

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/KP3230QN

The Operator is: Allegheny Technologies Limited

The Installation is: Atlas Works, Carlisle Street East, Sheffield, S4 7QR

This Variation Notice number is: EPR/KP3230QN/V002

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 30th 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 13th 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 and any changes to the operation of the installation.

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 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 61(1) of the Environmental Permitting (England and Wales) Regulations 2010 (a Regulation 61 Notice) on 23rd May 2018 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 30th June 2020, which will then ensure that operations meet the revised standard, or
- justifies why standards will not be met by 30th 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 61 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 61 Notice response from the Operator was received on 3rd December 2018.

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 61 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 have no reason to consider that the operator will not be able to comply with the techniques and standards described in the BAT Conclusions.

2.3 Requests for Further Information during determination

Although we were able to consider the Regulation 61 Notice response generally satisfactory at receipt, we did in fact need more information in order to complete our permit review assessment, and issued a further information request in the form of a Regulation 61 notice on 13th December 2019. A copy of further information requests was placed on our public register.

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

- Response to our email dated 19th March 2020, received 19th March 2020, and our email dated 23rd March 2020 received 30th March 2020 regarding the changes to processes for the degreasing activity.
- Response to our email dated 29th April 2020, received 7th May 2020, regarding Climate Change Agreement.
- Response to our email dated 29th April 2020, received 7th May 2020, regarding the description of processes and site plan showing emission limits.

- Response to our email dated 29th April 2020, received 7th May 2020, regarding the emissions to air, emission limits, monitoring requirements and emission points.

We made a copy of this information available to the public in the same way as the response 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 EQSD¹ (priority hazardous substances, priority substances and “other pollutants”). It also applies to the specific pollutants listed in the 2015 Directions², 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 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.

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

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; and
- 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 61 Notice the operator has confirmed that they discharge hazardous pollutants to surface water via the foul sewer. Details of how we have considered the operator's response is provided in Annex 4.

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 61 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 61 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 IC1 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 (IC2) 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 IC1 response within 3 months of the effective date of our notice, and their IC2 response (if deemed necessary) within 12 months of the effective date.

3 The legal framework

The Consolidated Variation Notice will be issued, if appropriate, 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 are incorporated into the Consolidated Variation Notice via a table in Schedule 3 – Emissions and monitoring.

For each environmental receptor the table in Schedule 3 specifies:

- the ELV's and monitoring requirements effective upon issue of the notice; and
- where the BAT Conclusions contain a BAT-AEL which is tighter than the current ELV, the new BAT-AEL is specified with a note alongside to indicate that it shall take effect from 30th June 2020; and
- any associated updated monitoring requirements that will take effect from 30th June 2020.

Emissions to air

- Table S3.1, the requirements of which are effective from the date of issue of the notice, and which contains amended ELV's where a BAT-AEL is specified in the BAT Conclusions, and any associated updated monitoring requirements. The operator has agreed to comply with these limits from the effective date of this notice rather than the compliance date for the NFM BAT Conclusions.

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 30th June 2016. There are 184 BAT Conclusions. Table 1 of 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

In addition to the non-ferrous metals BAT Conclusions we have also considered other relevant BAT for the installation in the form of the local authority guidance entitled 'Process Guidance Note (PGN) 2/03 (13) Statutory Guidance for Electrical furnaces.' This guidance relates to the Part B ferrous metal activity.

Table 2 of this annex provides a record of decisions made in relation to PGN 2/03 (13) as it applies to the installation. The ferrous and non-ferrous processes undertaken at the installation are interchangeable, with ferrous and non-ferrous melting utilising the same furnaces and equipment. With this in mind we outline in Table 2 where we consider the operator, through their responses in relation to compliance with the NFM BAT Conclusions, also meets the relevant requirements from PGN 2/03 (13).

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: Nickel and Cobalt Production
BAT Conclusions that are not applicable to this installation	NA	<p>General BAT Conclusions for Non-Ferrous Metals Industries: 11-13, 16 and 17</p> <p>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: 90-107 inclusive 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: 165-175 inclusive BAT Conclusions for carbon and/or graphite production: 177-184 inclusive</p>
BAT Conclusions where we accept the operator's Reg 60	CC	General BAT Conclusions for Non-Ferrous Metals Industries: 1-10, 14, 15, 18 and 19.

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: Nickel and Cobalt Production
notice response that they are currently compliant and no further explanation is required.		BAT Conclusions for nickel and/or cobalt production: 163, 164, and 176.
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	None.
BAT Conclusions where the Operator has responded that they are not compliant and have not submitted any plans to become compliant	NC	None.

Table 2. Decision checklist - BAT comparison between Process Guidance Note (PGN) 2/03 (13) Statutory Guidance for Electrical furnaces and BAT Conclusions for Non-ferrous metals

Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
<p>Fugitive and channelled emissions. <i>Section 5.1 of PG 2/03 (13)</i></p>	<p>Raw Material Storage – Emissions of dust</p> <p>Store potentially dusty materials in building or appropriate containers.</p> <hr/> <p>Relining of the furnace with refractory materials. Charging the furnace. Metal treatment operations. Melting operations. Combustion.</p> <p>Prevent fugitive emissions by using fully enclosed buildings. Contain, extract, monitor and abate where necessary to meet the requirements and limits.</p>	<p>For details on how the installation is compliant with this requirement from the PGN refer to the following sections of Annex 5 of this decision document:</p> <ul style="list-style-type: none"> • BAT 7 - prevent diffuse emissions from the storage of raw materials • BAT 8 - prevent diffuse emissions from the handling and transport of raw materials • BAT 9 – prevent or reduce diffuse emissions from metal production by optimising the efficiency of off-gas collection and treatment

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Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
<p>Techniques to control emissions from contained sources <i>Section 5.2 of PG 2/03 (13)</i></p>	<p>Emissions of particulate matter should be captured, extracted and abated if necessary to meet the visible emission provisions and limits.</p> <ul style="list-style-type: none"> • Emissions should be abated where necessary to meet the limits. • Where scrap metal is melted, care in assessing and selecting incoming scrap is required in order to minimise furnace emissions. 	<p>For details on how the installation is compliant with this requirement from the PGN refer to the following sections of Annex 5 of this decision document:</p> <ul style="list-style-type: none"> • BAT 7, BAT 8, BAT 9 • BAT 10 - monitoring requirements for stack emissions to air.
	<p>Unless full, effective abatement is being used, only “clean” scrap should be melted.</p>	<p>For details on how the installation is compliant with this requirement from the PGN refer to the following sections of Annex 5 of this decision document:</p>

Table 2. Decision checklist - BAT comparison between Process Guidance Note (PGN) 2/03 (13) Statutory Guidance for Electrical furnaces and BAT Conclusions for Non-ferrous metals

Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
	<p>For this purpose, "clean" scrap should be taken to be scrap which is free from significant amounts of contamination such as dirt, foreign material, oily residues, paint or other organic materials (e.g. rubber or plastic).</p>	<ul style="list-style-type: none"> • BAT 7, BAT 8, BAT 9. <p>The operator has confirmed that they use virgin material or high grade scrap. The Environment Agency is satisfied that the incoming scrap can be considered to be "clean".</p>
<p>Techniques to control fugitive emissions (air) <i>Section 5.3 of PG 2/03 (13)</i></p>	<p>Emissions from the melting operations covered by this note comprise very fine particulate matter, in the form of fume and smoke. The aim should be to prevent any visible airborne emission from any part of the process; the provisions listed in PG 2/03 (13) section 4.6- 4.8 apply to all external emissions to air, including fugitive emissions - for example from buildings and from roof or wall vents.</p>	<p>For details on how the installation is compliant with this requirement from the PGN refer to the following sections of Annex 5 of this decision document:</p> <ul style="list-style-type: none"> • BAT 7, BAT 8, BAT 9.

Table 2. Decision checklist - BAT comparison between Process Guidance Note (PGN) 2/03 (13) Statutory Guidance for Electrical furnaces and BAT Conclusions for Non-ferrous metals

Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
	<p>Extraction systems may be required to deal with those operations which are likely to generate excessive or fugitive emissions, for example charging of the furnace, metal treatment, oxygen lancing and pouring. An enclosure fitted with extract ventilation to arrestment plant may be a necessary control measure</p> <ul style="list-style-type: none"> • Correctly designed extraction systems to meet required limits. • The method of collection of waste from dry arrestment plant should be such that dust emissions are minimised • Dusty wastes should be stored in closed containers and handled in a 	

Table 2. Decision checklist - BAT comparison between Process Guidance Note (PGN) 2/03 (13) Statutory Guidance for Electrical furnaces and BAT Conclusions for Non-ferrous metals

Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
	<p>manner that avoids emissions of dust.</p> <ul style="list-style-type: none"> Internal transport of dusty materials should be carried out so as to prevent or minimise airborne dust emissions. 	
<p>Techniques to control fugitive emissions (liquid/solid spillages) <i>Section 5.4 of PG 2/03 (13)</i></p>	<p>Adequate provision to contain liquid and solid spillage is needed.</p> <ul style="list-style-type: none"> All spillages should be cleared as soon as possible; solids by vacuum cleaning, wet methods, or other appropriate techniques. <p><i>Dry sweeping of dusty spillages should not be permitted</i></p> <ul style="list-style-type: none"> A high standard of house-keeping should be maintained. 	<p>For details on how the installation is compliant with this requirement from the PGN refer to the following sections of Annex 5 of this decision document:</p> <ul style="list-style-type: none"> BAT 7, BAT 8, BAT 9.

Table 2. Decision checklist - BAT comparison between Process Guidance Note (PGN) 2/03 (13) Statutory Guidance for Electrical furnaces and BAT Conclusions for Non-ferrous metals

Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
<p>Air Quality – Dispersion and dilution. <i>Section 5.5 of PG 2/03 (13)</i></p>	<p>Pollutants that are emitted via a stack require sufficient dispersion and dilution in the atmosphere to ensure that they ground at concentrations that are deemed harmless.</p>	<p>Compliance through achievement of Emission Limit Values (ELVs) contained within the permit, which will be reflective of either the BAT-AELs specified in the Non-ferrous metals BAT Conclusions, or limits within PGN 2/03 (13). Emissions made via existing, previously permitted stacks.</p>
<p>Stacks, vents and process exhausts. <i>Section 5.10 of PG 2/03 (13)</i></p>	<p>Liquid condensation on internal surfaces of stacks and exhaust ducts might lead to corrosion and ductwork failure or to droplet emission.</p> <p>Adequate insulation will minimise the cooling of waste gases and prevent liquid condensation by keeping the temperature of the exhaust gases above the dew point.</p> <p>A leak in a stack/vent and the associated ductwork, or a build-up of</p>	<p>For details on how the installation is compliant with this requirement from the PGN refer to the following sections of Annex 5 of this decision document:</p> <ul style="list-style-type: none"> • BAT 1 - environmental management systems (EMS) • BAT 2 - energy management • BAT 3 - process control

Table 2. Decision checklist - BAT comparison between Process Guidance Note (PGN) 2/03 (13) Statutory Guidance for Electrical furnaces and BAT Conclusions for Non-ferrous metals

Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
	<p>material on the internal surfaces may affect dispersion:</p> <ul style="list-style-type: none"> • Flues and ductwork should be cleaned to prevent accumulation of materials, as part of the routine maintenance programme • When dispersion of pollutants discharged from the stack (or vent) is necessary, the target exit velocity should be 15m/s under normal operating conditions. 	<ul style="list-style-type: none"> • BAT 4 - reduce channelled dust and metal emissions to air
<p>Management <i>Section 5.13 – 5.17 of PG 2/03 (13)</i></p>	<p>Management Techniques (control of emissions) Important elements for effective control of emissions include:</p> <ul style="list-style-type: none"> • proper management, supervision and training for process operations; 	<p>For details on how the installation is compliant with this requirement from the PGN refer to the following sections of Annex 5 of this decision document:</p> <ul style="list-style-type: none"> • BAT 1 - environmental management systems (EMS)

Table 2. Decision checklist - BAT comparison between Process Guidance Note (PGN) 2/03 (13) Statutory Guidance for Electrical furnaces and BAT Conclusions for Non-ferrous metals

Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
	<ul style="list-style-type: none"> • proper use of equipment; • effective preventative maintenance on all plant and equipment concerned with the control of emissions to the air; and • ensuring that spares and consumables - in particular, those subject to continual wear – are held on site, or available at short notice from guaranteed local suppliers, so that plant breakdowns can be rectified rapidly. This is important with respect to arrestment plant and other necessary environmental controls. It is useful to have an audited list of essential items. 	<ul style="list-style-type: none"> • BAT 2 - energy management • BAT 3 - process control • BAT 4 - reduce channelled dust and metal emissions to air

Table 2. Decision checklist - BAT comparison between Process Guidance Note (PGN) 2/03 (13) Statutory Guidance for Electrical furnaces and BAT Conclusions for Non-ferrous metals

Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
	<p>Appropriate management systems</p> <p>Effective management is central to environmental performance; it is an important component of BAT and of achieving compliance with permit conditions. It requires a commitment to establishing objectives, setting targets, measuring progress and revising the objectives according to results. This includes managing risks under normal operating conditions and in accidents and emergencies.</p> <p>It is therefore desirable that installations put in place some form of structured environmental management approach, whether by adopting published standards (ISO 14001 or the EU Eco Management and Audit Scheme [EMAS]) or by setting up an environmental management</p>	

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Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
	<p>system (EMS) tailored to the nature and size of the particular process. Operators may also find that an EMS will help identify business savings.</p> <p>Training Staff at all levels need the necessary training and instruction in their duties relating to control of the process and emissions to air. In order to minimise risk of emissions, particular emphasis should be given to control procedures during start-up, shut down and abnormal conditions. Training may often sensibly be addressed in the EMS referred to above.</p> <p>All staff whose functions could impact on air emissions from the activity should</p>	

Table 2. Decision checklist - BAT comparison between Process Guidance Note (PGN) 2/03 (13) Statutory Guidance for Electrical furnaces and BAT Conclusions for Non-ferrous metals

Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
	<p>receive appropriate training on those functions. This should include:</p> <ul style="list-style-type: none"> • awareness of their responsibilities under the permit; • steps that are necessary to minimise emissions during start-up and shutdown; • actions to take when there are abnormal conditions, or accidents or spillages that could, if not controlled, result in emissions. <p>The operator should maintain a statement of training requirements for each post with the above mentioned functions and keep a record of the training received by each person.</p>	

Table 2. Decision checklist - BAT comparison between Process Guidance Note (PGN) 2/03 (13) Statutory Guidance for Electrical furnaces and BAT Conclusions for Non-ferrous metals

Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
	<p>Maintenance</p> <p>Effective preventative maintenance plays a key part in achieving compliance with emission limits and other provisions. All aspects of the process including all plant, buildings and the equipment concerned with the control of emissions to air should be properly maintained.</p> <p>The operator should have the following available for inspection by the regulator:</p> <ul style="list-style-type: none"> • a written maintenance programme for all pollution control equipment; and • a record of maintenance that has been undertaken. 	

Table 2. Decision checklist - BAT comparison between Process Guidance Note (PGN) 2/03 (13) Statutory Guidance for Electrical furnaces and BAT Conclusions for Non-ferrous metals

Theme	Summary of requirements relevant to this installation from PGN 2/03 (13)	Associated BAT Conclusions for Non-ferrous metals, or details of other mechanism of compliance
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The following sub sections from Section 5 of PG 2/03 (13) have been excluded from this review as they are not applicable to existing sites and focus more on an initial assessment of a site and its initial compliance: 5.6, 5.7, 5.8, 5.9, 5.11 and 5.12

Key Issues

Where relevant and appropriate, we have incorporated the techniques described by the Operator in their Regulation 60 / 61 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 Nickel and Cobalt production

General BAT Conclusion 11

We have not included the BAT-AEL for Mercury ($0.05\text{mg}/\text{Nm}^3$) This is only applicable to sites that undertake a pyrometallurgical process. The operator has confirmed in their response to the Regulation 61 notice that they do not undertake a pyrometallurgical process. These are typically processes undertaken at primary production stage and this installation only undertakes the secondary production of metals.

BATs 171, 172, and 173

We have not directly included the BAT-AEL for Dust and Nickel listed in these BAT conclusions These BAT Conclusions are not applicable as the installation is not a primary producer of Nickel and/ or Cobalt and as such does not undertake the processes involved (eg. atmospheric/pressure leaching, nickel matte refining, or the processing of sulphuric ores.) The operator has confirmed this as part of their response to the Regulation 61 notice.

Amendment to permitted Emission Limits Values for emissions to air as a result of this permit review

As a result of this permit review we have made changes to the monitoring requirements (including emission limit values (ELVs)) as listed in Table S3.1 of the environmental permit. The changes are listed below:

1) Dust

We have reduced the emission limit value for dust (Total Particulate Matter in the existing permit) from $20\text{mg}/\text{Nm}^3$ to $5\text{mg}/\text{Nm}^3$ for emissions from the ESR furnaces (emission points A1 and A2) and the laboratory wet scrubber (emission point A7). We have determined that in the absence of specific BAT conclusions applicable to secondary nickel production a limit of $5\text{mg}/\text{Nm}^3$ for Dust emissions is appropriate BAT. In coming to this decision we have considered consistency across the non-ferrous metals sector as a whole. This $5\text{mg}/\text{Nm}^3$ limit for dust emissions is standard across the majority of this sector, as set out in the BAT Conclusions. Based on the operational set-up of the site, including the use of fairly ubiquitous abatement plant such as bag filters for treating emissions from the ESR furnaces, together with the actual

monitoring results currently being achieved, we believe this ELV is appropriate, achievable and is representative of the level of environmental performance expected within the non-ferrous sector.

2) Nickel

We have reduced the emission limit value for Nickel from 5mg/Nm³ to 1mg/Nm³ for emissions from the ESR furnaces (emission points A1 and A2) and the laboratory wet scrubber (emission point A7). We have determined that in the absence of specific BAT conclusions applicable to secondary nickel production a limit of 1mg/Nm³ for Nickel emissions is appropriate BAT. In coming to this decision we have considered consistency across the Nickel subsector as a whole. This 1mg/Nm³ limit for nickel emissions is the expectation of installations undertaking primary production of metal and sets a benchmark for the subsector. There is arguably no reason why this should not apply to both primary and secondary production sites. Based on the operational set-up of the site, including the use of bag filters for treating emissions from the ESR furnaces, together with the actual monitoring results currently being achieved, we believe this ELV is appropriate, achievable and is representative of the level of environmental performance expected within the Nickel subsector.

3) PCDD/F

We have reduced the emission limit value for PCDD/F (Dioxins in original permit) from 1ng/Nm³ to 0.1ng/Nm³ for emissions from the ESR furnaces (emission points A1 and A2). We have determined that in the absence of specific BAT conclusions applicable to secondary nickel production a limit of 0.1ng/Nm³ for PCDD/F emissions is appropriate BAT. In coming to this decision we have considered consistency across the non-ferrous metals sector as a whole. This 0.1ng/Nm³ for PCDD/F emissions is standard across the sector, as set out in the BAT Conclusions. Based on the operational set-up of the site, together with the actual monitoring results currently being achieved, we believe this ELV is appropriate, achievable and is representative of the level of environmental performance expected within the non-ferrous sector.

4) Trichloroethylene

We have removed the monitoring requirements and emission limits for Trichloroethylene. The operator has confirmed in email correspondence (recorded in the Table S1.2 of the permit) that they no longer use Trichloroethylene in their processes.

5) Remaining substances, emission limits and monitoring requirements

We have retained all other emission limits and monitoring requirements to prevent any backsliding of environmental performance.

6) Emission Limit Values for ferrous metal processing activities

Site operations are set up in a manner that allows the Operator to switch between the production of secondary non-ferrous metal and the production of secondary ferrous metal. They use the same furnaces and equipment (including common ductwork and abatement plant) to undertake both types of processing.

Although the BAT requirements as outlined in PGN 2/03 (13) indicate ELVs that are less stringent than those set out in the non-ferrous metals BAT conclusions, we consider it appropriate, and pragmatic, to set the more stringent ELVs from the BAT conclusions, irrespective of the production process being carried out. As the site uses the same abatement equipment to treat the emissions from the furnaces irrespective of the metal being produced, it could reasonably be expected that the environmental performance would be consistent, everything else being equal. This also potentially allows more flexibility for the Operator to switch between ferrous and non-ferrous activities.

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. ‘

The Operator did not request derogation from compliance with any AEL included within the BAT Conclusions as part of their Regulation 61 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 61 Notice responses and our own records of the capability and performance of the installation at this site, we consider that we do not need to set improvement conditions so that the outcome of the techniques detailed in the BAT Conclusions are achieved by the installation.

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 Annex 4 of this decision document. These are set out in the table below which is a copy of Table S1.3 taken from the 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
IC1	The operator shall submit to the Environment Agency for approval 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.	Within 3 months of effective date of notice V002
IC2	Where the risk assessment carried out under IC2 above establishes a risk to soil and groundwater the operator shall: <ul style="list-style-type: none">• 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• provide a summary report referring to information previously submitted where the operator is satisfied that such information	Within 12 months of effective date of notice V002

Table S1.3 Improvement programme requirements		
Reference	Improvement Condition	Completion date
	<p>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>	
IC3	<p>The operator shall resubmit 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. This is to address the shortcoming of the assessment provided during the NFM BAT permit Review:</p> <p>The risk assessment shall:</p> <p>a) Re-evaluate the long term and short term impact of cadmium within both discharges from the installation. The assessment currently undertaken (titled: Report on Surface Water Risk Assessment at Allegheny Technologies Limited, ref:E69665-RA Dated:03/01/2019) uses an incorrect EQS of 5 ug/l as the EQS rather than 0.08 ug/l (AA) and 0.45 ug/l (MAC) and is prematurely screened out in the risk assessment.</p> <p>Undertake a part B screening (significant load test) for cadmium and mercury this was not provided as part of the current submission(as referenced above).</p>	<p>Within 2 months of effective date of notice V008</p>

Annex 4

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

Surface Water Pollution Risk Assessment

In response to question 5 on our Regulation 60 Notice the operator provided monitoring data for the following hazardous pollutants in discharges from the site: silver, arsenic, cadmium, cobalt, chromium III, chromium VI, copper, nickel, lead, zinc, and mercury. The monitoring data related to the following discharges:

- trade effluent (discharge from the scrubber serving the macro etch facility) to foul sewer at emission point S1. The operator holds a trade effluent consent from the sewerage undertaker, United Utilities; and
- rainfall run-off (discharge from site drainage, roof water and surface run off) to foul sewer at emission point S1. The operator holds a trade effluent consent from the sewerage undertaker, United Utilities;

The scope of the operator's monitoring was in accordance with the requirements specified on our Regulation 60 Notice.

In response to question 6 on our Regulation 60 Notice the operator provided an H1 screening assessment for hazardous pollutants discharged via emissions point S1 using the aforementioned monitoring data. The operator concluded from their assessment that all hazardous pollutants screened out and as such would not be liable to cause pollution of the receiving waters.

The following section describes how we have considered the operator's assessment of the aforementioned discharges.

The hazardous pollutants identified by the operator's monitoring were assessed against a series of freshwater screening tests incorporated within our H1 screening tool, in order to:

- a) determine whether the discharges were "liable to cause pollution" of receiving waters, either directly, or indirectly via the sewage treatment works (STW); and
- b) enable the Environment Agency to determine whether the discharges needed to be controlled with emission limit values (ELVs) on the permit.

The freshwater screening tests Part A (1-4) 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 limit of such substances exceeds the significant load limit (an annual load limit that has been set for priority hazardous pollutants).

Assessment of discharge to sewer from the scrubber serving the macro etch facility

The results of our audit of the operator's assessment of the macro etch scrubber discharge to foul sewer via emission point S1 are shown in the table below. We have made our own simple verification calculation of the percentage process contribution and these are the numbers shown in the table. These may be slightly different to those shown in the submission from the operator, however any such minor discrepancies do not materially impact on our conclusions.

Hazardous Pollutant	EQS	Test 1		Test 2		
	LONG TERM / SHORT TERM	Concentration < 10% EQS?		PC < 4% EQS?		
	µg/l	Conc (µg/l)	< 10% EQS	PC (µg/l)	< 4% EQS	
Silver (dissolved)	0.05 _{LT}	12.4	No	0.00082	Yes	1.6
	0.1 _{ST}	33.4	No	0.015	No	14.5
Arsenic (dissolved)	50 _{LT}	3.1	Yes	-	-	
Suspended Solids	-	-	-	-	-	
Total Petroleum Hydrocarbons (oil/grease)	10 _{LT}	107	No	0.007	Yes	0.071
	50 _{ST}	179	No	0.078	Yes	0.16
Chemical Oxygen Demand (COD)	-	-	-	-	-	
Cadmium (dissolved)	5 _{LT}	1.4	No	0.000095	Yes	0.002
	5 _{ST}	4.5	No	0.0019	Yes	0.04
Cobalt (dissolved)	3 _{LT}	37.5	No	0.0025	Yes	0.08
	100 _{ST}	53	No	0.02	Yes	0.023
Chromium III (dissolved)	3.4 _{LT}	92.8	No	0.0062	Yes	0.13
	32 _{ST}	301	No	0.13	Yes	0.41
Chromium VI (dissolved)	3.4 _{LT}	1.5	No	0.0001	Yes	0.003
Copper (dissolved)	1 _{LT}	15.6	No	0.001	Yes	0.1
Lead	1.2 _{LT}	13.5	No	0.00089	Yes	0.075
	14 _{ST}	46.2	No	0.02	Yes	0.14
Mercury	0.07 _{ST}	0.84	No	0.00037	Yes	0.52
Nickel	4 _{LT}	126	No	0.0084	Yes	0.21
	34 _{ST}	298	No	0.13	Yes	0.38
Iron (dissolved)	1000 _{LT}	1324	No	0.088	Yes	0.0088
Sulphates	400,000 _{LT}	62200	No	4.1	Yes	0.001
Zinc (dissolved)	10.9 _{LT}	87.3	No	0.0058	Yes	0.05

We cannot screen Cadmium out as this has been incorrectly calculated in the operators Surface Water Risk Assessment. We have noticed it has been

assessed using a EQS of 5µg/l instead of 0.08µg/l and 0.45µg/l for AA and MAC respectively. This will need to be re-assessed by the operator and as such we have include IC3 in the permit.

The results show that all other substances screen out following tests 1 and 2 with the exception of Silver (dissolved) which moved on to test 3 and test 4.

Hazardous Pollutant	Test 3 – Maximum Allowable Concentration		
	Background Concentration (BC)	PEC	PEC-BC as % of EQS
	µg/l	-	%
Silver (dissolved)	0.05	0.065	14.5

Short Term (MAC) concentrations of Silver (dissolved) does not pass test 3 as the difference between the PEC and BC is more than 10% of the EQS.

In regards to the Long Term (AA) and Short Term (MAC) concentrations of silver (dissolved) the respective PECs are below the associated EQS limits and therefore Test 4 is passed.

Pollutants concentrations must pass both test 3 and test 4 to screen out at this stage. Therefore as Silver (dissolved) does not pass test 3 it cannot be screened out and we consider that it is potentially a risk to the environment, requiring further assessment.

In addition the operator was required to undertake a significant load test for cadmium and mercury as this was not undertaken and as a result we have added an improvement condition IC3

Assessment of discharge of surface water run-off

The results of our audit of the operator’s assessment of the discharge of surface run-off to foul sewer via emission point S1 are shown in the table below. We have made our own simple verification calculation of the percentage process contribution and these are the numbers shown in the table. These may be slightly different to those shown in the submission from the operator, however any such minor discrepancies do not materially impact on our conclusions.

Hazardous Pollutant	EQS	Test 1		Test 2		
	LONG TERM / SHORT TERM	Concentration < 10% EQS?		PC < 4% EQS?		
	µg/l	Conc (µg/l)	< 10% EQS	PC (µg/l)	< 4% EQS	
Silver (dissolved)	0.05 _{LT}	0.5	No	0.00025	Yes	0.51
	0.1 _{ST}	0.5	No	0.00049	Yes	0.49
Arsenic (dissolved)	50 _{LT}	0.45	Yes	-	-	
Suspended Solids	-		-			
Total Petroleum Hydrocarbons (oil/grease)	10 _{LT}	20	No	0.01	Yes	0.1
	50 _{ST}	20	No	0.02	Yes	0.04
Chemical Oxygen Demand (COD)	-		-			
Cadmium (dissolved)	5 _{LT}	0.4	Yes	-	-	-
	5 _{ST}	0.4	Yes	-	-	-
Cobalt (dissolved)	3 _{LT}	0.69	No	0.00035	Yes	0.01
	100 _{ST}	0.69	Yes	0.00068	Yes	0.0007
Chromium III (dissolved)	3.4 _{LT}	0.52	No	0.00027	Yes	0.004
	32 _{ST}	0.52	Yes	-	-	-
Chromium VI (dissolved)	3.4 _{LT}	0.03	Yes	-	-	-
Copper (dissolved)	1 _{LT}	14.5	No	0.0074	Yes	0.74
Lead	1.2 _{LT}	30.2	No	0.015	Yes	1.3
	14 _{ST}	30.2	No	0.030	Yes	0.21
Mercury	0.05 _{LT}	0.01	No	0.0000051	Yes	0.0005
	0.07 _{ST}	0.01	No	0.0000099	Yes	0.014
Nickel	4 _{LT}	3.9	No	0.0020	Yes	0.05
	34 _{ST}	3.9	No	0.0038	Yes	0.01
Iron (dissolved)	1000 _{LT}	0.025	Yes	-	-	-
Sulphates	400,000 _{LT}	3.9	Yes	-	-	-

We cannot screen Cadmium out as this has been incorrectly calculated in the of operators Surface Water Risk Assessment. We have noticed it has been

assessed using a EQS of 5µg/l instead of 0.08µg/l and 0.45µg/l for AA and MAC respectively. This will need to be re-assessed by the operator and as such we have include IC3 in the permit.

The results show that all other substances screen out following tests 1 and 2.

Operator's conclusions:

The operator concludes in their Surface Water Risk Assessment that for both the Macro Etch and surface water run off discharges that all pollutants screen out by test 2 except for silver in the Macro Etch discharge. This exception is in relation to the short term emission of Silver.

The operator has outlined that the reason Silver does not screen out is because they have been overly conservative in their assessment using the highest recorded measurement of Silver (total) for comparison against the EQS (dissolved). The measurement for Silver (total) is significantly higher than the additional monitoring undertaken during the campaign for Silver (dissolved).

In addition the operator was required to undertake a significant load test for cadmium and mercury this was not undertaken and as a result we have added an improvement condition IC3

Summary

The operator's assessment outlined above is highly conservative and as a result we agree with their conclusions and consider that silver is not liable to cause pollution of the receiving water downstream of the Sewage Treatment Works for the following reasons:

- H1 is a conservative screening tool.
- The operator has made their assessment increasingly conservative by assuming that there is no removal of silver through the Sewage Treatment Works.
- The operator has also assumed (in the absence of upstream background data for silver) that upstream water quality was 50% of the EQS again making the tool increasingly more conservative.
- Even with the above conservatism taken into account the exceedance of the Test 3 screening threshold of 10% was not significant (at only 14.5%) and in reality would be much less.

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	<p>The operator has confirmed in their response that they are currently compliant with BAT 1.</p> <p>In addition, in their response they confirmed that their EMS meets the requirements of ISO 14001.</p> <p>The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.</p>	None.
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 currently compliant with BAT 2.</p> <p>In their response they have confirmed that the BAT techniques they use on site to ensure efficient energy use are as follows:</p>	None.

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
					<ul style="list-style-type: none"> • Hot water pipes are lagged (BAT 2l) • All cooling towers have energy efficient motors with control systems that only activate fans when the ambient air temperature does not offer adequate cooling. (BAT 2n and BAT 2o) <p>In addition to these measure the operator also confirmed that:</p> <ul style="list-style-type: none"> • Their Energy Savings Opportunity Scheme (ESOS) stage 1 has been completed. This included the installation of a number of efficient motors and pumps and LED lighting. • Recuperative burners are used <p>The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.</p>	

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
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 currently compliant with BAT 3.</p> <p>In their response the operator confirmed that <i>'a process control system is in place which includes documented procedures such as technical and work instructions that cover the required steps needed to produce customer specified material from raw materials.'</i></p> <p>In addition to this, the operator has confirmed that they utilise the following BAT techniques on site to ensure a stable process operation:</p> <ul style="list-style-type: none"> • Furnace charges are designed to achieve optimum conversion efficiency and reduce emissions and rejects. (BAT 3b) • Furnace charges are accurately weighed using calibrated weighing equipment to ensure the melt time is as short as possible. (BAT 3c) • VIM and Remelt furnace are fitted with monitoring systems that look at critical parameters such as 	None.

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
					<p>vacuum pressures to ensure a good seal is maintained. (BAT 3d)</p> <ul style="list-style-type: none"> • All furnaces monitor temperature, pressure and gas flow (BAT 3e). • ESR furnaces monitor air emissions through abatement plant for parameters such as HF (BAT 3f) <p>The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.</p>	
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)	1.1, 3.1	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 4.</p> <p>In their response the operator has confirmed that <i>'all equipment is on the maintenance schedule that forms part of the Environmental Management System and is referenced in the Environmental Management System.'</i></p> <p>In addition to this the operator has confirmed that <i>'dust from furnace charging</i></p>	None.

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
					<p><i>is minimal due to raw materials being a form that does not produce dust'</i></p> <p>The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.</p>	
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	1.1, 2.3, 3.1	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 5.</p> <p>In their response the operator confirms that emissions for dust and water are collected as close to source as possible.</p> <p>For example, the ESR furnaces (the only furnaces that are not vacuum furnaces) emissions are captured by LEVs and extraction systems. The operator has confirmed in their response that emissions are then treated via the bag filter plant.</p> <p>The operator has confirmed as part of their response to BAT 14 that the wastewater from the Macroetch process is segregated and treated prior to discharge.</p>	None.

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
					The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	
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 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.	1.1, 3.2	CC	CC	The operator has confirmed in their response that they are currently compliant with BAT 6. They have confirmed that they have undertaken an inventory of dust emissions sources and that they are implementing their action plan. The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	None.
7	In order to prevent diffuse emissions from the storage of raw materials, BAT is to use a combination of the techniques given	1.1, 3.2	CC	CC	The operator has confirmed in their response that they are currently compliant with BAT 7. In their response they have confirmed that the BAT techniques they use on site to prevent emissions from the storage of raw materials, are as follows:	None.

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
					<ul style="list-style-type: none"> • Bulk materials stored inside building (BAT 7b) • Raw materials are delivered and stored in suitable containers that are closed, with the exception of large bulk materials and scrap which have no potential for dust generation. (BAT 7c) • Cleaning program for raw materials stores. (BAT 7n) <p>The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.</p>	
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	1.1, 3.2	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 8.</p> <p>In their response the operator has confirmed that the BAT techniques they use on site to prevent diffuse emissions from the handling and transport of raw materials, are as follows:</p> <ul style="list-style-type: none"> • Raw materials are delivered and stored in suitable containers that are closed, with the exception of 	

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
					<p>large bulk materials and scrap which have no potential for dust generation. (BAT 8d and BAT 8e)</p> <p>In addition the operator confirmed that <i>'handling processes do not generate significant possibilities of dust generation.'</i></p> <p>The Environment Agency is satisfied that the operator meets 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	1.1,3.1, 3.2.	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 9.</p> <p>In their response the operator has confirmed that the BAT techniques they use on site to prevent diffuse emissions from metal production are as follows:</p> <ul style="list-style-type: none"> • Vacuum Induction Melting (VIM) and Vacuum Arc Remelting (VAR) are closed furnaces – melting and tapping takes place inside a vacuum vessel. (BAT 9b) • Emissions from the ESR furnaces are filtered through lime coated 	None.

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
					<p>filter bags to neutralise and collect particulates. (BAT 9i)</p> <ul style="list-style-type: none"> VIM furnace has no emissions due to the physical state of raw material addition required which is charged under vacuum. Tapping of VIM furnace is also done under a vacuum under a covered and vacuumed launder system. VAR furnace is charged with solid electrode which is not dusty and melted under vacuum. ESR is charged with electrodes which are not dusty. (BAT 9e) <p>The Environment Agency is satisfied that the operator meets 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	CC	CC	<p>In reviewing the operator's response against this BAT conclusion the Environment Agency have had to take into consideration the following:</p> <ul style="list-style-type: none"> The BAT conclusions that have BAT-AELs are focused on sites that produce nickel and cobalt. Allegheny Technologies does not produce primary nickel or cobalt. 	

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
					<ul style="list-style-type: none"> • The site uses virgin nickel or high grade scrap to make Nickel based alloys to customer's technical specifications. • Balancing the current permit requirements with the need to prevent the site from backsliding in terms of it's environmental performance on emissions to air. <p>The Environment Agency is satisfied that the operator meets 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.</p> <p>BAT-AEL for Hg</p>	NA	NA	NA	<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 only undertaken during primary metal production, and therefore are not applicable to the production of secondary nickel/nickel alloy at this site.</p>	None.
12	<p>In order to reduce emissions of SO₂ from off-gases with a high SO₂ content and to avoid the generation of waste from the flue-gas cleaning system,</p>	NA	NA	NA	<p>This BAT Conclusion is not applicable to plants producing secondary nickel/nickel alloys, as confirmed by the applicability section within BAT 12.</p>	None.

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	BAT is to recover sulphur by producing sulphuric acid or liquid SO ₂					
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 activities undertaken at this site. This site produces refined nickel/nickel alloys from high grade scrap/virgin nickel.	None.
14	In order to prevent or reduce the generation of waste water, BAT is to use one or a combination of the techniques given	1.1, 3.1	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 14.</p> <p>In the operator's response they confirm that to prevent or reduce the generation of waste water they utilise the following technique on site:</p> <ul style="list-style-type: none"> • Closed circuit cooling systems are used. (BAT 14f) <p>In addition, the operator has confirmed that they have metering systems on the water supplied to the site for use in the cooling towers. They do not currently have the discharge of water from the cooling towers</p>	None.

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					<p>metered. The see this as an improvement opportunity for the future.</p> <p>The Environment Agency is satisfied that the operator meets 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 that the only contaminated waste water treatment stream is the acid water from the Macroetch treatment process. This water is segregated from all other wastewater streams (which are non-hazardous). The contaminated water from the Macroetch process is treated by passing the water through a lime bed to neutralise the pH. It is then discharged to foul sewer under a trade effluent consent.</p> <p>The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.</p>	None.
16	BAT is to use ISO 5667 for water sampling and to monitor the emissions to water at the point where the	NA	NA	NA	The Environment Agency has determined that this BAT Conclusion is not generally	None.

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	<p>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>				<p>applicable for installations which only discharge wastewater to sewer.</p> <p>We do not require operators to routinely monitor discharges of wastewater to sewer where the discharge is already regulated (and monitored) by the sewerage undertaker via a trade effluent consent, unless there is a site-specific environmental need for additional monitoring, e.g. if there was a ELV on the environmental permit to protect water quality, in which case we would require monitoring to be undertaken in accordance with BAT 16.</p> <p>The above position is consistent with how we regulate other industrial sectors through the permitting process.</p>	
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>	NA	NA	NA	<p>The Environment Agency has determined that this BAT Conclusion is not applicable for installations which only discharge wastewater to sewer.</p> <p>The BAT-AELs for BAT 17 relate to direct emissions to receiving waters (as opposed</p>	None.

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					<p>to indirect emissions made via the foul sewer).</p> <p>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.</p>	
18	In order to reduce noise emissions, BAT is to use one or a combination of the techniques given	1.1, 3.4	CC	CC	<p>The operator has confirmed in their response that they are currently compliant with BAT 18.</p> <p>In their response the operator has confirmed that they implement the following BAT technique on site:</p> <ul style="list-style-type: none"> • Enclosure of noisy plant. (BAT 18b) <p>The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.</p>	
19	In order to reduce odour emissions, BAT is to use one or a combination of the techniques given	1.1, 3.3	CC	CC	The operator has confirmed in their response that they are currently compliant with BAT 19.	

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					<p>In their response the operator has confirmed that they implement the following BAT technique on site:</p> <ul style="list-style-type: none"> Materials used on site are not odorous. (BAT 19b) <p>The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.</p>	
BAT 163-176: Nickel and/or cobalt production						
163	In order to use energy efficiently, BAT is to use one or a combination of the techniques given	1.1, 1.2	NA	CC	<p>The operator has confirmed in their response that they feel that this BAT conclusion is not applicable to their site operations because they do not produce nickel but refine virgin or high grade scrap nickel to specific specifications.</p> <p>However, the operator has recognised the intention behind the BAT conclusion and confirmed that the VAR and ESR furnaces are fitted with Heat Exchangers (BAT 163d) as a way to use energy efficiently.</p> <p>The Environment Agency has determined that the operator is compliant with this BAT conclusion.</p>	None.

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164	In order to reduce diffuse dust emissions to air from the charging of a furnace, BAT is to use enclosed conveyor systems	1.1, 3.2	NA	CC	<p>The operator has stated that they do not believe this BAT conclusion is applicable to their site as their material is commonly large bulky virgin nickel or high grade scrap metal both of which are not generally dusty. They have confirmed in the responses to BAT8 and BAT9 the actions that they undertake to reduce diffuse emissions when charging their furnaces and handling raw materials.</p> <p>Considering the actions undertaken by the operator to reduce dust emissions, and the form of the raw materials the Environment Agency considers this to offer an equivalent level of environmental protection.</p> <p>The Environment Agency is in agreement with the operator in that the requirement in this BAT conclusion for an enclosed conveyor belt system is not applicable to the site.</p> <p>The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.</p>	None.

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165	In order to reduce diffuse dust emissions to air from smelting, BAT is to use covered and hooded launders connected to an abatement system	NA	NA	NA	The site does not produce nickel. The site refines virgin and high grade scrap nickel to produce high grade nickel alloys. As the site is not a primary producer of nickel the Environment Agency considers this BAT conclusion not applicable.	None.
166	In order to reduce diffuse dust emissions from converting processes, BAT is to use operation under negative pressure and capture hoods connected to an abatement system	NA	NA	NA	The site does not produce nickel. The site refines virgin and high grade scrap nickel to produce high grade nickel alloys. As the site is not a primary producer of nickel the Environment Agency considers this BAT conclusion not applicable.	None.
167	In order to reduce diffuse emissions from atmospheric and pressure leaching, BAT is to use both of the techniques given	NA	NA	NA	The site does not produce nickel. The site refines virgin and high grade scrap nickel to produce high grade nickel alloys. As the site is not a primary producer of nickel the Environment Agency considers this BAT conclusion not applicable.	None.
168	In order to reduce diffuse emissions from solvent extraction refining, BAT is to use one of the techniques given	NA	NA	NA	The site does not produce nickel. The site refines virgin and high grade scrap nickel to produce high grade nickel alloys. As the site is not a primary producer of nickel the Environment Agency considers this BAT conclusion not applicable.	None.

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169	In order to reduce diffuse emissions from electrowinning, BAT is to use a combination of the techniques given	NA	NA	NA	The site does not produce nickel. The site refines virgin and high grade scrap nickel to produce high grade nickel alloys. As the site is not a primary producer of nickel the Environment Agency considers this BAT conclusion not applicable.	None.
170	In order to reduce diffuse emissions from the hydrogen reduction process when producing nickel powder and nickel briquettes (pressure processes), BAT is to use a sealed or closed reactor, a settler and a pressure autoclave/vessel, a powder conveyor and a product silo	NA	NA	NA	The site does not produce nickel. The site refines virgin and high grade scrap nickel to produce high grade nickel alloys. As the site is not a primary producer of nickel the Environment Agency considers this BAT conclusion not applicable.	None.
171	When processing sulphidic ores, in order to reduce dust and metal emissions to air from the handling and storage of raw materials, material pretreatment processes (such as ore preparation and ore/concentrate drying), furnace charging, smelting, converting, thermal refining and nickel powder and briquette production, BAT is to use a bag filter or a combination of an ESP and a bag filter BAT-AEL for Dust	NA	NA	NA	The site does not produce nickel. The site refines virgin and high grade scrap nickel to produce high grade nickel alloys. As the site is not a primary producer of nickel the Environment Agency considers this BAT conclusion not applicable.	None.

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172	In order to reduce nickel and chlorine emissions to air from the atmospheric or pressure leaching processes, BAT is to use a wet scrubber BAT-AELs for Ni and Cl ₂	NA	NA	NA	The site does not produce nickel. The site refines virgin and high grade scrap nickel to produce high grade nickel alloys. As the site is not a primary producer of nickel the Environment Agency considers this BAT conclusion not applicable.	None.
173	In order to reduce nickel emissions to air from the nickel matte refining process using ferric chloride with chlorine, BAT is to use a bag filter BAT-AEL for Ni	NA	NA	NA	The site does not produce nickel. The site refines virgin and high grade scrap nickel to produce high grade nickel alloys. As the site is not a primary producer of nickel the Environment Agency considers this BAT conclusion not applicable.	None.
174	When processing sulphidic ores, in order to reduce SO ₂ emissions to air (other than those that are routed to the sulphuric acid plant) from smelting and converting, BAT is to use one of the techniques given	NA	NA	NA	The site does not produce nickel. The site refines virgin and high grade scrap nickel to produce high grade nickel alloys. As the site is not a primary producer of nickel the Environment Agency considers this BAT conclusion not applicable.	None.
175	In order to reduce NH ₃ emissions to air from nickel powder and briquette production, BAT is to use a wet scrubber	NA	NA	NA	The site does not produce nickel. The site refines virgin and high grade scrap nickel to produce high grade nickel alloys. As the site is not a primary producer of nickel the Environment Agency considers this BAT conclusion not applicable.	None.

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176	In order to reduce the quantities of waste sent for disposal, 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	1.1, 1.4	NA	CC	<p>The operator has confirmed in their response to the BAT conclusions that they are compliant with BAT 176.</p> <p>In the operator's response they have stated that they do not consider any of the BAT 176 techniques appropriate for their activities. They conclude however they do operate in a way that enables them to reduce the quantities of waste that is sent for disposal. They do the following:</p> <ul style="list-style-type: none"> • All scrap metal is remelted on site. • Where possible swarf that is created during the machining process is remelted in the process • Swarf that cannot be melted on site is stored on site and then melted within the group and at another site. <p>This diverts the scrap metal and swarf waste streams from disposal by reusing it on site or within the company.</p>	None.

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					The Environment Agency is satisfied that the operator meets the requirements of this BAT Conclusion.	