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/BK9423IS
The operator is: Calder Industrial Materials Limited
The installation is: Chester Leadworks
This variation notice number is: EPR/BK9423IS/V010

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 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 are minded to 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 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. It also provides a justification for the inclusion of any specific conditions in the permit that are in addition to those included in our generic permit template.

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 part of the BAT Conclusions derived permit review

9. Annex 5 – Priority compliance issues & detailed assessment of Regulation 60 notice responses where future action is 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 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 June 2020, which will then ensure that operations meet the revised standard, or
- justifies why standards will not be met by 30 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 15 March 2017.

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 Conclusions 4, 5 and 10. In relation to these BAT Conclusions, we understand that they will be compliant before 30 June 2020 (the “compliance date”). We have therefore included improvement conditions IC03 and IC04 in the consolidated variation notice to ensure that the requirements of the BAT Conclusion are delivered before 30 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 issued further information requests in the form of a Regulation 61 notice on 18 October 2017. A copy of the further information request was placed on our public register.

In addition to the response to our further information request, we received additional information and/or clarification from the operator during the determination as follows:

- Responses to our email dated 22/11/2017, received 06/12/2017 regarding BAT conclusions 4, 5, 6, 7, 15, 16, 17, 19, 90, 91, 98.
- Responses to our email dated 05/01/2018, received 09/01/2018 and 16/01/2018, regarding site drainage, storage of bag filter dust and the pyrolysis furnace.

We made a copy of this information available to the public in the same way as the responses to our information request.

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[1] (priority hazardous substances, priority substances and "other pollutants"). It also applies to the specific pollutants listed in the 2015 Directions[2], 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:

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

[1] Environmental Quality Standards Directive (EQSD) (2008/105/EC, as amended by 2013/39/EU)
[2] The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015

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.

Our intention was to use 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. However the operator has not provided satisfactory responses to questions 5 and 6 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 IC05 requiring the operator to submit a surface water pollution risk assessment in accordance with our guidance using representative emissions data.

The operator will be required to submit their risk assessment within 12 months of the effective date of our notice.

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.

In response to questions 5 and 6 of our Regulation 60 notice, on 15/11/2017 the operator provided a copy of the site condition report ‘Phase 1a Site Condition Report in Support of a Non-Substantial Variation to IPPC Permit No BK9423, Calder Industrial Materials Ltd’, ref: TD2776, December 2002, which was submitted to the Environment Agency when the permit variation application was made in 2003.

The report contains a summary of the Phase Ia assessment for Calder II and the pre-construction geotechnical investigation undertaken for Calder I to establish baseline environmental conditions.

The operator has confirmed that this report is still representative of conditions on site. As a result of the operator’s assessment no new risks of contamination have been established nor the existing baseline conditions changed. The Environment Agency is satisfied that this report represents baseline conditions having regard to the state of the site before the facility was put into operation.

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 (ELVs) 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 June 2020, and which contains amended ELVs 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 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

Table 1: Decision checklist for relevant BAT Conclusions		
Summary of BAT Conclusion requirement for Non-Ferrous Metals Industries	**Status** **NA / CC / FC / NC**	**Assessment of the installation capability to demonstrate compliance with the BAT Conclusion requirement** **Type of process: LEAD AND/OR PRODUCTION**
BAT Conclusions that are not applicable to this installation.	**NA**	**General BAT Conclusions for Non-Ferrous Metals Industries: 11, 12, 13, 15, 16 and 17.** BAT Conclusions for copper production: 20-54 inclusive. BAT Conclusions for alumina production: 55-57 inclusive. BAT Conclusions for anode production: 58-63 inclusive. BAT Conclusions for primary aluminium production: 64-73 inclusive. BAT Conclusions for secondary aluminium production: 74-86 inclusive. BAT Conclusions for salt slag recycling process: 87-89 inclusive. **BAT Conclusions for lead and/or tin production: 91, 95, 97, 99, 100, 101, 102, 103, 104, 105 and 106.** BAT Conclusions for primary zinc production: 108-120 inclusive. BAT Conclusions for secondary zinc production, 121-130 inclusive. BAT Conclusions for cadmium production: 131-133 inclusive. BAT Conclusions for precious metals production: 134-149 inclusive. BAT Conclusions for ferro-alloys production: 150-162 inclusive. BAT Conclusions for nickel and/or cobalt production: 163-176 inclusive. BAT Conclusions for carbon and/or graphite production: 177-184 inclusive.

Table 1: Decision checklist for relevant BAT Conclusions		
Summary of BAT Conclusion requirement for Non-Ferrous Metals Industries	**Status** **NA / CC / FC / NC**	**Assessment of the installation capability to demonstrate compliance with the BAT Conclusion requirement** **Type of process: LEAD AND/OR PRODUCTION**
BAT Conclusions where we accept the operator's Reg 60 notice response that they are currently compliant and no further explanation is required.	**CC**	**General BAT Conclusions for Non-Ferrous Metals Industries: 1, 2, 3, 6, 7, 8, 9, 14, 18 and 19.** **BAT Conclusions for lead and/or tin production: 90, 92, 93, 94, 96, 98 and 107.**
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.	**FC**	**General BAT Conclusions for Non-Ferrous Metals Industries: 4, 5 and 10.** **BAT Conclusions for lead and/or tin production: None.**
BAT Conclusions where the operator has responded that they are not compliant and have not submitted any plans to become compliant.	**NC**	**General BAT Conclusions for Non-Ferrous Metals Industries: None.** **BAT Conclusions for lead and/or tin production: None.**

Key Issues

Where relevant and appropriate, we have incorporated the techniques described by the operator in their Regulation 60/61 notice responses 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 secondary lead production

BAT Conclusion 10

BAT 10 sets out the minimum monitoring requirements for the NFM sector, stating that BAT is to monitor stack emissions to air with at least the frequency given and in accordance with EN standards. Furthermore, it says that 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. A potential issue is that BAT 10 specifies that continuous or periodic monitoring is BAT for a number of parameters, but this is then qualified by footnote (1) to the monitoring table, which states:

"For sources of high emissions, BAT is continuous measurement or, where continuous measurement is not applicable, more frequent periodic monitoring."

'High emissions' are not defined in the BAT Conclusions / BREF, however the implication is that this term links to higher environmental impacts / risk. Continuous monitoring is typically used for controlling higher environmental risks, when the feedback from such monitoring is required for process controls (e.g. abatement, such as de-NO_x and acid-gas scrubbing) and where the absence of such monitoring could result in a lack of sufficient control and significant impacts; or when periodic monitoring does not give sufficiently representative results.

Our view is that rather than referring to 'high emissions', we will consider what levels of emissions can BAT for abatement and process controls achieve, and having determined that, we will consider the following questions:

- Can periodic monitoring provide representative results?
- Can the installation keep within the ELVs under normal conditions without the need for process controls through continuous monitoring?
- Are there surrogate parameters available that can be used to reliably infer the emissions and at an acceptable level of uncertainty, in case there is a breakdown in the abatement equipment, or under abnormal operations?

If the answer is ‘yes’ to all of the above three questions, our view is that periodic monitoring could be deemed to provide a sufficient level of control and demonstration of compliance. However, if the answer is ‘no’ to one or more of the above questions - especially the first and second question, then we would consider continuous or more frequent periodic monitoring to be more appropriate for the site.

Monitoring requirements can also be influenced by environmental risk, for example, if the risks were very low, we could opt for a combination of surrogate parameters and/or more frequent periodic monitoring, rather than continuous monitoring. We will also take this into consideration when making our judgement.

We have been unable to fully consider the implications for the operator as part of this review and will require the operator to provide further information to enable us to determine with respect to monitoring frequency, what is BAT for the site, and therefore to agree the appropriate monitoring provision to be applied at the site from 30 June 2020. Our pragmatic approach to the monitoring aspects of the permit review is therefore:

1. To ensure that the existing permit has been updated to reflect current monitoring standards, in accordance with our M2 monitoring guidance. These standards are contained within Table S3.1a.

2. The inclusion of an improvement condition (IC04) in the permit requiring that the operator provides evidence to justify the level of monitoring to be employed, including where relevant, the frequency of periodic monitoring. That evidence will allow us to address the questions above, and facilitate agreement of the appropriate monitoring provision that will apply from 30 June 2020 onwards.

3. To carry over the existing periodic monitoring requirements in Table S3.1b pending completion of IC04, which must be submitted to the Environment Agency within 12 months of the date of issue of this variation.

BAT 10 Continuous monitoring of particulate matter

With regard to the continuous monitoring of particulate emissions to air, whereas the BAT Conclusions specify method BS EN 13284-2, our view is that monitoring should be carried out following the principles of method BS EN 14181. Our M2 guidance on the ‘Monitoring of stack emissions to air’ states that BS EN 13284-2 is for calibration of particulate CEMS (continuous emissions monitoring systems) and is applicable to large combustion plant (LCP) and waste incineration installations (EFW) under the IED. It goes on to

say that for other processes the ongoing quality assurance should follow the principles of BS EN 14181 (i.e. applying QAL2/AST and QAL3) but that a reduced number of parallel measurements may be acceptable. Therefore as this installation is not an LCP or EFW we consider that monitoring following the principles of BS EN 14181 is more appropriate.

BAT 10 Monitoring of metals (and metalloids) other than lead

We have removed the requirement to monitor emissions of the following metals: nickel, zinc, thallium, selenium, tin and tellurium. There is no specific requirement in the BAT conclusions to monitor these parameters and historically monitoring has shown the levels of such emissions have been very low.

We have removed the requirement to monitor emissions of mercury. BAT Conclusion 11, which requires mercury monitoring, is not applicable to this installation. BAT Conclusion 11 relates to pyrometallurgical processes, which are not undertaken at this installation and the operator has confirmed that mercury is not used on site. The BAT Conclusion is therefore not applicable to the production of lead at this site. Historically monitoring has shown the levels of such emissions have been very low.

We have retained the requirement to monitor emissions of the following metals: copper, arsenic, cadmium, antimony in line with BAT Conclusion 10. There is no ELV specified in the BAT Conclusion; we have therefore removed the ELV specified in the existing permit. Historically monitoring has shown the levels of such emissions have been very low.

We have specified annual monitoring for all metals (and metalloids) in line with the requirements of the BAT Conclusion.

Table S3.1b has been updated within the consolidated variation notice.

Particulate matter emissions - BAT Conclusions 94 and 96

These BAT Conclusions seek to reduce dust emissions from raw material preparation and from charging and tapping operations. A lower, more stringent BAT-AEL is imposed by BAT Conclusion 96 (4 mg/Nm^3 – upper limit) which we have imposed at emission points A1 and A8.

The BAT-AEL replaces the current emission limit values (ELVs) of 10 mg/Nm^3. We have retained the requirement for continuous monitoring as specified in the existing permit.

Table S3.1b has been updated within the consolidated variation notice.

Lead emissions - BAT Conclusion 96
The BAT Conclusion seeks to reduce lead emissions from raw material preparation and from charging and tapping operations. We have imposed the BAT-AEL of 1 mg/Nm^3 of lead at emission points A1 and A8.

The BAT-AEL replaces the current ELVs (2 mg/Nm^3 expressed as a mass sum together with monitoring values for copper, nickel and zinc). The frequency of monitoring is revised to once per year as specified in the BAT Conclusion.

Table S3.1b has been updated within the consolidated variation notice.

Emissions of organic compounds - BAT Conclusion 98
The installation is permitted to accept and melt scrap lead which is contaminated with combustible organic material.

The permit was varied in 2016 (EPR/BK9423IS/V009) to allow the operation of a pyrolysis furnace to process this material to reduce the likelihood of fires occurring on site. The pyrolysis furnace has not yet been installed but is expected to be installed towards the end of 2018.

As described in the variation documents, the pyrolysis furnace is an enclosed, gas-fired unit with a gas-fired afterburner to destroy the volatile organic compounds given off. It then discharges directly to air via stack A1 (not through the bag filter plant; due to the high temperature of the pyrolysis afterburner the emissions could cause the filter media to catch fire).

BAT Conclusion 98 seeks to reduce emissions of organic compounds. Whilst the BAT Conclusion refers to drying and smelting process, which are not undertaken at the installation, it is our view that the pyrolysis furnace with afterburner is an alternative technique to control emissions of organic compounds. We have therefore imposed an emission limit value for TVOC of 40 mg/Nm^3 in line with the upper BAT-AEL. The operator can melt contaminated scrap in melting pots that discharge to both emission points A1 and A8, therefore the limit applies to both emission points.

This parameter has not previously been monitored at the installation. The frequency of monitoring is subject to improvement condition IC04, see above for further details.

The source of emissions at A1 is clarified to be ‘fabric filter abatement plant and pyrolysis furnace afterburner’.

Table S3.1b has been updated within the consolidated variation notice.

Emissions of dioxins and furans – BAT Conclusion 99

Whilst the Environment Agency is satisfied that this BAT Conclusion is not strictly applicable to this installation because smelting is not undertaken, we consider it appropriate to retain the existing ELVs for PCDD/F (0.1 ng I-TEQ/Nm^3 PCDD/F) at emission points A1 and A8. There is the potential for dioxin and furan formation from the melting of scrap lead contaminated with organic compounds in both the melting pots and the pyrolysis furnace once installed. The ELV is in line with 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 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-AELs 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 60/61 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 are set out below - justifications for them is provided at the relevant section of the 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. The justifications for these are provided in sections 2.4 and 2.5 of this decision document.

There is one improvement condition on the existing permit which is not yet complete, IC02. It requires the operator to submit monitoring results relating to the pyrolysis furnace within three months of commissioning. This improvement condition has been carried forward in the consolidated permit.

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.

Reference	Improvement Condition	Completion date
IC02	The operator shall submit a written report to the Environment Agency for approval. The report must contain the results of a monitoring exercise, using the methods specified in the permit, that measures the emissions of particulate matter and oxides of nitrogen (NO_x) from the pyrolysis furnace to the A1 stack over a complete a normal operational cycle, along with a comparison of emissions against the prediction used in the air emissions assessment submitted as part of the application. The notification requirements of condition 2.4.2 will be deemed to have been complied with on submission of the plan.	Within 3 months of commissioning of the pyrolysis furnace

Reference	Improvement Condition	Completion date
IC03	The operator shall submit, for approval by Environment Agency, a report setting out progress to achieving the 'Narrative' BAT where BAT is currently not achieved, but will be achieved before 30 June 2020. The report shall include, but not be limited to, the following: 1) Methodology for achieving BAT 2) Associated targets / timelines for reaching compliance by 30 June 2020 3) Any alterations to the initial plan. The report shall address the following BATc: 4, 5 **BATc 4:** incorporation of a maintenance management system that addresses dust abatement systems into the Environmental Management System. **BATc 5:** prevention of diffuse emissions via appropriate storage of dust/waste lime from bag filter plant. Refer to BAT Conclusions for a full description of the BAT requirements.	Unless otherwise agreed by the Environment Agency progress reports to be submitted every 6 months from the date of issue of notice V010. Compliance by 30 June 2020.
IC04	The operator shall undertake a review of periodic monitoring for emissions to air of TVOC from emission points A1 and A8. The review will be made with reference to BAT 10 of the BAT Conclusions for the Non-Ferrous Metals Industries (Commission Implementing Decision EU2016/1032) and shall justify, with appropriate evidence, the frequency of monitoring to be employed at the installation from 30 June 2020. The evidence required under this condition shall include analysis and interpretation of monitoring results for each substance, and performance against the relevant BAT-AEL. Consideration should be given to *inter alia* the nature of the raw materials, fluxing agents, refining chemicals used; operational stability; and	Within 12 months of effective date of notice V010.

Reference	Improvement Condition	Completion date
	process monitoring associated with operation of abatement plant. The quantity of monitoring data considered must be justified and be sufficient so as to demonstrate that the results are statistically representative of emissions during normal operations, covering the concentration range and mass emission rate of substances emitted at all stages of the process. A report on the above review shall be submitted to the Environment Agency to facilitate agreement in writing of the appropriate monitoring provision at the installation.	
IC05	The operator shall submit a surface water pollution risk assessment to the Environment Agency for approval, which shall assess the impact of discharges of hazardous pollutants to surface water **and/or sewer** from the installation. The risk assessment shall include, but not be limited to the following: a) representative emissions data for the following hazardous pollutants: silver, arsenic, cadmium, cobalt, chromium (total), chromium (VI), copper, mercury, nickel, lead, zinc; and any other relevant substances discharged from the installation. Any emissions monitoring required should be carried out using the methods and standards described in Environment Agency M18 guidance; and b) a risk assessment in accordance with the screening procedures in Environment Agency guidance "Surface water pollution risk assessment for your environmental permit", using the representative emissions data obtained in (a) above.	Within 12 months of effective date of notice V010.

Annex 4

Review and assessment of changes that are not part of the BAT Conclusions derived permit review.

Point source emissions to surface water

Table S3.2 of the existing permit describes the discharge of site drainage and cooling tower bleed as ‘point source emissions to sewer, effluent treatment plant or other transfers off-site’. It appears that a misunderstanding developed due to references to ‘surface water sewers’ in the original permit BK9423 issued in 2002. The operator has now confirmed that these emissions do not discharge to sewer; these emissions discharge to surface water drain.

We have therefore revised the description of the source of these emissions (S1 and S2) in Table S3.2 if the consolidated variation notice to ‘point source emissions to water (other than sewer) and land’.

Annex 5

Priority compliance issues & detailed assessment of Regulation 60 notice responses where future action likely

BATc Number	Compliance Issue Priority BAT indicated in **Bold Text**	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
	BAT 1-19: General requirements					
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	In their response the operator confirms compliance with the requirements of BAT 1 and refers to their ISO 14001 Environmental Management System (EMS). The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	None.
2	In order to use energy efficiently, BAT is to use a combination of the techniques given.	1.2	CC	CC	In their response the operator confirms compliance with the requirements of BAT 2. The following techniques are in use at the site: BAT 2l: suitable insulation for high temperature equipment such as steam and hot water pipes. BAT 2n: use high efficiency electric motors equipped with variable-frequency drive, for equipment such as fans. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	None.

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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.	1.3	CC	CC	In their response the operator confirms compliance with the requirements of BAT 3. The following techniques are in use at the site: BAT 3a: inspect and select input materials according to the process and the abatement techniques applied. BAT 3j: temperature monitoring and control at melting and smelting furnaces to prevent the generation of metal and metal oxide fumes through overheating. With regard to the requirement for a process control system the operator confirms that manufacturing instructions and procedures are in place for all aspects of the melting processes including: charging of the melting pots, setting correct temperature of the melting pots (all melting pots are fitted with temperature control equipment), drossing of the melting pots, charging the pots with wet/damp materials and maintenance of the cartridge filter extraction plants. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	None.
4	In order to reduce channelled dust and metal emissions to air, BAT is to apply a maintenance management system which especially addresses the	3.1	CC	FC	In their response the operator states compliance with the requirements of BAT 4 - Calder maintains a 'Shire Frontline' computerised maintenance management system which facilitates the planning and tracking of	Confirm future compliance via IC03.

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	performance of dust abatement systems as part of the environmental management system (see BAT 1).				required maintenance. The system generates planned preventative maintenance sheets on a regular basis. Regular maintenance of the main abatement systems is conducted twice weekly. However to be fully compliant with BAT 4 the maintenance management system must form part of the installation's Environmental Management System. The operator has not confirmed that this is the case and we are therefore unable to fully agree with the operator's compliance assessment. The Environment Agency has therefore included an improvement condition, IC03, to ensure that this aspect of BAT 4 is completed before the compliance date.	
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	FC	In their response the operator confirms compliance with the requirements of BAT 5. • All melting pots are fitted with hoods and are connected to the local exhaust ventilation system. • Dust is collected via cartridge filter plants. • Flooring in the factory buildings and the service yards is concrete.	Confirm future compliance via IC03.

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					• Surface water from both service yards is discharged via a 5,000 litre interceptor to surface water drains. • The operator confirms that the vast majority of raw materials are stored within factory buildings. Some raw materials are stored in the service yards, e.g. waste coolant and waste oils are stored in IBCs in a designated area and collected and treated by a licensed waste contractor; dross is stored in steel containers covered with shrink wrap bags. Whilst the operator employs a number of techniques on site, the Environment Agency is unable to agree that the operator currently manages the storage of waste lime and dust from the bag filter plants in a manner that prevents or reduces diffuse emissions to air and water. During a site visit we observed this material stored outside in bags which were not sealed, and were vulnerable to damage. We have therefore included an improvement condition to ensure this material is stored appropriately. The operator has confirmed that they are currently in the process of obtaining sealed containers for the storage of this material.	
6	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	3.2	CC	CC	In their response the operator confirms compliance with the requirements of BAT 6.	None.

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	dust emissions, as part of the environmental management system (see BAT 1), that incorporates both of the following measures: (a) identify the most relevant diffuse dust emission sources (using e.g. EN 15445); (b) define and implement appropriate actions and techniques to prevent or reduce diffuse emissions over a given time frame.				With regard to the requirement for an action plan on diffuse dust emissions the operator confirms that there are techniques and procedures in place to minimise fugitive emissions. The operator has identified the most relevant source of diffuse dust emissions as associated with the melting pots: • All melting pots are fitted with hoods and are connected to the local exhaust ventilation system. • Dust is collected via cartridge filter plants. The operator confirmed that the fugitive and diffuse emissions review and plan forms part of the site Environmental Management System. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	
7	In order to prevent diffuse emissions from the storage of raw materials, BAT is to use a combination of the techniques given.	3.2	CC	CC	In their response the operator confirms compliance with the requirements of BAT 7. The following techniques are in use at the site: BAT 7a: enclosed buildings or silos/bins for storing dust-forming materials such as concentrates, fluxes and fine materials.	None.

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					BAT 7k: 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. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	
8	In order to prevent diffuse emissions from the handling and transport of raw materials, BAT is to use a combination of the techniques given.	3.2	CC	CC	In their response the operator confirms compliance with the requirements of BAT 8. The following techniques are in use at the site: BAT 8g: minimise transport distances. BAT 8o: use planned campaigns for road sweeping. BAT 8q: minimise material transfers between processes. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	None.
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	In their response the operator confirms compliance with the requirements of BAT 9. The following techniques are in use at the site:	None.

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					BAT 9b: use a closed furnace with a properly designed dedusting system or seal the furnace and other process units with an adequate vent system. BAT 9d: dust or fume collection where dusty material transfers take place (e.g. furnace charging and tapping points, covered launders). BAT 9e: 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. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	
10	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.	3.1 3.5	CC	FC	The operator has confirmed in their response that they are currently compliant with BAT 10. The relevant emission points are A1 (Calder I) and A8 (Calder II). Both emission points are currently monitored: • continuously for particulate matter • annually for dioxins • biannually for lead, copper, nickel, zinc (as mass sum of the individual compounds expressed as metal)	Confirm future compliance via IC04.

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					• biannually for arsenic, cadmium, mercury, thallium, selenium (as mass sum of the individual compounds expressed as metal(loid)) • biannually for antimony, tin and tellurium (as mass sum of the individual compounds expressed as metal(loid)). From 30 June 2020 the operator will be required to monitor: • continuously for particulate matter • annually for dioxins and furans • annually for lead • annually, or more frequently, for TVOC. The Environment Agency requires further information from the operator in order to determine the appropriate level of monitoring provision to be employed at the site for emissions of TVOC from 30 June 2020. We have included improvement condition IC04 in order to obtain this information and to subsequently agree with the operator the BAT requirements for the site. We describe this aspect of our review in more detail within the Key Issues section of this decision document. The Environment Agency is unable to agree that the operator is currently compliant with the monitoring requirements of BAT 10, but we are satisfied that	

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					pending completion of IC04, the operator will be compliant by 30 June 2020.	
11	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.	NA	NA	NA	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 not undertaken at this installation. The operator has confirmed in their response that mercury is not used on site. The BAT Conclusion is therefore not applicable to the production of lead at this site.	None.
12	In order to reduce emissions of SO_2 from off-gases with a high SO_2 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_2.	NA	NA	NA	The operator has confirmed in their response that they do use raw materials on to site that contain sulphur. As sulphur or sulphur containing raw materials are not being added to the process the Environment Agency has determined that this BAT conclusion is not applicable.	None.
13	In order to prevent NOx emissions to air from a pyrometallurgical process, BAT is to use one of the techniques given.	NA	NA	NA	The Environment Agency has determined that this BAT Conclusion is not applicable to this installation. This is because it relates to pyrometallurgical processes, which are typically only undertaken during primary metal production, and therefore are not applicable to the production of secondary lead at this site.	None.
14	In order to prevent or reduce the generation of waste water, BAT is to	3.1	NA	CC	In their response the operator initially stated that BAT 14 is not applicable because Calder do not require a trade effluent consent. However the operator subsequently	None.

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	use one or a combination of the techniques given.				confirmed that the following technique is in use at the installation: BAT 14f: use a closed circuit cooling system. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	
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.	NA	NA	NA	In their response the operator states that BAT 15 is not applicable. The only waste water streams are site surface water and cooling tower bleed which are discharged (via interceptor) to surface water drains. The cooling system is closed circuit and the water used does not come into direct contact with lead. There is no treatment of any waste water before discharge. The Environment Agency has determined that this BAT Conclusion is not applicable for this installation as there is no on-site treatment of waste water.	None.
16	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	NA	NA	NA	The Environment Agency has determined that this BAT Conclusion is not applicable to this installation because there is no process water discharged to surface water.	None.

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	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. The monitoring frequency may be adapted if the data series clearly demonstrate sufficient stability of the emissions.				The only waste water streams are site surface water and cooling tower bleed which are discharged (via interceptor) to surface water drains. The cooling system is closed circuit and the water used does not come into direct contact with lead. There is no water directly used in, or discharged from, from the process.	
17	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.	NA	NA	NA	The Environment Agency has determined that this BAT Conclusion is not applicable to this installation because there is no process water discharged to surface water. The only waste water streams are site surface water and cooling tower bleed which are discharged (via interceptor) to surface water drains. The cooling system is closed circuit and the water used does not come into direct contact with lead. There is no water directly used in, or discharged from, from the process. The BAT-AELs for BAT 17 relate to direct emissions of process water to receiving waters and in any case do not apply to the production of carbon and/or graphite electrodes as confirmed in the BAT Conclusion.	None.

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					It is our view that the intention of BAT 17 is to ensure that surface waters are appropriately protected, through the prevention of direct discharges which may otherwise have been made without (or with minimal) treatment.	
18	In order to reduce noise emissions, BAT is to use one or a combination of the techniques given.	3.4	CC	CC	In their response the operator confirms compliance with the requirements of BAT 18. The following technique is in use at the site: BAT 18c: use anti-vibration supports and interconnections for equipment. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	None.
19	In order to reduce odour emissions, BAT is to use one or a combination of the techniques given.	3.3	NA	CC	In their initial response the operator stated that this BAT conclusion is not applicable because odour has not been an issue with the installation. However it is our view that this BAT conclusion is applicable to all installations and we asked for further information from the operator. The operator subsequently confirmed that the following technique is in use at the site: BAT 19b: minimise the use of odorous materials. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	None.

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	BAT 90-107: Lead and/or tin production					
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	In their response the operator confirms compliance with the requirements of BAT 90. The following techniques are in use at the site: BAT 90a: enclosed conveyer or pneumatic transfer system for dusty material. This technique relates to lime used to coat the cartridge filters for the abatement plant. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	None.
91	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.	NA	NA	NA	In their response the operator states that this BAT Conclusion is not applicable because the pre-treatments listed (drying, dismantling, sintering, briquetting, pelletising, battery crushing or screening and classifying), or similar operations, are not undertaken at the installation. The Environment Agency is satisfied that this BAT Conclusion is not applicable. The permit includes a pyrolysis furnace and afterburner for the volatilisation and combustion of organic compounds from contaminated lead scrap. This process is considered under BAT 98 below.	None.

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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	NA	CC	In their initial response the operator stated that this BAT Conclusion is not applicable. We requested further information and the operator subsequently confirmed that the following techniques are in use at the site: BAT 92d: capture hood/enclosures at charging and tapping points. BAT 92e: enclosed building. BAT 92h: maintain the temperature in the furnace at the lowest required level. BAT 92i: apply a hood at the tapping point, ladles and drossing area with an air extraction system. BAT 92h: maintain the temperature in the furnace at the lowest required level. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	None.
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	In their response the operator confirms compliance with the requirements of BAT 93. The following techniques are in use at the site: BAT 93a: hood on the crucible furnace or kettle with an air extraction system. BAT 93b: lids to close the kettle during the refining reactions and addition of chemicals.	None.

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					BAT 93d: temperature control of the melt. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	
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 screening) in primary and secondary lead/or and tin production, BAT is to use a bag filter. BAT-AEL for Dust.	3.1	CC	CC	In their response the operator confirms compliance with the requirements of BAT 94 including the BAT-AEL of 5mg/Nm^3. A bag filter is in use at the site. A review of recent monitoring shows occasional exceedances of the BAT-AEL. This is likely to be due to the charging of lead with organic contamination. The permit was varied in 2016 (V009) to include a pyrolysis furnace to process this contaminated scrap. The pyrolysis furnace has not yet been installed but is expected to be installed towards the end of 2018. The monitoring shows lead emissions are generally below the BAT-AEL. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	None.
95	In order to reduce dust and metal emissions to air from battery preparation (crushing, screening and	NA	NA	NA	In their response the operator states that this BAT Conclusion is not applicable because batteries are not recycled at the site.	None.

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	classifying), BAT is to use a bag filter or a wet scrubber. BAT-AEL for Dust.				The Environment Agency is satisfied that this BAT Conclusion is not applicable.	
96	In order to reduce dust and metal emissions to air (other than those that are routed to the sulphuric acid or liquid SO_2 plant) from charging, smelting and tapping in primary and secondary lead and/or tin production, BAT is to use a bag filter. BAT-AELs for Dust and Pb.	3.1	CC	CC	In their response the operator confirms compliance with the requirements of BAT 96 including the BAT-AELs of 4 mg/Nm^3 particulate matter and 1 mg/Nm^3 for lead. A bag filter is in use at the site. A review of recent monitoring shows occasional exceedances of the BAT-AEL for particulate matter. This is likely to be due to the charging of lead with organic contamination. The permit was varied in 2016 (V009) to include a pyrolysis furnace to take this contaminated scrap. The pyrolysis furnace has not yet been installed but is expected to be in place by the end of 2018. The monitoring shows lead emissions are generally below the BAT-AEL. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	None.
97	In order to reduce dust and metal emissions to air from remelting, refining and casting in primary and	NA	NA	NA	In their response the operator states that this BAT Conclusion is not applicable.	None.

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	secondary lead and/or tin production, BAT is to use the techniques given. BAT-AELs for Dust and Pb.				The Environment Agency agrees that this BAT conclusion (and BAT-AEL) is not applicable to this installation. The techniques referred to in the BAT Conclusion are for pyrometallurgical and hydrometallurgical processes. Neither of these types of processes are undertaken at this installation.	
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	CC	CC	In their response the operator confirmed compliance with the requirements of BAT 98 on the basis that only clean uncontaminated material is fed to the melting pots. We do not agree with the operator's comment because the installation is permitted to accept and melt scrap lead contaminated with oils and the permit was varied in 2016 to include a pyrolysis furnace to process these wastes. It is our view that the pyrolysis furnace constitutes an alternative technique to control organic emissions at the installation. The BAT Conclusions and BAT-AEL are therefore applicable. See the Key Issues section for further explanation. The following techniques are in use at the site: BAT 98a: select and feed the raw materials according to the furnace and the abatement techniques used	

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					BAT 98b: optimise combustion conditions to reduce the emissions of organic compounds BAT 98c: afterburner or regenerative thermal oxidiser The BAT Conclusion imposes an associated emission limit of 40 mg/Nm^3 TVOC. This parameter has not previously been monitored at the installation but the operator has confirmed that during trials, conducted by the manufacturer in 2015 emissions of TVOC were below the BAT-AEL. We accept the operator's justification for anticipated compliance with the BAT-AEL for TVOC and have therefore not set an improvement condition.	
99	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. BAT-AEL for PCDD/F.	NA	CC	NA	In their response the operator has confirmed that there are no smelting processes undertaken at the site. Whilst the Environment Agency is satisfied that this BAT Conclusion is not strictly applicable to this installation because smelting is not undertaken, we consider it appropriate to retain the existing ELVs for PCDD/F (0.1 ng I-TEQ/Nm3 PCDD/F) at emission points A1 and A8. There is the potential for dioxin and furan formation from the melting of scrap lead contaminated with organic compounds in both the melting pots and the pyrolysis furnace once installed. The ELV is in line with the BAT-AEL.	None.

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100	In order to prevent or reduce SO_2 emissions to air (other than those that are routed to the sulphuric acid or liquid SO_2 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_2.	NA	NA	NA	The operator has confirmed in their response that their raw materials do not contain sulphur. The Environment Agency is satisfied that this BAT Conclusion and BAT-AEL is not applicable to this installation.	None.
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.	NA	NA	NA	In their response the operator confirms that this BAT 101 is not applicable because batteries are not processed at the installation. The Environment Agency is satisfied that this BAT Conclusion is not applicable to this installation.	None.
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	In their response the operator confirms that this BAT 102 is not applicable because batteries are not processed and there are no alkaline leaching processes undertaken at the installation. The Environment Agency is satisfied that this BAT Conclusion is not applicable to this installation.	None.
103	In order to reduce emissions to water from battery preparation when the acid mist is sent to the waste water	NA	NA	NA	In their response the operator confirms that this BAT 101 is not applicable because batteries are not processed at the installation.	None.

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	treatment plant, BAT is to operate an adequately designed waste water treatment plant to abate the pollutants contained in this stream.				The Environment Agency is satisfied that this BAT Conclusion is not applicable to this installation.	
104	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.	NA	NA	NA	The Environment Agency has determined that this BAT Conclusion is not applicable to this site as they do not undertake primary lead production.	None.
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.	NA	NA	NA	In their response the operator confirms that this BAT 101 is not applicable because batteries are not processed at the installation. The Environment Agency is satisfied that this BAT Conclusion is not applicable to this installation.	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.	NA	NA	NA	In their response the operator confirms that this BAT 101 is not applicable because batteries are not processed at the installation. The Environment Agency is satisfied that this BAT Conclusion is not applicable to this installation.	None.

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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	In their response the operator confirms compliance with the requirements of BAT 107. The following technique is in use at the site: BAT 107b: treat the residues and the wastes in dedicated plants for material recovery. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	None.