

BESPOKE
ENVIRONMENTAL
SUPPORT



SCHEDULE 5 No. 2 RESPONSE

EPR/BM4945IW/V009 Schedule 5 response

Client: Britannia Refined Metals Ltd

Document date: 30 June 2025

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1. Introduction

This document has been prepared to support the variation of Britannia Refined Metals' (BRM) environmental permit EPR/BM4945IW at Botany Road, Northfleet.

Britannia Refined Metals (BRM) Ltd applied to vary environmental permit EPR/BM4945IW on 27 July 2023. The purpose of the application is to enable the site to manage the transition to a future state where lead and silver production at the installation includes an increased proportion of metal recovery from third-party revert and scrap material, with reduced reliance on virgin lead bullion supplied from overseas mining operations.

A revised Supporting Information document was submitted on 16 October 2023.

Although this activity is already undertaken for a limited number of approved controlled wastes, the Environment Agency considers that the application should be amended to include the production of new metal from secondary raw materials as a new permitted activity, rather than solely being a variation to the existing permit. As such, it issued a Schedule 5 notice requiring further information to support this on 13 December 2024.

This document aims to address the information requirements of this notice.

2. Modified List of Waste codes list

Following a meeting with Environment Agency representatives on 6 December 2024, it was agreed to amend the list of wastes originally requested as part of the application. The new list of wastes is provided below. The wastes to be accepted by the installation are further constrained by the specifications defined within the revised Waste Acceptance Procedure supplied within Appendix of this response.

Table 1: Proposed waste codes for new activity

Waste code	Description
10	WASTES FROM THERMAL PROCESSES
10 04	wastes from lead thermal metallurgy
10 04 02*	dross and skimmings from primary and secondary production
10 04 04*	flue-gas dust
10 04 05*	other particulates and dust
10 05	wastes from zinc thermal metallurgy
10 05 01	slags from primary and secondary production
10 05 03*	flue-gas dust
10 05 04	other particulates and dust
12	WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS
12 01	wastes from shaping and physical and mechanical surface treatment of metals and plastics
12 01 03	non-ferrous metal filings and turnings
12 01 04	non-ferrous metal dust and particles
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)

Waste code	Description
17 04	metals (including their alloys)
17 04 03	lead
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE
19 10	wastes from shredding of metal-containing wastes
19 10 02	lead and non-ferrous alloys and mixtures containing lead
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 03	lead, silver and non-ferrous alloys containing lead or silver
19 12 11*	lead-bearing residues and products from mechanical treatment of waste
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01	Separately collected fractions
20 01 40	lead and silver

3. Notice requiring additional information

2.1 Question 1

Environment Agency requirement

Submit an updated application form F1, which needs to show the correct application fee, by 10 January 2025.

BRM response

A revised Form Part F1 and an additional payment of £9,009 was submitted on 6 January 2025.

2.2 Question 2

Environment Agency requirement

Propose a throughput limit for production of lead from the furnaces you have onsite/propose to have as part of this variation. This proposed limit needs to be justified using actual production capacities of the equipment that will be using. You also need to show how much will come from virgin raw materials and how much will come from wastes.

BRM response

It is important to be clear on the boundaries of the installation and the permitted activities to be undertaken as part of this variation.

Presently, the installation's environmental permit authorises the undertaken of a Section 2.2 A(1)(b) activity and various directly associated activities. This is defined within Schedule 1 of the Environmental Permitting Regulations as:

- (b) *Melting, including making alloys of, non-ferrous metals, including recovered products and the operation of non-ferrous metal foundries where—*
- (i) *the plant has a melting capacity of more than 4 tonnes per day for lead or cadmium or 20 tonnes per day for all other metals, and*
- (ii) *any furnace (other than a vacuum furnace), bath or other holding vessel used in the plant for the melting has a design holding capacity of 5 or more tonnes.*

The refining of lead and silver, plus the processing of works-arising reverts through rotary furnaces, is authorised within this section. It would also include the direct melting in kettles of clean lead scrap that is recognisably metal upon receipt.

Following discussions with the Environment Agency in late 2024, it was agreed that the acceptance and processing of third-party reverts and waste is more appropriately deemed a 2.2 A(1)(a) activity:

- (a) *Unless falling within Part A(2) of this Section, producing non-ferrous metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic activities.*

Where third-party raw materials are imported in a form that is not obviously metal, such as flue-gas dusts, drosses or slags, and the purpose of the activity is to recover non-ferrous metal, Environment Agency guidance note RGN 2 states that section 2.2 A(1)(a) is the more appropriate activity, as the purpose of this is to *produce* non-ferrous metal, rather than to *melt* non-ferrous metal.

However, once processed through the rotary furnaces, these materials are formed into non-ferrous metal ingots that are equivalent to virgin lead bullion feedstock. Further processing into alloys involves transferring these ingots into the established lead refining process that is undertaken in accordance with section 2.2 A(1)(b), and refining them in the same way as virgin lead bullion. Examples of the output from this metal production process are shown in Figure 1.



Figure 1: Metal ingot outputs from the S2.2 A(1)(a) process

For the purpose of this variation and the response to question 2, the new Section 2.2 A(1)(a) activity is only undertaken within the site's two rotary furnaces, which have the capacities shown in Table 2.

Table 2: Rotary furnace capacities

Furnace name	Furnace capacity (t)	Daily throughput (t)	Maximum operating days
Sb rotary	20	45	335
Ag rotary	10	25	335

Therefore, the maximum capacity of the site to produce metal from secondary raw materials that are “not recognisably metal”, in the S2.2 A(1)(a) part of its proposed process, is 23,450 tonnes per annum.

2.3 Question 3

Environment Agency requirement

Propose a suitable throughput limit for production of lead from the melting kettles you have onsite/propose to have as part of this variation. This proposed limit needs to be justified using actual production capacities of the equipment that you propose to use.

BRM response

The throughput capacities referenced in the original application were based upon the maximum production categories of the existing installation, and the potential requirements in the future, should the site seek to replace the entirety of its virgin bullion consumption with secondary lead sources. However, it is recognised that the site would not currently be seeking to accept this quantity of material.

The site could directly melt up to 20,000 tonnes per annum of secondary raw materials that are already metal within its dezincing and refining kettles. This includes wastes such as scrap lead coils, uncontaminated battery plates, metal dusts etc., and the processing of these falls within the RGN2 definition of a 2.2 A(1)(b) melting operation.

Depending upon the nature of the raw material, this will either be processed through the desilvering, dezincing and refining and alloying kettles, or melted directly into the refining and alloying kettles. The production route would be determined based on the individual characteristics of the material identified at pre-acceptance and the batch's quality requirements.

The refining plant capacity is currently running at 480 tonnes per day, though actual capacity will vary based on production requirements and feedstock availability. However, the plant has the potential to produce up to 250,000 tonnes of commercial grade lead per annum.

This will include lead bullion, which will be the greatest proportion of the melt, with suitable secondary raw materials added only at the quantity required to manufacture a product that meets the company and its customers' demanding quality standards. Therefore, it is not

appropriate to provide a specific number for capacity for secondary raw materials through the refinery, given that this will vary in every melt.

2.4 Question 4

Environment Agency requirement

A process flow diagram for the lead production and melting activities that you propose to undertake, which needs to include the above daily/annual throughputs.

BRM response

Please refer to the plan attached within Appendix A.

2.5 Question 5**Environment Agency requirement**

A site layout plan showing the areas where the wastes will be stored, dimensions of the storage areas, methods of storage and height of waste to be stored there. The plan also needs to show where the non-waste raw materials will be stored, but does not need to include dimensions or methods of storage.

BRM response

Please refer to the plan and associated table attached within Appendix C.

Packaged wastes will be stored in UN-approved drums or flexible IBCs (sealed and lined bulk bags), which are necessary for safe and legal transport of the materials to the site.

Waste packaged in drums will likely be double-stacked as a maximum. Wastes stored in flexible IBCs will not be stacked.

The density of metallic lead is 11.34 t/m³. Drosses can vary between 4 and 8 t/m³. Lead slags can vary between 3.5 and 4 t/m³. Therefore, the amount that can be stored on site will vary depending on the materials present. The weight of containers will likely be limited by the requirements of the transporter to maintain a stable load and the form of packaging selected by the waste producer, which may not always be within BRM's direct control.

Areas 1, 5, 6 and 15 can potentially be used to store packaged wastes. These areas have a combined floor space of 2,580 m². This offers the following storage capacities:

Waste type	Packaging method	Number of containers	Indicative total storage capacity (t)
Drosses	205L UN drums, 4 to a pallet, double-stacked	8 per m ² 19,600 total	16,925 – 33,850
	2T UN FIBC	1 per m ² 2,450 total	5,160
Metallic lead powder	205L UN drums, 4 to a pallet, double-stacked, assumed half full	8 per m ² 19,600 total	23,991
	2T UN FIBC	1 per m ² 2,450 total	5,160
Lead slags	205L UN drums, 4 to a pallet, double-stacked	8 per m ² 19,600 total	14,809 – 16,925
	2T UN FIBC	1 per m ² 2,450 total	5,160

An additional 2,280 m² of floor space is also potentially available within Areas 2 and 3, although these would require modification and reapproval of the site's COMAH plans before they could be brought into use as they are not currently flood resilient. BRM may consider submitting these areas for the required COMAH approvals in the future.

Bulk waste is stored in bays within Areas 5, 6 and 15. Bays occupy around half of the available floor space and cannot be filled more than 50%, to a height of around 2 metres. Bulk waste tends to be dross or slag.

Waste type	Area	Bay volume available (m ³)	Indicative total storage capacity (tonnes)
Drosses	5	166.25	665 – 1,330
	6	227.5	910 – 1,820
	15	32.5	130 – 260
Lead slags	5	166.25	665
	6	227.5	910
	15	32.5	130

As some of the storage areas could be used for either packaged or bulk waste, and BRM also needs to store its existing works arising reverts, these would not be the total amount of waste that would be stored at any one time. However, the company can demonstrate that it is able to accommodate 20,000 tonnes of stored material within the existing space available.

2.6 Question 6

Environment Agency requirement

A waste acceptance and pre-acceptance procedure that includes testing for all relevant potential contaminants that could have an impact on your emissions to air.

BRM response

The waste acceptance procedure submitted as part of the original permit application has been reviewed, and a revised procedure more clearly addressing the requirements of SGN 5.06 has been attached within Appendix D.

2.7 Question 7

Environment Agency requirement

Provide an updated risk assessment (environmental aspect register), which needs to include details on emissions to air from the proposed waste types, which must follow the online guidance.

BRM response

The Emissions to Air risk assessment has been addressed thoroughly in the response to question 8. BRM's environmental aspect register is a live document that forms part of our management system and hazards are assessed in accordance with the global Glencore plc

standard, with which we are required to operate. A copy of this document has been provided in Appendix B alongside the Glencore risk assessment standard methodology.

BRM requests that the aspect register not be included as an incorporated condition within Table S1.2 of the environmental permit, which would necessitate Environment Agency approval for every minor update, irrespective of whether it is relevant to the permitted activities.

Having reviewed the aspects register, it was found that the register already accurately describes air emissions from the process as it identifies lead and metal oxides, from the relevant emission sources. It also identifies particulate, and these risks are appropriately graded for significance using the Glencore risk framework.

In response to your query we have made further minor amendments to include the Waste Acceptance Procedure as a relevant control measure and recognise dioxins & furans as a potential emission from the rotary stacks, as well as broadening the “Receiving Waste” aspects.

For assessment of significance in accordance with regulatory guidance, refer to the response to Question 8.

2.8 Question 8

Environment Agency requirement

Provide an updated emissions to air risk assessment following the online guidance.

BRM response

An updated risk assessment has been provided in the attached document BRM-2023-08-4 *Emissions to air risk assessment*.

2.9 Question 9

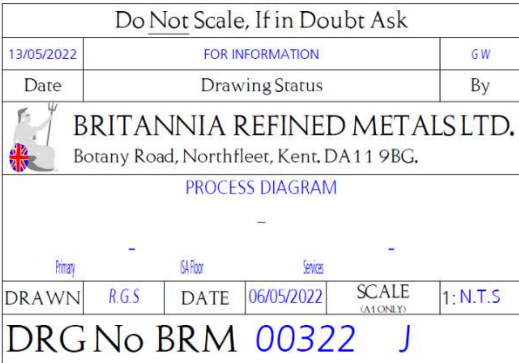
Environment Agency requirement

A full BAT assessment against relevant sections of the Non-Ferrous Metals BREF, BATC and How to Comply guidance. The assessment needs to include (but not limited to) use of the rotary furnace to process the waste types, the emissions capture systems and the emissions abatement systems.

BRM response

A full BAT assessment has been provided in the attached document BRM-2023-08-3 *BAT assessment*.

Appendix A



Appendix B

Register of Environmental Aspects - 2025	Location	Function / area	Operating Conditions	Event, Environmental aspect	Environmental Impact	Relevant Environmental Legislation	(A) Legal or other requirements for controls?	(B) Is there a potential impact on the site or the local area? Yes -> (C) No -> (D)	(C) Is the potential impact significant? Ref; GLENCORE CORPORATE RISK MANAGEMENT FRAMEWORK , V 2.2; https://hsec.glencore.net/environment/Pages/documents.aspx					Risk Management Measures	(D) Significant Indirect Impacts Does the impact relate to consumption of resources, disposal of waste, global pollutants ?	Procedures & Reference documentation	Additional links
									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
ISA 1	ISA Refinery	Refining	Normal	Point source emission of Lead and other metal oxides particulates (Act 2 & 4)	Air pollution - Particulates & Lead and other metal oxides	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	B	M7	Dust abatement system, PCME Probes	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
ISA 2	ISA Refinery	Refining	Normal	Fugitive emissions of Lead and other metal oxides particulates from the refinery building	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	B	M7	Extraction	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
ISA 3	ISA Refinery	Alloying-Varying levels of Silver, Antimony, Sulphur, Selenium, Cadmium, Copper, Sodium, Calcium, Aluminium, Tin.	Normal	Alloying additions <1% of 270 tonne kettle capacity. Point source and fugitive emissions of Lead and other metal oxides particulates (Act 2&4) and into refinery building.	Air pollution - Particulates & Lead and other metal oxides	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	B	M7	Extraction, Dust abatement system, PCME Probes.	N	Isa Refinery Environmental Exposure To Cadmium TARA	

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									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance	Risk Management Measures			
ISA 4	ISA Refinery	Refining	Normal	Creation of fugitive emissions of Lead and other metal oxides particulates with the movement of skips	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Procedures to cover skips, sprinkler systems, road sweeper	N	Refining Operations WI	
ISA 6	ISA Refinery	Split kettles and spillages	Emergency	When kettles split, Lead enters the space under the kettles (setting) and in contact with the burner and combustion gases could create fugitive emissions	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	D	L2	Maintenance Kettle inspections. Early split detection with PCME probes in the flues.	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
ISA 7	ISA Refinery	Kettle setting wrecking	Abnormal	Creation of fugitive emissions- Lead and other metal oxides	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	PCME probes in the flues. Risk Assessment & Task Analysis	N	Isa Kettle Floor Wrecking Refractory Setting SWI	

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									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
ISA 8	ISA Refinery	Kettle and dome repairs	Abnormal	Creation of fugitive emissions- Lead and other metal oxides	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	PCME probes in the flues. TARA	N	General Kettle Repairs WI	
ISA 9	ISA Refinery	ISA Refinery fires	Emergency	Creation of fugitive emissions- Lead and other metal oxides	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010; COMAH	Y	Y	Air	Local Residents / Agriculture	1	D	L2	Procedures to minimise combustible metals, Emergency response guide	N	Risk Assessments for ISA Kettle floor	
SP 1	Silver Plant	Silver Production	Normal	Point source emissions of Lead and other metal oxides particulates to Ag baghouse from Liquation, Vacuum Retort, BBOC & Final cupel	Air pollution - Particulates & Lead and other metal oxides	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Baghouse abatement system, PCME Probes	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
SP 6	Silver Plant	Final Cupel	Normal	Energy use - Carbon emissions from the use of 35sec oil	Air Pollution	Air Quality Standards Regulations 2010, Climate Change Levy Regulations 2006 (as	Y	Y	Air	Local Air Quality	2	A	M16	Maintenance of the burner	Y	Maintenance records	

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									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
						amended), Climate Change Act 2008											
SKF 1	Secondary Kettle Floor	Refining	Normal	Point source emission - (Actair 7)	Air pollution - Particulates & Lead and other metal oxides	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	B	M7	Baghouse abatement system, PCME Probes	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
SKF 2	Secondary Kettle Floor	Refining	Normal	Movement of dross has potential to cause fugitive emissions	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	2	C	M8	Procedures to cover skips, Sprinkler systems, Road sweeper	N	S1 Kettle Rotary Bullion Softening and Ag By-Product WI	
SKF 3	Secondary Kettle Floor	Kettle splits	Emergency	When kettles split, Lead enters the space under the kettles (setting) and in contact with the burner and combustion gases could create	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	D	L2	Maintenance Kettle inspections. Early split detection with PCME probes in the flues.	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	

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									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
				fugitive emissions													
AgR 1	Ag Rotary	Storage of materials in By-products area	Normal	Movement of vehicles in and out of the by-products area can result in fugitive emissions	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Sprinkler systems, road sweeper	N	Breaking and Moving of Ag, Sb and Borax Slag WI	
AgR 3	Ag Rotary	Charging	Normal	Materials charged into rotary using a pod truck results in fugitive emissions within the building	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Extraction to baghouse abatement system, Enclosed building	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
AgR 4	Ag Rotary	Smelting & Tapping	Normal	Exhaust from the operation of the Ag Rotary is emitted through Ag baghouse (London, Middle & Graves) - Point	Air pollution - Particulates & Lead and other metal oxides, dioxin and other pollutants	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Baghouse abatement system, PCME Probes	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI Waste acceptance procedure	

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									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
				source emission													
AgR 5	Ag Rotary	Movement of silver slag (Borax Slag)	Normal	Slag tipped into internal bay, broken and stored internally. Potential for fugitive emissions through movement of material	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Stored undercover	N	Breaking and Moving of Ag, Sb and Borax Slag WI	
SbR 1	Sb Rotary	Charging	Normal	Material is charged to the rotary from the new by-products bay using FEL and Pod truck. Results in materials dropped on the road and fugitive emissions	Air pollution - particulates , Lead and metal oxides.	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Charged material is treated in dust handling plant	N	Sb Rotary furnace Charging WI	

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									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
SbR 2	Sb Rotary	Smelting & Tapping	Normal	Emissions from charging point are extracted through the hygiene baghouse. Exhaust fumes are extracted through the process baghouse - point source emission (Main stack)	Air pollution - Particulates & Lead and other metal oxides, dioxin and other pollutants	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Baghouse abatement system, PCME Probes	N	Sb Rotary Furnace Tapping SWI Waste acceptance procedure	
AC 1	Actairs	Screwing out & Changing Bags	Normal	Potential for fugitive emissions of Lead	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Task Analysis & Risk Assessments	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
AC 2	Actairs	Normal Operation	Normal	Point source emission of Lead and particulates to air	Air pollution - Particulates & Lead and other metal oxides	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	PCME Probes	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	

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									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance	Risk Management Measures			
AC 3	Actairs	Maintenance - turning actair off	Abnormal	During maintenance and periodic shutdowns the actairs are turned off. This process can result in fugitive emission on re-starting	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Maintenance Task Analysis & Risk Assessments	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
AC 4	Actairs	Maintenance - changing bags	Abnormal	Bags are removed by dropping within the actair. Process may result in fugitive emissions	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	D	L2	Maintenance Task Analysis & Risk Assessments	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
AC 5	Actairs	Bag failure	Emergency	A failure of the bags may result in increased emissions through the stack	Air pollution - Particulates & Lead and other metal oxides	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	D	L2	PCME Probes	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
AC 6	Actairs	Actair fire	Emergency	Bags may catch on fire	Air pollution - Particulates of Lead and other metal oxides. Pollution to	Environmental Permit	Y	Y	Air	Local Residents / Agriculture	2	D	L5	Spark arrestors, low operating temperatures, distance from	Y	Emergency Response Guide	

Register of Environmental Aspects - 2025	Location	Function / area	Operating Conditions	Event, Environmental aspect	Environmental Impact	Relevant Environmental Legislation	(A) Legal or other requirements for controls?	(B) Is there a potential impact on the site or the local area? Yes -> (C) No -> (D)	(C) Is the potential impact significant? Ref; GLENCORE CORPORATE RISK MANAGEMENT FRAMEWORK , V 2.2; https://hsec.glencore.net/environment/Pages/documents.aspx					Risk Management Measures	(D) Significant Indirect Impacts Does the impact relate to consumption of resources, disposal of waste, global pollutants ?	Procedures & Reference documentation	Additional links
									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
					water - firefighting water						1	C	L4	process to actair			
PHB 1	Process & Hygiene Baghouse (Sb Rotary)	Normal Operation	Normal	Point source emission of Lead and particulates to air	Air pollution - Particulates & Lead and other metal oxides, dioxin and other pollutants	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Baghouse abatement system, PCME Probes	N	Inspection & Response to PCME Dust Monitor Alarm WI Waste acceptance procedure	
PHB 2	Process & Hygiene Baghouse (Sb Rotary)	Changing bags	Normal	Bags are sealed and stored in rotary charge bags. The bags are charged straight to the rotary via the charge pod. Potential for fugitive emissions if bags split during movement	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Task Analysis & Risk Assessments	N	Sb Rotary Furnace Changing Fume Bags SWI	

Register of Environmental Aspects - 2025	Location	Function / area	Operating Conditions	Event, Environmental aspect	Environmental Impact	Relevant Environmental Legislation	(A) Legal or other requirements for controls?	(B) Is there a potential impact on the site or the local area? Yes -> (C) No -> (D)	(C) Is the potential impact significant? Ref; GLENCORE CORPORATE RISK MANAGEMENT FRAMEWORK , V 2.2; https://hsec.glencore.net/environment/Pages/documents.aspx						(D) Significant Indirect Impacts Does the impact relate to consumption of resources, disposal of waste, global pollutants ?	Procedures & Reference documentation	Additional links
									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance	Risk Management Measures			
PHB 3	Process & Hygiene Baghouse (Sb Rotary)	Changing filter bags	Abnormal	Bags are removed by dropping - may result in increased emission through the point source (Main stack)	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Task Analysis & Risk Assessments	N	Sb Hygiene Baghouse Changing Filter Bags WI	
PHB 4	Process & Hygiene Baghouse (Sb Rotary)	Bag failure	Emergency	A bag failure would result in increased emissions through the stack	Air pollution - Particulates & Lead and other metal oxides	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	PCME Probes	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
PHB 5	Process & Hygiene Baghouse (Sb Rotary)	Baghouse fire	Emergency	Bags may catch fire if spark arrestors fail	Air pollution - Particulates of Lead and other metal oxides. Pollution to water - firefighting water	Environmental Permit	Y	Y	Air	Local Residents / Agriculture	3	E	M6	Temp. sensors, spark arrestors, panic dampers	Y	Emergency Response Guide	
PHB 6	Ag Baghouse	Normal Operation	Normal	Point source emission of Lead and particulates to air	Air pollution - Particulates & Lead and other metal oxides	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Baghouse abatement system, PCME Probes	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	

Register of Environmental Aspects - 2025	Location	Function / area	Operating Conditions	Event, Environmental aspect	Environmental Impact	Relevant Environmental Legislation	(A) Legal or other requirements for controls?	(B) Is there a potential impact on the site or the local area? Yes -> (C) No -> (D)	(C) Is the potential impact significant? Ref; GLENCORE CORPORATE RISK MANAGEMENT FRAMEWORK , V 2.2; https://hsec.glencore.net/environment/Pages/documents.aspx					Risk Management Measures	(D) Significant Indirect Impacts Does the impact relate to consumption of resources, disposal of waste, global pollutants ?	Procedures & Reference documentation	Additional links
									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
PHB 7	Ag Baghouse	Changing filter bags	Abnormal	Bags are removed by dropping - may result in increased emission through the point source	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	D	L2	Task Analysis & Risk Assessments	N	Ag Plant Baghouse Filter Change WI	
PHB 8	Ag Baghouse	Bag failure	Emergency	A bag failure would result in increased emissions through the stack	Air pollution - Particulates & Lead and other metal oxides	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	D	L2	PCME Probes	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
PHB 9	Ag Baghouse	Baghouse fire	Emergency	Bags may catch fire if spark arrestors fail	Air pollution - Particulates of Lead and other metal oxides. Pollution to water - firefighting water	Environmental Permit	Y	Y	Air	Local Residents / Agriculture	3	E	M6	Temp sensors, spark arrestors, panic dampers	Y	Emergency Response Guide	
MA 1	Maintenance Activities	Kettle Cutting - Kettles are transported to area behind the dust plant. Kettles are cleaned, turned	Abnormal	Cutting process may result in fugitive emissions	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Agriculture	1	D	L2	Extraction, Risk Assessment & Task Analysis	N	Relevant TARA/SWI	

Register of Environmental Aspects - 2025	Location	Function / area	Operating Conditions	Event, Environmental aspect	Environmental Impact	Relevant Environmental Legislation	(A) Legal or other requirements for controls?	(B) Is there a potential impact on the site or the local area? Yes -> (C) No -> (D)	(C) Is the potential impact significant? Ref; GLENCORE CORPORATE RISK MANAGEMENT FRAMEWORK , V 2.2; https://hsec.glencore.net/environment/Pages/documents.aspx					Risk Management Measures	(D) Significant Indirect Impacts Does the impact relate to consumption of resources, disposal of waste, global pollutants ?	Procedures & Reference documentation	Additional links
									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
		upside down and cut in stages															
MA 2	Maintenance Activities	Tong Work - Tongs are cleaned prior to removal and welded/repai red outside the maintenance workshop	Abnormal	Welding process may result in creation of fugitive emissions	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Agriculture	1	C	L4	Extraction / cleaning material	N	Relevant TARA/SWI	
MA 3	Maintenance Activities	Welding - Repairs across site	Normal	May result in fugitive emissions	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Agriculture	1	C	L4	Extraction / Clean surfaces	N	Relevant TARA/SWI	
DP 5	Dust Plant	Movement of material	Normal	Movement of treated caustic and dry skim. Potential for material to be dropped and creation of fugitive emissions	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	B	M7	Treated material and transported in covered skips, road sweeper	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	

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									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
DP 6	Dust Plant	Treatment of fume	Normal	Point source emissions of particulates and Lead (Torit)	Emissions to air	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Baghouse filter system fitted with a PCME probe and alarmed	N	Inspection & Response to PCME Dust Monitor Alarm and Freeze Up WI	
WTP 1	Water Wedges	Movement of solids	Normal	Wedge material is moved by front end loader into BP shed. Fugitive emissions caused by vehicle movement	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	D	L2	Wedge material has 30% water content, road sweeper	N	BRM Monitoring Manual	
BRC 1	Battery Recycling Plant	Demolition of redundant equipment / buildings	Abnormal	Potential for fugitive Lead and other metal oxides emissions to air	Increase boundary Lead in air	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	To be assessed under risk assessment	N	BRM Monitoring Manual	
S 2	Metal Store	Storage of metals	Emergency	Metal fire (i.e. Na)	Emissions to air	Environmental Permit	Y	Y	Air	Local Residents / Agriculture	1	E	L1	Metals stored separately in drums	N	Metal Stores Procedure	
SW 1	Site Wide	Cooling Towers	Normal	Regulatory reporting to report use of cooling towers	Risk of legionnaire's disease	The Notification of Cooling Towers & Evaporation Condensers	Y	Y	Air	Workers	3	D	M9	Monitoring	N	Water Treatment and Monitoring - Legionella TARA	

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									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
						Regulations 1992											
SW 3	Site Wide	Asbestos	Abnormal	Disposal of asbestos	Waste disposal	Hazardous Waste Regulations 2005, Control of Asbestos at Work Regulations 2012	Y	Y	Air	Employees	3	D	M9	Regular maintenance , Spill kits, training	Y	Asbestos Procedure	
SW 5	Site Wide	Air conditioning units	Abnormal	Potential for leaking refrigerant (CFCs, HcFCs)	Ozone depletion	Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011	Y	N	Air	Climate change	2	D	L5	Use of specialised contractors	N		
SW 6	Site Wide	Air conditioning units containing ODS	Abnormal	Disposal of refrigerant (CFCs, HCFCs)	Waste disposal	Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011	Y	N	Air	Climate change	2	E	L3	Use of specialised contractors	Y	Waste Management Procedure	

Register of Environmental Aspects - 2025	Location	Function / area	Operating Conditions	Event, Environmental aspect	Environmental Impact	Relevant Environmental Legislation	(A) Legal or other requirements for controls?	(B) Is there a potential impact on the site or the local area? Yes -> (C) No -> (D)	(C) Is the potential impact significant? Ref; GLENCORE CORPORATE RISK MANAGEMENT FRAMEWORK , V 2.2; https://hsec.glencore.net/environment/Pages/documents.aspx					Risk Management Measures	(D) Significant Indirect Impacts Does the impact relate to consumption of resources, disposal of waste, global pollutants ?	Procedures & Reference documentation	Additional links
									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
SW 9	Site Wide	Daily operation of equipment and vehicles	Normal	Noise	Nuisance	Noise & Statutory Nuisance Act 1993, Environmental permit	Y	N	Air	Local Residents / employees	2	C	M8	Contractor work rules, Hearing protections	N	Contractor work rules	
RW 1	Receiving waste in bulk	Unloading material in by-products shed	Normal	Fugitive emissions of dust created by tipping the material if it arrives in bulk.	Air pollution - Particulates & Lead and other metal oxides	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Sprinkler system & road sweeper	N	Emissions Management Procedure	
RW 3	Storing waste in bulk stockpiles	Storage of materials in by-products area	Normal	Movement of vehicles in and out of the by-products area can result in fugitive emissions	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Sprinkler system & road sweeper	N	Emissions Management Procedure	
RW 6	Receiving waste in packaging s	Unloading material in storage sheds	Normal	Fugitive emission risk while unloading	Air pollution - Particulates & Lead and other metal oxides	Environmental Permit	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Material containment within 45 gl barrels, Sprinkler system & road sweeper	N	Emissions Management Procedure	
RW 8	Storing waste in packaging (drums, bags etc.)	Storage of materials in storage area	Normal	Fugitive emission risk within the storage area	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	D	L2	Material containment within 45 gl barrels, Sprinkler system &	N	Emissions Management Procedure	

Register of Environmental Aspects - 2025	Location	Function / area	Operating Conditions	Event, Environmental aspect	Environmental Impact	Relevant Environmental Legislation	(A) Legal or other requirements for controls?	(B) Is there a potential impact on the site or the local area? Yes -> (C) No -> (D)	(C) Is the potential impact significant? Ref; GLENCORE CORPORATE RISK MANAGEMENT FRAMEWORK , V 2.2; https://hsec.glencore.net/environment/Pages/documents.aspx					Risk Management Measures	(D) Significant Indirect Impacts Does the impact relate to consumption of resources, disposal of waste, global pollutants ?	Procedures & Reference documentation	Additional links
									Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance				
														road sweeper; nearby surface water drains are diverted to the CX plant			
RW 11	Loading of waste into Sb rotary furnace	Loading material into the Sb rotary	Normal	Fugitive emissions of dust created by tipping the material	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Material containment within 45 gl barrels, Sprinkler system & road sweeper; nearby surface water drains are diverted to the CX plant	N	Emissions Management Procedure	
BRP 2	Battery Recycling Plant	Crushing of Sb discard slag	Normal	Point source emission of Lead and particulates to air	Emissions to air	Air quality standards regulations 2010	Y	Y	Air	Local Residents / Marsh Land	1	C	L4	Waste Pre-acceptance procedure and Sprinkler system, road sweeper	N	Breaking and Moving of Ag. Sb and Borax Slag WI	
SW 22	Site Wide	Dry weather period	Abnormal	Elevated level of dust	Air pollution - Particulates & Lead and other metal oxides	Air Quality Standards Regulations 2010	Y	Y	Air	Permitted area	1	B	M7	Salt spreaders and salt stored on site	N		

Register of Environmental Aspects - 2025	Aspect Reference code	Location	Function / area	Operating Conditions	Event, Environmental aspect	Environmental Impact	Relevant Environmental Legislation	(A) Legal or other requirements for controls?	(B) Is there a potential impact on the site or the local area? Yes -> (C) No -> (D)	(C) Is the potential impact significant? Ref; GLENCORE CORPORATE RISK MANAGEMENT FRAMEWORK , V 2.2; https://hsec.glencore.net/environment/Pages/documents.aspx					(D) Significant Indirect Impacts Does the impact relate to consumption of resources, disposal of waste, global pollutants ?	Procedures & Reference documentation	Additional links
										Pathway	Receptor – i.e. what or who may be affected if the impact occurred	Consequence	Likelihood	Overall Significance	Risk Management Measures		
CP1		Site wide	Demolition of redundant equipment / buildings	Closure	Fugitive dust emissions during demolition	Air pollution Visual pollution Pollution of soil or neighbouring SSSI Breach of regulatory limits	Environmental Permitting Regulations Environmental Permit Air Quality standard Regulations	Y	Y	Air	Local Residents / Marsh Land	3	D	M9	Compliance with CDM Regulations Appointment of appropriate contractors Contractor Selection process and screening Demolition plan Water sprays to minimise dust	U:\Health and Safety\1. H&S 2021-2022\2. Monitoring & Auditing\10. CDM Client Inspections	U:\Health and Safety\1. H&S 2021-2022\2. Monitoring & Auditing\2. Glencore Audits\2024\Hatch audit October 2024\Evidence\2. Hatch Audit - E-Scrap\CDM 2015

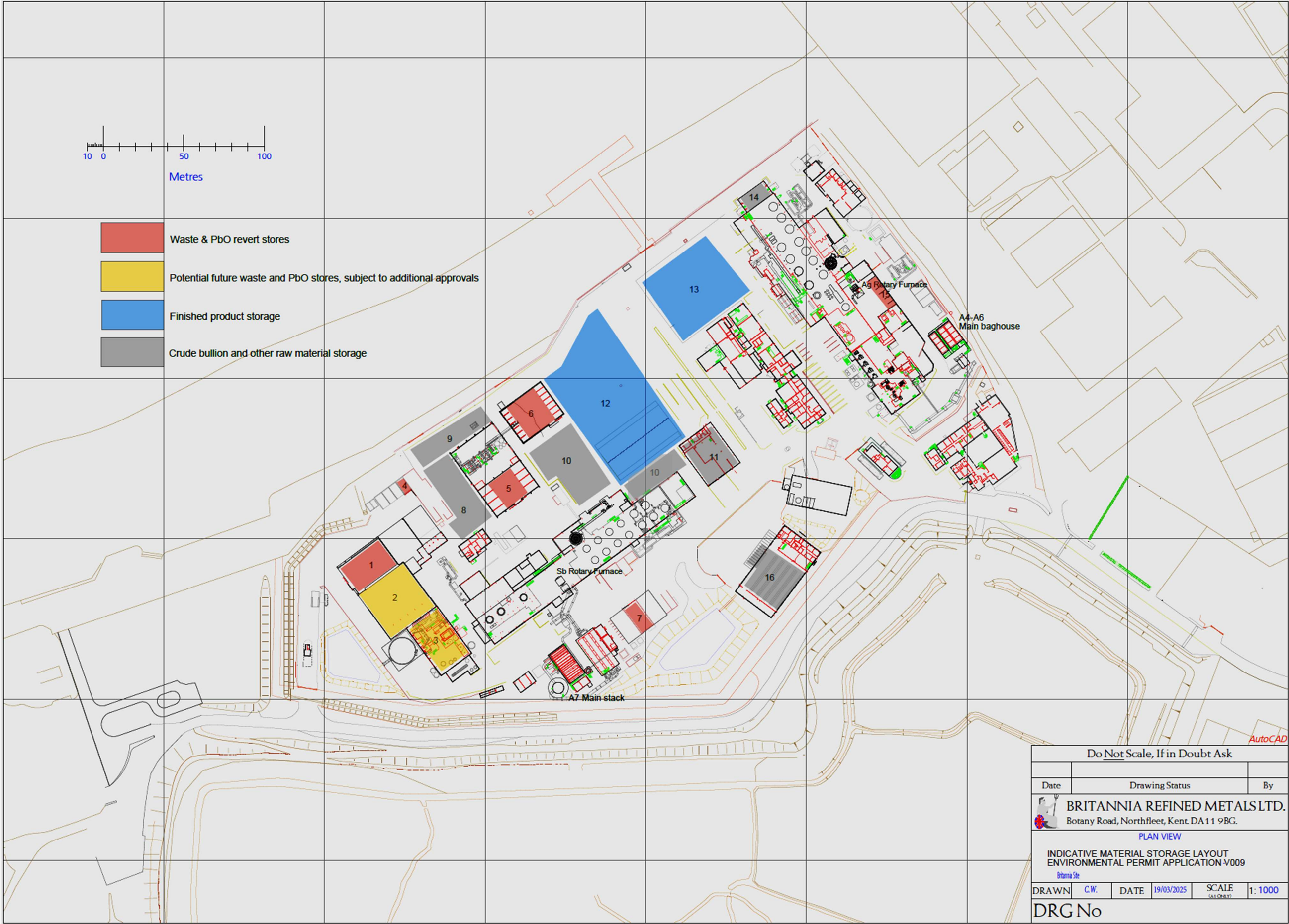
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GLENCORE CORPORATE RISK MATRIX

CONSEQUENCE [potential foreseeable outcome of the event]						LIKELIHOOD [of the event occurring with that consequence]					
	Health & Safety	Environment	Financial Impact	Image & Reputation / Community	Legal & Compliance	Basis of Rating	E - Rare	D - Unlikely	C - Possible	B - Likely	A – Almost Certain
5 Catastrophic	<ul style="list-style-type: none"> Multiple fatalities (5 or more fatalities in a single incident) Multiple cases (5 or more) of Permanent Damage Injuries or Diseases that result in permanent disabilities in a single incident 	<ul style="list-style-type: none"> Unconfined and widespread environmental damage or effect (permanent; >10 years) Requires major remediation 	<ul style="list-style-type: none"> >\$500M operating profit >\$200M property damage 	<ul style="list-style-type: none"> Loss of multiple major customers or large proportion of sales contracts Sustained campaign by one or more international NGOs resulting in physical impact on the assets or loss of ability to operate Security incident resulting in multiple fatalities or major equipment damage Formal expression of significant dissatisfaction by government Grievance from internal or external stakeholder alleging human rights violation resulting in multiple fatalities 	<ul style="list-style-type: none"> Major litigation / prosecution at Glencore corporate level Nationalisation / loss of licence to operate 	LIFETIME OR PROJECT OR TRIAL OR FIXED TIME PERIOD OR NEW PROCESS / PLANT / R&D	Unlikely to occur during a lifetime OR Very unlikely to occur OR No known occurrences in broader worldwide industry	Could occur about once during a lifetime OR More likely NOT to occur than to occur OR Has occurred at least once in broader worldwide industry	Could occur more than once during a lifetime OR As likely to occur as not to occur OR Has occurred at least once in the mining / commodities trading industries	May occur about once per year OR More likely to occur than not occur OR Has occurred at least once within Glencore	May occur several times per year OR Expected to occur OR Has occurred several times within Glencore
4 Major	<ul style="list-style-type: none"> Single Incident resulting in: Less than 5 Fatalities Permanent Damage Injury or Disease that results in a permanent disability- less than 5 cases in a single incident 	<ul style="list-style-type: none"> Long-term (2 to 10 years) impact Requires significant remediation 	<ul style="list-style-type: none"> \$100-500M operating profit \$50-200M property damage 	<ul style="list-style-type: none"> Security/ stakeholder incident resulting in single loss of life or equipment damage Grievance from internal or external stakeholder alleging human rights violation resulting in single fatality or serious injuries Topic of broad societal concern and criticism Negative media coverage at international level resulting in a Corporate statement within 24 hours Investigation from government and/ or international (or high-profile) NGOs Complaints from multiple "final" customers Loss of major customer Negative impact on share price 	<ul style="list-style-type: none"> Major litigation / prosecution at Department level 		15 (M)	19 (H)	22 (H)	24 (H)	25 (H)
3 Moderate	<ul style="list-style-type: none"> Lost Time Injury (LTI) Lost Time Disease (LTD) Permanent Disabling Injury (PDI) Permanent Disabling Disease (PDD) Single incident that results in multiple medical treatments 	<ul style="list-style-type: none"> Medium-term (<2 years) impact (typically within a year) Requires moderate remediation 	<ul style="list-style-type: none"> \$50-100M operating profit \$5-50M property damage 	<ul style="list-style-type: none"> Negative media coverage at national level over more than one day Complaint from a "final" customer Off-spec product Local Stakeholder action resulting in national societal scrutiny 	<ul style="list-style-type: none"> Major litigation / prosecution at Operation level 		10 (M)	14 (M)	18 (H)	21 (H)	23 (H)
2 Minor	<ul style="list-style-type: none"> Medical Treatment Injury (MTI) Medical Treatment Disease (MTD) Restricted Work Injury (RWI) Restricted Work Disease (RWD) 	<ul style="list-style-type: none"> Near source Short-term impact (typically <week) Requires minor remediation 	<ul style="list-style-type: none"> \$5-50M operating profit \$1-5M property damage 	<ul style="list-style-type: none"> Negative local/ regional media coverage Complaint received from an internal or external stakeholder 	<ul style="list-style-type: none"> Regulation breaches resulting in fine or litigation 		6 (L)	9 (M)	13 (M)	17 (H)	20 (H)
1 Negligible	<ul style="list-style-type: none"> First Aid Injury (FAI) or illness (not considered disease or disorder) 	<ul style="list-style-type: none"> Near source and confined No lasting environmental damage or effect (typically <day) Requires minor or no remediation 	<ul style="list-style-type: none"> <\$5M operating profit <\$1M property damage 	<ul style="list-style-type: none"> Negligible media interest 	<ul style="list-style-type: none"> Regulation breaches without fine or litigation 		3 (L)	5 (L)	8 (M)	12 (M)	16 (M)
							1 (L)	2 (L)	4 (L)	7 (M)	11 (M)

Consequence Category	Consequence Type	Ownership	Action
Cat. 5	Catastrophic Hazard	Department / Functional / Operational / Asset Leadership	<ul style="list-style-type: none"> Quantitative or semi-quantitative risk assessment required. Capital expenditure will be justified to achieve ALARP ('As Low As Reasonably Practicable'). Catastrophic Hazard Management Plans (CHMP) must be implemented where practical, Crisis Management Plans (CMP) tested and Catastrophic Event Recovery Plans (CERP) developed.
Cat. 4 (Health & Safety consequence)	Fatal Hazard	Department / Functional / Operational / Asset Leadership	<ul style="list-style-type: none"> Glencore SafeWork Fatal Hazard Protocols or appropriate management plans must be applied. Capital expenditure will be justified to achieve ALARP.
Risk Rank	Risk Rating	Ownership	Action
17 to 25	High Risk	Department / Functional / Operational / Asset Leadership	<ul style="list-style-type: none"> Install additional HARD and SOFT controls to achieve ALARP. Capital expenditure will be justified to achieve ALARP.
7 to 16	Medium Risk	Operational / Asset Leadership	<ul style="list-style-type: none"> Install additional HARD and SOFT controls if necessary to achieve ALARP. Capital expenditure may be justified.
1 to 6	Low Risk	Operational / Asset Leadership	<ul style="list-style-type: none"> Install additional controls if necessary to achieve ALARP. Capital expenditure is not usually justified.

Appendix C



Location reference	Location description	Material storage	Area dimensions	Storage methods
1	Historic covered battery storage area (North)	PbO reverts Imported lead wastes	25 x 35 metres	Packaged
2	Historic covered battery storage area (South)	PbO reverts Imported lead wastes (Potential storage location subject to COMAH approvals)	35 x 38 metres	Packaged
3	Historic CX plant	PbO reverts Imported lead wastes (Potential storage location subject to COMAH approvals)	35 x 25 metres	Packaged
4	Slag storage bay	PbO reverts	6 x 10 metres	Bulk
5	Secondary Byproducts Building	PbO reverts Imported lead wastes	19 x 35 metres	Packaged Bulk
6	Primary Byproducts Building	PbO reverts Imported lead wastes	26 x 35 metres	Packaged Bulk
7	Sb Rotary Slag Bay	PbO waste arising at the installation	10 x 20 metres	Bulk
8	North of secondary offices	Crude bullion		
9	North of dust plant	Crude bullion		
10	West of covered bullion store	Crude bullion		
11	Metal Stores	Metallic raw material (non-waste)		
12	Covered bullion store and east of Primary Byproducts building	Finished product		
13	Covered lead store	Finished product		
14	ISA premelt kettle stocking area	Crude bullion		
15	Ag Rotary internal storage bays	PbO reverts Imported lead wastes	26 x 5 metres	Packaged Bulk
16	Main stores	Non-metallic raw materials, including chemicals Packaged metallic raw materials		

Appendix D

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PLAN

1. INTRODUCTION

When purchasing secondary raw materials for processing into lead alloys through its rotary furnaces and lead refinery, BRM may purchase material that is considered to be controlled waste.

The company's environmental permit for this activity limits the types of materials that can be accepted, and the Environment Agency requires that these be managed in accordance with appropriate measures. Appropriate measures are defined in various guidance documents, including Sector Guidance Note 5.06 on the recovery and disposal of hazardous and non-hazardous waste.

2. SCOPE, PURPOSE & INTENT

This procedure describes the method by which wastes must be checked to assess suitability for the lead refining process. It does not include the waste accepted at the eScrap facility, which is authorised separately and managed in accordance with its own procedure.

It applies from the receipt of an initial enquiry, through the "pre-acceptance" stage, and onto acceptance of the waste onto site and its subsequent placing into storage.

This procedure does not apply to reverts generated within the BRM lead refinery installation.

Nor does it apply to secondary raw materials from third-party sources that are not controlled waste.

3. DEFINITIONS

EWC	European Waste Catalogue (code)
POPs	Persistent Organic Pollutants
SGN	Sector guidance note
TFS / IWS	Transfrontier Shipment of Waste / International Waste Shipment
TPH	Total petroleum hydrocarbons
URN	Unique reference number

4. ROLES AND RESPONSIBILITIES

Role	Responsibilities
Company Director	<ul style="list-style-type: none"> Ensure overall compliance within the organisation
HSEC Director	<ul style="list-style-type: none"> Ensure that this procedure remains up to date Oversee management system operation
Energy and Environment Advisor	<ul style="list-style-type: none"> Retain waste documentation

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THIS DOCUMENT IS UNCONTROLLED UNLESS VIEWED ON THE INTRANET			

	<ul style="list-style-type: none"> • Undertake internal audits and inspections relating to this procedure • Provide guidance and co-ordinate liaison with regulatory authorities • Sampling of waste
Laboratory personnel	<ul style="list-style-type: none"> • Undertake required testing and facilitate off-site testing of non-metallics • Sampling of waste
Operational personnel	<ul style="list-style-type: none"> • To supervise the safe unloading of wastes into the correct locations • Undertake emergency response actions as required • Sampling of waste

5. RESOURCE

- Suitable analytical equipment
- External laboratory provider
- Emergency packaging for damaged waste containers
- Spill response training for relevant operational staff

Do

6. COMPETENCY AND TRAINING

Persons undertaking laboratory analysis shall be competent for the testing they undertake. External laboratories shall have appropriate UKAS accreditation for waste characterisation tests.

Staff undertaking sampling duties shall be trained in the requirements of SGN 5.06.

7. REQUIREMENTS / PROCESS / STEPS

7.1. PRE-ACCEPTANCE PROCEDURE

It is important to avoid signing contractual agreements with suppliers until the pre-acceptance procedure has been completed and the suitability of the waste has been confirmed.

Once a potential secondary raw material stream has been identified, BRM shall require completion of a Pre-acceptance Form. This will require the producer or supplier of the material to provide the following information:

- the nature of the process producing the waste, including the variability of this process
- the composition of the waste (chemicals present and individual concentrations), and whether it is a solid, powder or sludge.
- The quantity of waste expected

- Any special handling requirements (through the UN number)
- Relevant waste code under the Basel Convention (for international shipments of waste)
- European Waste Catalogue code and UK List of Waste code (if they are different).
- Any hazardous properties associated with the waste (HP1-HP15 and POPs)

A sample or samples of waste must be submitted to BRM for testing. This will include assaying for metals composition, but also identification of any non-metallic contaminants affixed to the waste. A percentage of non-metallic contaminant must be calculated and recorded; if feasible samples of the non-metallic contaminant should be taken and analysed for composition at a waste testing laboratory.

The results of assaying and any further testing should be evaluated against the Pre-Acceptance Form received for the waste. Any discrepancies should be noted.

For heterogenous waste streams, it is likely that multiple samples may be required to give confidence in the characteristics of the material. If there is suspicion about the samples, BRM or sister company representatives should undertake the sampling and/or a visual assessment to ensure confidence that the material is as described. The number of samples required will vary depending on the nature of the material, but for packaged waste the number of samples will exceed $\sqrt{n+1}$ where n is the number of containers to be accepted.

It may be prudent to carry out initial metallurgical screens on a small number of samples first in order to determine whether the material is suitable for processing, before initiating the more expensive and wider suite of tests required for waste acceptance purposes.

Non-waste claims

If the material is being sold as a non-waste product, justification must be provided. Under English waste regulations, lead scrap is generally only non-waste if it has been processed to a standard where it is essentially equivalent to virgin lead bullion in the way it is handled and the risks that it poses. Material containing contaminants is likely to be waste, as this can change the emissions from BRM's process. Evidence should be sought to back up any claims that the material is not waste in accordance with the Environment Agency's published "End of Waste" guidance.

Assuming the material is waste, it is likely that any material imported from overseas will be subject to an application to import the waste. The rules regarding the import and export of waste apply.

Pre-acceptance process

- Receive Pre-acceptance Form from supplier
- Determine whether the waste conforms to the authorised List of Waste codes acceptable at the site, listed below:

10	WASTES FROM THERMAL PROCESSES
10 04	wastes from lead thermal metallurgy
10 04 02*	dross and skimmings from primary and secondary production
10 04 04*	flue-gas dust
10 04 05*	other particulates and dust
10 05	wastes from zinc thermal metallurgy
10 05 01	slags from primary and secondary production

10 05 03*	flue-gas dust
10 05 04	other particulates and dust
12	WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS
12 01	wastes from shaping and physical and mechanical surface treatment of metals and plastics
12 01 03	non-ferrous metal filings and turnings
12 01 04	non-ferrous metal dust and particles
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)
17 04	metals (including their alloys)
17 04 03	lead
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE
19 10	wastes from shredding of metal-containing wastes
19 10 02	lead and non-ferrous alloys and mixtures containing lead
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 03	lead, silver and non-ferrous alloys containing lead or silver
19 12 11*	lead-bearing residues and products from mechanical treatment of waste
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01	Separately collected fractions
20 01 40	lead and silver

- Assign unique reference number and record waste in a raw materials inventory
- Record the material's physical appearance, including photographs of the samples
- Undertake any necessary testing, including any necessary external testing
- Assess the metal analysis results against the following waste acceptance criteria:

Component (as metal)	Minimum/maximum	Percentage (dry wt)
Lead	Min	>50%
Silver	No max/min	
Antimony	Max	25%
Tin	Max	25%
Manganese	Max	15%
Zinc	Max	10%
Copper	Max	5%
Sulphur	Max	4%
Nickel	Max	1%
Cadmium	Max	1%

Component (as metal)	Minimum/maximum	Percentage (dry wt)
Arsenic	Max	1%
Bismuth	Max	0.09%
Mercury	Max	Trace

- BRM's metallurgists should determine the presence of non-metallic contaminants through visual inspection or through a check for ash content during the ICP preparation, which could indicate carbon. Moisture content should also be calculated and recorded.
- If non-metallic components are present that require off-site testing, these should be separated from the metal waste and screened for general organics (solvents, TPH etc), Persistent Organic Pollutants (POPs) and halogen compounds which could give rise to dioxins in the furnace stack emissions. Any contaminant material containing halogenated compounds >1% w/w must first be incinerated at temperatures exceeding 1100°C in one of the rotary furnaces and are not suitable for direct melting.
- Any contaminant material containing POPs in excess of the concentrations listed in the table below must also be first treated in a rotary furnace with a temperature exceeding 1100°C.

POP	Threshold requiring high temperature incineration
Aldrin	50 mg/kg
Alkanes C10 – C13, chloro (short-chain chlorinated paraffins) (SCCPs)	10,000 mg/kg
Chlordane	50 mg/kg
Dieldrin	50 mg/kg
Endosulfan	50 mg/kg
Endrin	50 mg/kg
Heptachlor	50 mg/kg
Hexabromobiphenyl	50 mg/kg
Hexachlorobutadiene	100 mg/kg
Hexabromocyclododecane	1,000 mg/kg
Hexachlorobenzene	50 mg/kg
Mirex	50 mg/kg
Toxaphene	50 mg/kg
Polychlorinated Biphenyls (PCBs)	0 PCBs are not authorised in wastes submitted metal recovery processes
Polychlorinated naphthalenes	10 mg/kg
DDT (1,1,1-trichloro-2,2-bis (4-chlorophenyl) ethane)	50 mg/kg
Chlordecone	50 mg/kg
Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs)	15 µg (micrograms)/kg, meaning 0.000015g of PCDD or PCDF per kg of waste (you need to use the toxic equivalency factor of each PCDD or PCDF to calculate concentration)
Hexachlorocyclohexanes, including lindane	50 mg/kg

POP	Threshold requiring high temperature incineration
Total of tetra-, penta-, hexa-, hepta- and deca- bromodiphenyl ether	Sum of concentrations: 1,000 mg/kg
Perfluorooctane sulfonic acid (PFOS) and PFOS derivatives	50 mg/kg
Pentachlorobenzene	50 mg/kg

- Determine any special storage or handling requirements, such as suitable packagings or segregation requirements, or the need to offload dusty material in controlled areas.
- Ensure sufficient capacity exists in designated storage areas, particularly for PbO wastes that require flood protection.
- Record the following information against the URN in the raw material inventory
 - Any necessary checks to be made upon delivery to site
 - Storage requirements
 - Treatment/processing route(s)
 - Subsequent check sampling frequencies
- Retain all records for as long as the waste is accepted, plus an additional three years.

7.2.WASTE ACCEPTANCE

- All waste deliveries must be pre-arranged. Unsolicited deliveries of waste will be rejected.
- Vehicles arriving at site should wait in the lorry marshalling area as per the company's traffic management procedures.
- Once authorised to enter site, all waste vehicles will be weighed on the site weighbridge, where any relevant documentation will be checked. Part E of the Hazardous Waste consignment note, or Box 13 of the Annex VII international waste shipment form, will be signed at the weighbridge.
- Copies of signed documentation will be passed to the HSEC department for retention.
- The vehicle will then be sent to the appropriate area in which to offload. Offloading must be supervised by a BRM team member familiar with the waste acceptance process. This location to which the waste will be offloaded will have been considered at the pre-acceptance stage and noted on the waste's record, but is subject to confirmation when more details are known, such as:
 - type and size of the delivery vehicle
 - whether the waste is packaged or in bulk
 - wastes already present on site.

Materials shall be delivered to site in UN-approved packaging, unless they are delivered in bulk. Bulk materials will be delivered on sheeted or enclosed vehicles into enclosed reception bays or buildings equipped with suitable dust suppression which will operate during the tipping process.

The final decision will be made with the intention of minimising the need to handle of the material to avoid unnecessary dust creation. Bulk waste delivered will always be stored indoors to prevent contaminated run-off from entering the site drainage system

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and to ensure that it remains suitably dry for processing. Wastes packaged in waterproof containers may be stored outdoors for short periods pending processing. Damaged packagings must be offloaded to comply with ADR requirements, but these must be stored indoors and provided with additional containment such as salvage packagings (e.g. overdrums) or bunds.

- Once the lorry is inside the covered storage area, the material will be tipped or offloaded into the designated bay. The waste will be visually inspected for conformity with the expected material specification.
- Unloading of the waste material will be done with any roller shutter doors closed and the dust suppression water sprays outside the building activated. In addition, the onsite sweeper truck will be available to wash any local access roads if material is spilled or tracked out of the building.
- Bays will be clearly labelled so the waste material cannot be confused with any of the onsite by-products. Containers will also be suitably labelled. Labels bearing the BRM URN and waste acceptance date must be applied to each container. Packages bearing ADR markings such as the diamond transport label shall have these left on.
- Once unloading is complete, the vehicle will be washed on the site wheelwasher to remove any dust that may have adhered to the wheels or body of the lorry before it is allowed to leave the site.

7.3.SAMPLING AND TESTING

- Once characterised in the initial pre-acceptance stage, BRM must continue to ensure that the waste arriving at the site conforms with the expected specification
- Samples will be taken for verification of content at the on-site metallurgical laboratory. These must be taken within five days. For a bulk load at least two check samples should be taken.
- Where waste streams have been received for a suitable period and demonstrated to be consistent with pre-acceptance information and other key indicators, the frequency of waste acceptance sampling may be reduced, particularly where these arise within the Glencore group.
- On-site testing will consist of metallurgical testing only. However, if the samples are visibly different to the samples received at pre-acceptance, or are found to contain a greater amount of organic matter, then this part of the waste should be submitted for external testing prior to processing the material.
- For packaged waste, each package should be sampled; composite samples are acceptable. All packages must be resealed after sampling.
- Records of tests should be retained against the relevant waste URN to enable full traceability.

7.4.REJECTED OR QUARANTINED WASTE

- Any waste that is received which does not conform to the expected load documented on the paperwork should not be unloaded pending discussions with the waste supplier.

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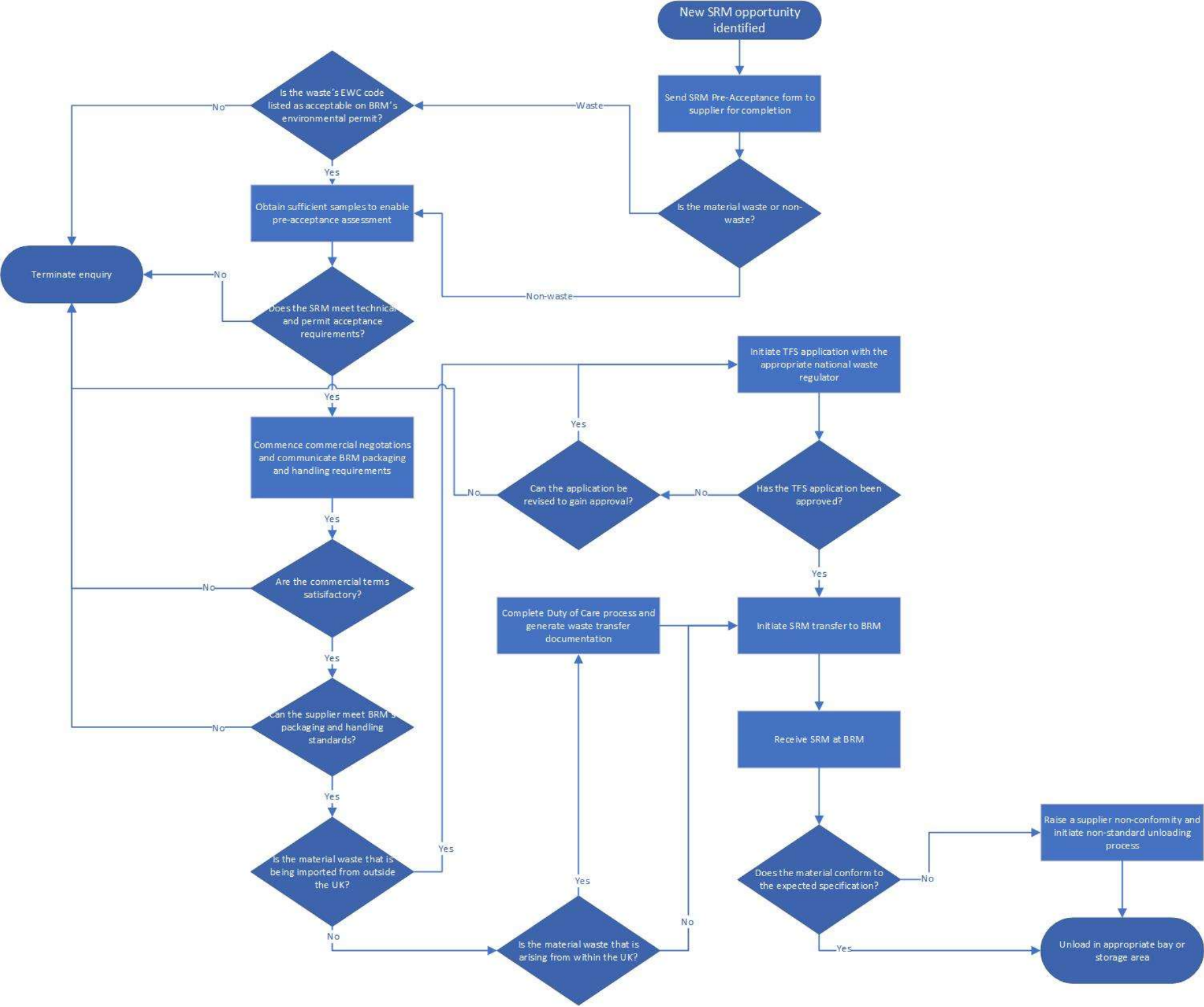
- Unless the waste is fully understood, it should be returned to the supplier unless this is not feasible, for example an international waste shipment. In these cases, the waste must be quarantined in a suitable holding area pending removal from site, ideally within the vehicle.
- Where waste from an international waste shipment cannot be accepted because it is non-conforming, the Environment Agency must be notified and instructions taken in accordance with Regulation 36 of the Transfrontier Shipment of Waste Regulations 2007.
- Where waste accepted on a UK Hazardous Waste (or Special Waste) Consignment Note is accepted but the load or documentation is non-conforming, then the rejection procedures of sections 42-44 of the Hazardous Waste Regulations 2005 must be followed.

7.5.RECORD KEEPING

- All hazardous waste consignment notes and Annex VII forms shall be passed to the HSEC team for retention, for not less than three years
- All incoming wastes shall be reported to the Environment Agency as per the requirements of the site's environmental permit
- A register of raw materials' unique reference numbers (URNs) shall be maintained, with the associated pre-acceptance and acceptance information held for at least three years after the waste has been accepted and processed
- Records of sample analysis shall be retained for at least three years after the waste has been accepted and processed
- All waste accepted onto the site shall be logged against the URN and the site inventory shall be available for inspection at all times
- Deliveries shall be logged so that the date waste is accepted onto site is recorded
- All records relating to the storage of wastes shall be kept in a location remote from plant and storage areas, and be stored on the cloud or another off-site server.

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SUMMARY PROCESS FLOW FOR SECONDARY RAW MATERIAL ACCEPTANCE



8. COMMUNICATION

This procedure shall be communicated to members of the following departments who are involved in:

- Purchasing team members sourcing secondary raw materials
- Laboratory staff undertaking testing and analysis
- Environmental permit supervision (i.e. HSEC)
- Operational staff unloading waste vehicles
- Weighbridge operators

CHECK

9. ASSURANCE

PERFORMANCE MEASURES

Inspections of waste storage areas to monitor compliance.

AUDIT

Annual audit of raw materials inventory and pre-acceptance audit to confirm adequate functioning of the system.

ACT

10. REVIEW

This procedure should be reviewed annually or in the event of non-conformities arising from waste pre-acceptance or acceptance activities.

11. IMPROVEMENT

Not applicable

12. SUPPORTING DOCUMENTATION

[Environment Agency guidance note SGN5.06](#)

[Rejection of hazardous waste](#)

Pre-acceptance request form

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