the sulphur content of feedstock charged to the reverberatory furnace is recovered via a multi-stage flue gas conditioning/flue gas desulphurisation (FGD) system process, which involves the production of sulphuric acid, with the sulphuric acid subsequently being reacted with lime to produce FGD gypsum as a final product.</p> <p>The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT conclusion.</p>	None
13	In order to prevent NO <sub>x</sub> emissions to air from a pyrometallurgical process, BAT is to use one of the techniques given	NA	CC	NA	The operator has confirmed in their response that they are currently compliant with BAT 13 through the use of oxy-fuel	None



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					<p>burners, which is listed as one of the given BAT techniques .</p> <p>The Environment Agency has determined that this BAT Conclusion and BAT-AEL are not applicable to this installation. This is because they relate to pyrometallurgical processes, which are typically undertaken during primary metal production, and are not applicable to the production of secondary lead at this site.</p>	
14	In order to prevent or reduce the generation of waste water, BAT is to use one or a combination of the techniques given	1.3	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 14.</p> <p>They state that they use a combination of techniques to achieve BAT, as follows;</p> <ul style="list-style-type: none"> <li>(a) measure the amount of fresh water used and the amount of waste water discharged</li> <li>(b) reuse waste water from cleansing operations (including anode and cathode rinse water) and spills in the same process</li> <li>(c) reuse weak acid streams generated in a wet ESP and wet scrubbers</li> <li>(e) reuse surface run-off water</li> <li>(f) use a closed circuit cooling system;</li> </ul>	None

BATc Number	Compliance Issue  Priority BAT indicated in <b>Bold Text</b>	Relevant permit condition	Compliance stated by Operator  NA / CC / FC / NC	Compliance assessment conclusion  NA / CC / FC / NC	Summary of Permitting Officer assessment against BATc techniques	Compliance Action to implement BATc
					<p>(g) reuse treated water from the waste water treatment plant</p> <p>They state that technique (d), i.e. the re-use of waste water from slag granulation, is not applicable as it relates to a process that is not used at the installation.</p> <p>The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT conclusion.</p>	
15	In order to prevent the contamination of water and to reduce emissions to water, BAT is to segregate uncontaminated waste water streams from waste water streams requiring treatment	3.1	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 15.</p> <p>They state that they carry out the following:</p> <ul style="list-style-type: none"> <li>• segregate waste waters according to the degree of contamination</li> <li>• apply pre-treatment to the most contaminated streams</li> <li>• apply comprehensive general treatment to all waste water requiring treatment</li> <li>• apply reverse osmosis / ion exchange to allow some water to be reused; and</li> </ul>	None

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					<ul style="list-style-type: none"> <li>collect grey water / rain water for use in the production process.</li> </ul> <p>The Environment Agency is satisfied that the operator is currently compliant with the requirements of this BAT conclusion.</p>	
16	<p>BAT is to use ISO 5667 for water sampling and to monitor the emissions to water at the point where the emission leaves the installation at least once per month and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.</p> <p>The monitoring frequency may be adapted if the data series clearly demonstrate sufficient stability of the emissions</p>	3.5	FC	FC	<p>The operator has confirmed in their response that are mainly (but not totally) compliant with BAT 16.</p> <p>They parameters that are relevant for monitoring from lead production are mercury, iron, arsenic, cadmium, copper, nickel, lead, zinc, antimony, tin and sulphate.</p> <p>Under their current permit (V008) the operator monitors mercury, arsenic, antimony, cadmium, copper, nickel, lead, zinc. They do not monitor iron, tin and sulphate.</p> <p>The revised permit will require the BAT 16 parameters to be monitored to at least the frequency stated, using the listed monitoring standard(s).</p>	Compliance by IC

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					The Environment Agency is satisfied that the operator will be future compliant with this BAT conclusion.	
17	<p>In order to reduce emissions to water, BAT is to treat the leakages from the storage of liquids and the waste water from non-ferrous metals production, including from the washing stage in the Waelz kiln process, and to remove metals and sulphates by using a combination of the techniques given.</p> <p>The applicable BAT AEL's (all daily averages) are as follows:</p> <ul style="list-style-type: none"> <li>• Arsenic ≤ 0.1 mg/l</li> <li>• Cadmium ≤ 0.1 mg/l</li> <li>• Cobalt ≤ 0.1 mg/l</li> <li>• Copper ≤ 0.2 mg/l</li> <li>• Nickel ≤ 0.5 mg/l</li> <li>• Lead ≤ 0.5 mg/l</li> <li>• Zinc ≤ 1 mg/l</li> </ul>	1.3 3.1	FC	FC	<p>The operator confirmed in their response that are mainly (but not totally) compliant with BAT 17.</p> <p>BAT 17 sets out the abatement techniques to be considered by operators in order to comply with BAT.</p> <p>The installation has its' own effluent treatment plant which is used to treat process water, prior to discharge directly to surface water.</p> <p>The operator has stated that they use the following combination of the given techniques as part of their effluent treatment process:</p> <p>(a) chemical precipitation (b) sedimentation</p>	Compliance by IC

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					<p>(c) filtration (f) activated carbon filtration (g) reverse osmosis.</p> <p>BAT 17 also contains a number of BAT-AEL's for direct discharges to surface water. In their original Regulation 60 notice response, dated 31/03/17, the operator also stated that they required a derogation from the BAT-AELs. In that response they also stated:</p> <p><i>"A derogation is required as these limits have not been previously applied to our effluent discharge. Our current EA Permit is set at daily release limits in mass terms based on a risk based approach. This allows for management of releases rather than a dilute and disperse approach to minimise release concentrations. A concentration limit is at odds with the Water Framework Directive that requires management of local environmental quality standards. Our release concentrations currently do not meet the BAT-AEL as the emission limits are mass based focusing on a water minimisation approach. As a</i></p>	

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					<p><i>derogation we would encourage the continuation of our mass based release limits required by our Permit. This seems more in-line with the WFD which takes into account the ability of the receiving environment to achieve the environmental quality standards (EQS)."</i></p> <p>Subsequent to their original Regulation 60 notice response the operator re-assessed their position, providing the following text on 24/07/17:</p> <p><i>"Although our original response, submitted on 31<sup>st</sup> March 2017, indicated that we were minded to seek a derogation with regard to BAT conclusion number 17, we have subsequently reassessed our position.</i></p> <p><i>Whereas our recent monitoring results comply fully with our Environmental Permit limits and with BAT as described in the now superseded 2001 BREF Note, we recognise the challenge set by the new 2017 BREF Note and especially that set by BAT conclusion 17.</i></p>	

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					<p><i>Whereas we will still aim to reduce mass emissions to water, to make efficient use of water, and to reuse and recycle water as far as reasonably practicable, adopting proactive environmental management as part of a risk based approach, it is also our intention to comply with the concentration-based emissions set out in the 2017 BREF Note, and BAT conclusion 17, discharging into the outfall zone of the Yatestoop Sough, immediately adjacent to the River Derwent. We intend to convey the effluent from the existing final concrete chamber adjacent to Cowley Brook, via a new pipe, of length approximately 200 metres, to a new final discharge into the discharge zone of the Yatestoop Sough, adjacent to the River Derwent.</i></p> <p><i>We aim to comply with the concentration-based emissions set out in the 2017 BREF Note, and BAT conclusion 17, from the required compliance date. We will achieve this by making further improvements to control at source as well as to effluent treatment, in accordance with our Environmental Permit Review and our ISO</i></p>	

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					<p><i>14001 Environmental Management System.”</i></p> <p>Based on the above explanation the Environment Agency is satisfied that the operator will be future compliant with this BAT conclusion.</p>	
18	In order to reduce noise emissions, BAT is to use one or a combination of the techniques given	3.4	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 18.</p> <p>They state that they use combination of the techniques given to reduce noise emissions, as follows:</p> <ul style="list-style-type: none"> <li>(a) use embankments to screen the source of noise</li> <li>(b) enclose noisy plant or components in sound-absorbing structures</li> <li>(c) use anti-vibration supports and interconnections for equipment</li> <li>(d) orientation of noise-emitting machinery</li> <li>(e) change the frequency of the sound.</li> </ul> <p>They also confirm that they operate in accordance with a Noise and Vibration Management Plan, as agreed by the</p>	None



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					<p>Environment Agency, which incorporates the elements above, as well as other bespoke measures.</p> <p>The Environment Agency is satisfied that the operator is currently compliant with this BAT conclusion.</p>	
19	In order to reduce odour emissions, BAT is to use one or a combination of the techniques given	3.3	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 19.</p> <p>They state that they use a combination of the techniques given to reduce odour emissions, as follows:</p> <ul style="list-style-type: none"> <li>(a) appropriate storage and handling of odorous materials</li> <li>(b) minimise the use of odorous materials</li> <li>(c) careful design, operation and maintenance of any equipment that could generate odour emissions.</li> </ul> <p>They state that technique (d), i.e. the use of afterburner or filtration techniques, including biofilters, is not applicable, as it only applies in limited cases to types of process that are not used at the installation.</p>	None

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					The Agency is satisfied the operator is currently compliant with this BAT conclusion.	
<b>BAT 90-107: Lead and/or tin production</b>						
90	In order to prevent or reduce diffuse emissions from preparation (such as metering, mixing, blending, crushing, cutting, screening) of primary and secondary materials (excluding batteries), BAT is to use one or a combination of the techniques given	3.2	CC	CC	<p>The operator has confirmed in their response that they are mainly (but not totally) compliant with BAT 90. They state that they use a combination of the techniques given to achieve BAT, as follows:</p> <ul style="list-style-type: none"> <li>(a) enclosed conveyer or pneumatic transfer system for dusty material</li> <li>(b) enclosed equipment. When dusty materials are used the emissions are collected and sent to an abatement system</li> <li>(c) mixing of raw materials carried out in an enclosed building.</li> </ul> <p>They state that technique (d), i.e. the use of dust suppression systems like water sprays, is not applicable, as it applies to types of process that are not used at the installation.</p>	None

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					<p>They state that technique (e), i.e. pelletisation of raw materials, may be worthy of consideration in the future.</p> <p>The Agency is satisfied the operator is currently compliant with this BAT conclusion.</p>	
91	<p>In order to prevent or reduce diffuse emissions from material pretreatment (such as drying, dismantling, sintering, briquetting, pelletising and battery crushing, screening and classifying) in primary lead and secondary lead and/or tin production, BAT is to use one or both of the techniques given</p>	3.2	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 91.</p> <p>They state that they use both of the stated techniques to achieve BAT, as follows:</p> <ul style="list-style-type: none"> <li>(a) enclosed conveyer or pneumatic transfer system for dusty material</li> <li>(b) enclosed equipment. When dusty materials are used the emissions are collected and sent to an abatement system.</li> </ul> <p>We note that the crushing of batteries in the battery storage building (both on the open floor area and in the battery breaker is not particularly dusty relative to say, the handling of loose raw materials, as the</p>	None

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					<p>battery materials are typically damp from the acid within them, which is liberated upon crushing.</p> <p>Our view is that BAT 91 is more appropriate for the pretreatment of dry, loose materials which is generally undertaken indoors, with air extraction and abatement (although see further comments with respect to BAT 94).</p> <p>The Agency is satisfied the operator is currently compliant with this BAT conclusion.</p>	
92	In order to prevent or reduce diffuse emissions from charging, smelting and tapping operations in lead and/or tin production, and from pre-decoppering operations in primary lead production, BAT is to use an appropriate combination of the techniques given	3.2	CC	CC	<p>The operator has confirmed in their response that they are mainly (but not totally) compliant with BAT 92.</p> <p>They state that they use a combination of techniques to achieve BAT, as follows:</p> <ul style="list-style-type: none"> <li>(a) Encapsulated charging system with an air extraction system</li> <li>(b) Sealed or enclosed furnaces with door sealing for processes with a discontinuous feed and output</li> <li>(c) Operate furnace and gas routes under negative pressure and at a</li> </ul>	None

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					<p>sufficient gas extraction rate to prevent pressurisation</p> <ul style="list-style-type: none"> <li>(d) Capture hood/enclosures at charging and tapping points</li> <li>(e) Enclosed building</li> <li>(f) Complete hood coverage with an air extraction system</li> <li>(g) Maintain furnace sealing</li> <li>(h) Maintain the temperature in the furnace at the lowest required level</li> <li>(i) Apply a hood at the tapping point, ladles and drossing area with an air extraction system</li> <li>(k) Apply a doghouse for ladles during tapping</li> <li>(l) An air extraction system for charging and tapping area connected to a filtration system.</li> </ul> <p>They state that technique (j), i.e. the pretreatment of dusty raw material, such as pelletisation, may be worthy of consideration in the future.</p> <p>The Agency is satisfied this is an appropriate combination of techniques and</p>	

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					that the operator therefore is currently compliant with this BAT conclusion.	
93	In order to prevent or reduce diffuse emissions from remelting, refining and casting in primary and secondary lead and/or tin production, BAT is to use a combination of the techniques given	3.2	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 93.</p> <p>They state that they use all of the techniques given to achieve BAT, as follows:</p> <ul style="list-style-type: none"> <li>(a) Hood on the crucible furnace or kettle with an air extraction system</li> <li>(b) Lids to close the kettle during the refining reactions and addition of chemicals</li> <li>(c) Hood with air extraction system at launders and tapping points</li> <li>(d) Temperature control of the melt</li> <li>(e) Closed mechanical skimmers for removal of dusty dross/residues.</li> </ul> <p>The Agency is satisfied that the operator is currently compliant with this BAT conclusion.</p>	None
94	In order to reduce dust and metal emissions to air from raw material preparation (such as reception, handling, storage, metering, mixing, blending, drying, crushing, cutting and	3.1	FC	FC	The operator's response states that they are operating to BAT, however they also say that only some, not all, of the material preparation areas are equipped with bag	Compliance by IC

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	<p>screening) in primary and secondary lead/or and tin production, BAT is to use a bag filter</p> <p>BAT-AEL for Dust</p>				<p>filters, and where they are so equipped, the BAT-AEL for dust of 5 mg/m<sup>3</sup> is met.</p> <p>The operator has identified emission point A1 (serving Rotary Furnaces Nos. 1 &amp; 2, Charge dryer, Reverberatory furnace and associated baghouse and gypsum plant), A4 (serving the charge preparation building and slag area), and A7 (serving the Materials Handling building, shot manufacturing plant and slag storage area) as relevant for BAT 94, to which the BAT-AEL for dust will apply to each emission point.</p> <p><b>Emission points A1, A4, A7</b></p> <p>Emission points A1, A4 and A7 are monitored for dust under the current permit. The current permit has an ELV for dust of 5 mg/m<sup>3</sup> on these emission points.</p> <p>The operator has stated that they can meet the BAT-AELs, having reviewed 3 years' worth of monitoring data from these emission points.</p>	

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					<p>Our review of reported monitoring data from the operator confirms that the BAT-AEL is being met, with values for dust typically significantly less than 1 mg/m<sup>3</sup> being achieved.</p> <p>Due to the fact that not all of the material preparation areas are fitted with air extraction to bag filters, the Environment Agency has determined that the operator currently only partially meets the requirements of BAT 94, but are satisfied that they will be fully compliant by the compliance date.</p>	
95	<p>In order to reduce dust and metal emissions to air from battery preparation (crushing, screening and classifying), BAT is to use a bag filter or a wet scrubber</p> <p>BAT-AEL for Dust</p>	3.1	CC	CC	<p>The operator states in their response that they are currently compliant with BAT 95.</p> <p>They say that their battery breaker is fitted with a wet scrubber, in line with BAT requirements. Our understanding is that the battery storage building, containing the battery breaker, is served by local exhaust ventilation and the wet scrubber.</p>	None



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					<p>The operator has identified emission point A5 (serving the <i>MA Battery Breaker</i>) as relevant for BAT 95, to which the BAT-AEL for dust (5 mg/m<sup>3</sup>) will apply. This emission point is monitored for dust under the current permit. The current permit has an ELV for dust of 5 mg/m<sup>3</sup>.</p> <p>The operator has stated that they reviewed the last 3 years monitoring data from release point A5, and confirmed that they can meet the BAT-AEL.</p> <p>Our review of reported monitoring data from the operator confirms that the BAT-AEL is met, with values typically less than 1 mg/m<sup>3</sup> being achieved.</p> <p>The Agency is satisfied the operator is currently compliant with this BAT conclusion.</p>	
96	In order to reduce dust and metal emissions to air (other than those that are routed to the sulphuric acid or liquid SO <sub>2</sub> plant) from charging, smelting and tapping in primary and	3.1	CC	CC	The operator states in their response that they are currently compliant with BAT 96.	None

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	secondary lead and/or tin production, BAT is to use a bag filter BAT-AELs for Dust and Pb				<p>They state that their furnace charging, smelting and tapping processes employ bag filters as required by BAT.</p> <p>The operator has identified emission point A1 (serving the serving Rotary Furnaces Nos. 1 &amp; 2, Charge dryer, Reverberatory furnace and associated baghouse and gypsum plant) as relevant for BAT 96, to which the BAT-AEL's for dust (4mg/m<sup>3</sup>) and lead (<math>\leq</math> 1mg/m<sup>3</sup>) will apply. This emission point is monitored for these pollutants under the current permit. The current permit has an ELV for dust of 5 mg/m<sup>3</sup>, and an ELV for Lead of 2 mg/m<sup>3</sup>.</p> <p>In terms of the BAT-AEL's the operator states that they can meet them, having reviewed 3 years' worth of monitoring data from emission point A1.</p> <p>Our review of reported monitoring data from the operator confirms that the BAT-AELs are met, with values for dust being typically around 1 mg/m<sup>3</sup> or less, while for Lead, values of less than 0.1 mg/m<sup>3</sup> are being achieved.</p>	

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					<p>We consider that BAT 96 should also apply to emission point A2 because this emission point serves not only the refinery kettles but also the reverberatory (smelting) furnace holding kettles.</p> <p>As with emission point A1, our review of reported monitoring data from the operator confirms that the BAT-AELs are being met, with values for dust typically being significantly less than 1 mg/m<sup>3</sup>, while for Lead, values of less than 0.1 mg/m<sup>3</sup> are being achieved.</p> <p>The Agency is satisfied that the operator is currently compliant with this BAT conclusion.</p>	
97	In order to reduce dust and metal emissions to air from remelting, refining and casting in primary and secondary lead and/or tin production, BAT is to use the techniques given BAT-AELs for Dust and Pb	3.1	FC	CC	<p>The operator has stated in their response that they are not fully compliant with BAT 97.</p> <p>They state that they use one of the given techniques to achieve the narrative BAT, namely:</p>	None

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					<p>(a) maintaining the temperature of the melt bath at the lowest possible level according to the process stage in combination with a bag filter.</p> <p>Technique (b) relates to hydrometallurgical processes which are not used at the installation.</p> <p>The operator, in their Regulation 60 response, identified emission points A2 (serving the Refinery kettles and Reverberatory furnace holding kettles), A3 (serving the Scrap pot) and A10 (serving the Strip mill) as relevant for BAT 97, to which the BAT-AEL's for dust (4mg/m<sup>3</sup>) and lead (≤ 1mg/m<sup>3</sup>) will apply at each emission point.</p> <p><b>Emission points A2 &amp; A10</b></p> <p>Emission points A2 and A10 are monitored for these pollutants under the current permit. The current permit has an ELV for dust of 5 mg/m<sup>3</sup>, and an ELV for Lead of 2 mg/m<sup>3</sup> on these emission points.</p>	

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					<p>The operator has stated that they can meet the BAT-AELs, having reviewed 3 years' worth of monitoring data from emission points A2 and A10 respectively.</p> <p>Our review of reported monitoring data from the operator confirms that the BAT-AELs are being met, with values for dust typically being significantly less than 1 mg/m<sup>3</sup>, while for Lead, values of less than 0.1 mg/m<sup>3</sup> are being achieved.</p> <p><b>Emission point A3</b> Correspondence with the operator subsequent to their Regulation 60 response has confirmed that the scrap pot and its emission point A3 are no longer used and have been decommissioned.</p> <p><b>Summary</b> Given that emission point A3 is no longer deemed relevant under BAT 97, the Environment Agency is satisfied that the operator is currently compliant with this BAT conclusion.</p>	

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98	In order to reduce emissions of organic compounds to air from the raw material drying and smelting process in secondary lead and/or tin production, BAT is to use one or a combination of the techniques given BAT-AEL for TVOC	3.1	FC	CC	<p>The operator has stated in their response that they are not fully compliant with BAT 98.</p> <p>They state that they achieve the narrative BAT through use of the following given techniques:</p> <ul style="list-style-type: none"> <li>(a) select and feed the raw materials according to the furnace and the abatement techniques used</li> <li>(b) optimise combustion conditions to reduce the emissions of organic compounds.</li> </ul> <p>They have stated that technique (c), i.e. the use of an afterburner or regenerative thermal oxidiser, has been assessed as not required because the reverberatory furnace incorporates a post combustion chamber which minimises the release of TVOC, and the rotary furnaces, materials dryer and scrap pot facility do not lend themselves to afterburner or regenerative thermal oxidiser technologies due to their off gases having a low energy content.</p>	None

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					<p>The operator, in their Regulation 60 response, identified emission points A1 (serving Rotary Furnaces Nos. 1 &amp; 2, Charge dryer, Reverberatory furnace and associated baghouse and gypsum plant), A2 (serving the serving the Refinery kettles and Reverberatory furnace holding kettles) and A3 (serving the <i>Scrap pot</i>) as relevant for BAT 98, to which the BAT-AEL for TVOC (40 mg/m<sup>3</sup>) will apply at each emission point.</p> <p><b>Emission point A1</b> Emission points A1 is monitored for VOC (as C) under the current permit. The current permit has an ELV for VOC of 50 mg/m<sup>3</sup> on these emission points.</p> <p>The limited monitoring data that has been submitted shows that the BAT-AEL of 40 mg/m<sup>3</sup> is met for emission point A1.</p> <p><b>Emission point A2</b> Emission point A2 is monitored for VOC (as C) under the current permit. The current</p>	

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					<p>permit has an ELV for VOC of 50 mg/m<sup>3</sup> on this emission point.</p> <p>The operator has stated that they can meet the BAT-AEL, having reviewed 3 years' worth of monitoring data from emission point A2.</p> <p>Our review of reported monitoring data from the operator confirms that the BAT-AEL is being met, with values typically less than 10 mg/m<sup>3</sup> being achieved.</p> <p><b>Emission point A3</b> Emission point A3 is no longer used and has been decommissioned.</p> <p><b>Summary</b> Given that emission point A3 is no longer deemed relevant under BAT 98, the Environment Agency is satisfied that the operator is currently compliant with this BAT conclusion.</p>	



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99	<p>In order to reduce PCDD/F emissions to air from the smelting of secondary lead and/or tin raw materials, BAT is to use one or a combination of the techniques given</p> <p><b>BAT-AEL for PCDD/F</b></p>	3.1	FC	FC	<p>The operator has stated in their response that they are not fully compliant with BAT 99.</p> <p>They state that they employ a combination of the given techniques to achieve the narrative BAT, as follows:</p> <ul style="list-style-type: none"> <li>(a) Select and feed the raw materials according to the furnace and the abatement techniques used</li> <li>(h) Use of efficient dust collection system</li> <li>(j) Optimise combustion conditions to reduce the emissions of organic compounds.</li> </ul> <p>They state that techniques (b) and (c) are not applicable, as they relate to types of process that are not used at the installation, and while techniques (d), (e), (f), (g) and (i) are not currently applied, they may be worthy of consideration in the future.</p> <p>The operator, in their Regulation 60 response, identified emission points A1 (serving the serving the serving Rotary Furnaces Nos. 1 &amp; 2, Charge dryer,</p>	Compliance by IC

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					<p>Reverberatory furnace and associated baghouse and gypsum plant), A2 (serving the Refinery kettles and Reverberatory furnace holding kettles) and A3 (serving the <i>Scrap pot</i>) as relevant for BAT 99, to which the BAT-AEL for PCDD/F (0.1 ng I-TEQ/m<sup>3</sup>) will apply at each emission point.</p> <p><b>Emission points A1 &amp; A2</b></p> <p>Emission points A1 and A2 are monitored for PCDD/F under the current permit. The current permit has an ELV for PCDD/F of 1 ng I-TEQ/m<sup>3</sup> on these emission points.</p> <p>The operator has stated that they have reviewed the last 5 years' worth of monitoring data and found that it did not meet the BAT-AEL, with a maximum value of 0.4 ng/m<sup>3</sup> being recorded in 2012 (note that the Reg 60 submission was made in 2017). They further stated that process improvements and/or other improvements will be made to ensure BAT compliance on or before 30<sup>th</sup> June 2020; or those processes, or parts of processes, that do not fully comply with BAT, will be taken out of use on or before 30<sup>th</sup> June 2020.</p>	

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					<p>Our review of reported monitoring data from the operator confirms that the BAT-AEL can be met, but not consistently.</p> <p><b>Emission point A3</b> Emission point A3 is no longer used and has been decommissioned.</p> <p><b>Summary</b> Although emission point A3 is no longer deemed relevant under BAT 99 the operator is not currently able to consistently meet the BAT-AEL of 0.1 ng I-TEQm<sup>3</sup> on emission points A1 or A2.</p> <p>Therefore the Environment Agency has determined that the operator currently only partially meets the requirements of BAT 99.</p> <p>However given their statement above regarding making necessary process and/or other improvements, or taking processes out of operation if necessary by the compliance date, we are satisfied that they</p>	

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					will meet the remaining requirements of this BAT Conclusion by the compliance date.	
100	In order to prevent or reduce SO <sub>2</sub> emissions to air (other than those that are routed to the sulphuric acid or liquid SO <sub>2</sub> plant) from charging, smelting and tapping in primary and secondary lead and/or tin production, BAT is to use one or a combination of the techniques given  BAT-AEL for SO <sub>2</sub>	3.1	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 100.</p> <p>They state that they use a combination of the given techniques to achieve the narrative BAT, as follows:</p> <ul style="list-style-type: none"> <li>(c) Wet scrubber</li> <li>(d) Fixation of sulphur in the smelt phase (Only applicable for secondary lead production)</li> </ul> <p>They confirm that techniques (a) and (b) are not currently applied.</p> <p>The fixation of sulphur in the smelt phase is achieved by adding iron and soda (Na<sub>2</sub>CO<sub>3</sub>) in the smelters which reacts with the sulphur contained in the raw materials to form a Na<sub>2</sub> S-FeS slag. Additionally a calcium ferro silicate slag can be formed that further captures the sulphur.</p>	None

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					<p>The operator, in their Regulation 60 response, identified emission points A1 (serving the serving the serving the serving Rotary Furnaces Nos. 1 &amp; 2, Charge dryer, Reverberatory furnace and associated baghouse and gypsum plant) and A3 (serving the <i>Scrap pot</i>) as relevant for BAT 100, to which the BAT-AEL for SO<sub>2</sub> (350 mg/m<sup>3</sup>) will apply at each emission point.</p> <p><b>Emission point A1</b> Emission point A1 is monitored for SO<sub>2</sub> under the current permit. The current permit has an ELV for SO<sub>2</sub> of 500 mg/m<sup>3</sup> on this emission point.</p> <p>The operator has stated that they have reviewed the last 3 years' worth of monitoring data and found that it met the BAT-AEL.</p> <p>Our review of reported monitoring data from the operator confirms that the BAT-AEL can be met, with values typically less than 200 mg/m<sup>3</sup> being achieved.</p>	

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					<p><b>Emission point A3</b> Emission point A3 is no longer used and has been decommissioned.</p> <p><b>Summary</b> Given that emission point A3 is no longer deemed relevant under BAT 100, the Environment Agency is satisfied that the operator is currently compliant with this BAT conclusion.</p>	
101	In order to prevent the contamination of soil and groundwater from battery storage, crushing, screening and classifying operations, BAT is to use an acid-resistant floor surface and a system for the collection of acid spillages	3.2	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 101.</p> <p>Section 5.3.2.4 of the NFM BREF (2017) discusses techniques to prevent and reduce emissions from battery preparation. It states that because the acid content of the batteries can contaminate land and water, the floor surface of the battery preparation plant should be protected by an acid-resistant layer which is connected either to waste acid tanks or to an effluent treatment plant.</p>	None

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					<p>The operator, in their Regulation 60 response states that their battery tipping, storage and breaking process areas have impervious, acid-resistant floors, and that spilled acid is drained towards a sump which is then piped via impervious drains to the gypsum production plant (Dove plant), and/or to the effluent treatment plant where it is neutralised prior to discharge.</p> <p>In the battery storage building (wherein the battery breaker is also located) the operator initially crushes the lead acid batteries by driving over them with a tracked loader, splitting open the cases to liberate as much acid as possible for collection and treatment / gypsum production. The broken batteries are then loaded into the mechanical battery breaker for further crushing and subsequent separation of the various components / materials, including residual acid.</p> <p>We have considered whether the terminology of BAT 101, in using the words “acid spillages” infers any presumption about how the acid being collected is derived, and about the appropriateness of the activity itself in terms of BAT, i.e. does it</p>	

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					<p>make a difference whether the acid is purposely liberated onto the floor, or whether it is the result of “spillage” as per the commonest understanding of a the word, in other words, accidental?</p> <p>Our view is that as the intent of battery preparation is to enable the various components (including acid) to be separated, then spillage of acid is an inherent and unavoidable occurrence. It is not accidental, and hence the term “acid spillages” must also be taken to include the intentional release of acid from the batteries. Hence the requirement to undertake the activity on an acid resistant floor with an impermeable collection system, to deal with the unavoidable consequence of the activity. As such we have concluded that provided appropriate measures are in place to protect soil and groundwater from fugitive releases then how the acid gets onto the floor is not a material consideration under BAT 101, it’s how it is then controlled which is important.</p> <p>Actions to maintain the integrity of the acid resistant floor and associated drainage</p>	



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					<p>system is of equal importance but falls outside BAT 101, with such measures. typically forming part of an operator's EMS as part of their routine inspection, maintenance, and upgrade programme.</p> <p>The Agency is satisfied the operator is currently compliant with this BAT conclusion.</p>	
102	In order to prevent the generation of waste water from the alkaline leaching process, BAT is to reuse the water from the sodium sulphate crystallisation of the alkali salt solution	NA	NA	NA	<p>The operator states in their response that this BAT conclusion is not applicable to their installation.</p> <p>They state that BAT 102 relates to a type of process that is not used at the installation.</p> <p>The Agency is therefore satisfied this BAT conclusion does not apply.</p>	None
103	In order to reduce emissions to water from battery preparation when the acid mist is sent to the waste water treatment plant, BAT is to operate an adequately designed waste water treatment plant to abate the pollutants contained in this stream	3.1 3.2	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 103.</p> <p>They state that they meet BAT by ensuring that an adequately designed waste water treatment plant abates the pollutants</p>	None

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					<p>contained in the acidic stream arising from battery acid, acid mist and battery breaking.</p> <p>The Agency is satisfied the operator is currently compliant with this BAT conclusion.</p>	
104	<p>In order to reduce the quantities of waste sent for disposal from primary lead production, BAT is to organise operations on site so as to facilitate process residues reuse or, failing that, process residues recycling, including by using one or a combination of the techniques given</p>	1.4	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 104.</p> <p>They state that “whereas the Company’s feedstock is likely to remain predominantly secondary, it is likely that some primary lead concentrates will also be smelted.”</p> <p>They use one of the given techniques to achieve BAT, namely:</p> <p style="padding-left: 40px;">(a) reuse of the dust from the dust removal system in the lead production process.</p> <p>The Agency is satisfied that the operator is currently compliant with this BAT conclusion.</p> <p>We are also satisfied that the current permit allows for the smelting of primary lead</p>	None

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					concentrates, in addition to the smelting of lead scrap, via the Section 2.2 Part A(1)(a) activity reference under EPR 2016.	
105	In order to allow the recovery of the polypropylene and polyethylene content of the lead battery, BAT is to separate it from the batteries prior to smelting	1.4	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 105.</p> <p>They state that the polypropylene in the lead-acid batteries is separated from the batteries on-site. This takes place within the mechanical Battery Breaker and ancillary equipment.</p> <p>The Agency is satisfied that the operator is currently compliant with this BAT conclusion.</p>	None
106	In order to reuse or recover the sulphuric acid collected from the battery recovery process, BAT is to organise operations on site so as to facilitate its internal or external reuse or recycling, including one or a combination of the techniques given	1.4	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 106.</p> <p>They state that they use one of the given techniques to achieve BAT, namely:</p> <p>(d) production of gypsum</p>	None

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					<p>The recovered sulphuric acid is used to produce gypsum on-site, either via the Dove plant, or via flue gas desulphurisation (FGD).</p> <p>The Agency is satisfied that the operator is currently compliant with this BAT conclusion.</p>	
107	In order to reduce the quantities of waste sent for disposal from secondary lead and/or tin production, BAT is to organise operations on site so as to facilitate process residues reuse or, failing that, process residues recycling, including by using one or a combination of the techniques given	1.4	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 107.</p> <p>They state that they use one of the techniques given to achieve BAT.</p> <p>(a) reuse the residues in the smelting process to recover lead and other metals.</p> <p>In addition, we consider that the operator also meets BAT 107, through the use of technique (b), namely the treating of residues and wastes in dedicated plants for material recovery; and technique (c) as</p>	None

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					<p>well, namely the treating of residues and wastes so that they can be used for other applications. We consider that either could apply to the polypropylene recycling plant, and to the production of gypsum.</p> <p>The Agency is satisfied that the operator is currently compliant with this BAT conclusion.</p>	